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MEATING THE CHALLENGE OF OVERCONSUMPTION:

Making Sense of Legitimacy Challenges in the Meat Industry

JURY

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Abstract

Addressing unsustainable over-consumption of products and/or services has profound implications for business. The very existence of the corporation in modern industrialised economies is based on the premise of providing increasing returns for stockholders through the provision of goods and services to meet consumer demand. The notion that this activity should be curbed in some way such as to address issues of overconsumption threatens legitimate goals of the corporation to operate within a model of continued growth. Overconsumption, however, is a serious societal issue which threatens the biophysical environment that supports humanity (and business) to thrive. This thesis utilises a case study of a sector that is currently facing challenges to the legitimacy of its business due to concerns about overconsumption of its products. The meat industry is identified as of particular relevance due to diverse and compelling concerns related to meat overconsumption, including serious environmental, ethical and health consequences. The central questions in this thesis are: How do business leaders in the meat industry make sense of the challenges of achieving sustainable meat consumption? How does this translate in practice? What does this imply? A series of studies explores these questions from different perspectives, from within the industry, as well as from external pressure sources that prompt reaction from the industry including news-media and downstream value-chain partners. The aim being to examine how the meat industry socially constructs and negotiates its response to legitimacy challenges from stakeholders calling for reduction in meat consumption. The investigation showed that the future role of meat as a central part of a healthy and sustainable diet is being challenged - from multiple perspectives, across highly respected forums and in a sustained and organized manner. Media framing analysis also demonstrated that the meat industry is negatively framed as powerful, aggressive and combatant in responding to criticisms of the health and sustainability credentials of meat. In-depth interviews with meat industry leaders, however, suggest that industry participants struggle to understand how to respond to the problem of overconsumption and how to appropriately address external stakeholder challenges on the topic. The industry therefore remains orientated towards a defensive and reactive response and therefore faces the risk of remaining in a vicious cycle of defending and losing legitimacy. Industry leaders believed there was a valuable role to play in addressing issues, however, this role was considered complex and often conflicting with traditionally-held business objectives. Beyond the importance of shedding light on how business perceives its role in addressing overconsumption, this thesis also offers interesting insight into the processes of framing and sensemaking at industry level in response to legitimacy challenges in the marketplace.

Keywords: Meat Industry, Legitimacy Theory, Sensemaking, Framing, Overconsumption

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INTRODUCTION

The way humanity now consumes and produces many of its goods and services is unsustainable. But how do companies respond to this issue and what are the boundaries of responsibility for companies addressing over-consumption of their goods and services? Some would argue that the only legitimate activity for business is to focus on growth and to ensure the best return to shareholders. This approach most notably put forward by Friedman (1970) does not leave room for any "social conscience" that would result in efforts from businesses to help solve big social problems, such as addressing overconsumption of products and/or services. Even within more broadly accepted corporate social responsibility frameworks such as stakeholder theory, where businesses go beyond legal compliance and pursue sustainability-related activities for purposes beyond profit-maximisation, there appears limited room for considering that there is a legitimate role for businesses to contribute to curbing overconsumption of their own products and/or services. At the same time, growing concerns around overconsumption threaten the legitimacy of specific production methods, products, services and businesses themselves. This is often brought to bear through high-profile and sustained campaigns from external pressure sources such as environmental NGOs, animal welfare movements, health advocacy groups aimed at reducing consumption of those products and /or services.

The starting point of this thesis was that businesses are increasingly challenged by issues of overconsumption of their products/services and that these challenges represent in many cases threats of legitimacy to the corporation. In this respect, businesses will react to address these legitimacy challenges, yet because of the complexity of the issue, and its challenge to the very nature of the current model of growth, businesses will struggle as to how to make sense and frame their responses. How companies or sectors make sense of, and frame their responses, to legitimacy challenges associated with overconsumption are, however, critical in understanding the ways in which business might play a future role in addressing them. This is important for several reasons: firstly, currently businesses arguably play the biggest role in influencing consumption patterns across societies (including overconsumption); secondly, businesses are powerful stakeholders in society and must be involved in tackling the problem if durable long-term change towards more sustainable consumption is achieved. Most importantly, the anthropogenic-caused pressures now impinging on the capacity of the earths biophysical

system to sustain humanity are now so serious, and potentially life-threatening, that action is urgent from all parts of society.

The consumption of meat is one such issue that highlights the complexities of addressing overconsumption. Perhaps no other food or widely consumed product receives the breadth and depth of attention that meat receives. The intersection of virtually every debate that emerges in sustainable consumption can be found in a discussion on the considerable positive and negative impacts that occur from the production and consumption of meat. For some, meat inspires and nourishes. For others, meat represents the ethical failings of a modern society in which "the morality and sustainability of one's diet are inversely related to the proportion of animals and animal products in one's diet" (Henning, 2014, p. 86). There are few comparable products that are as inherently challenged by such a range of serious ethical, economic, health, social and environmental complexities yet also remain as an important provider of substantive benefits, including nutritional security for many populations. Therefore, the production and consumption of meat provides a highly relevant and urgent example of a business sector facing serious and sustained challenges based on concerns regarding overconsumption.

Ethical issues associated with animal welfare, health concerns over the potential link to non-communicable diseases such as cancer, the environmental impacts caused from the production of meat like significant greenhouse gas emissions produced in animal production systems, major transparency issues across the supply chain (e.g. 2014 European horsemeat scandal) and a number of serious safety issues related to the spread of zoonotic diseases (e.g. swine flu) and antibiotic resistance, represent serious and complex issues that confront the industry. These issues are linked to increasing patterns of overconsumption of meat products, which are in turn driving negative environmental, health and ethical outcomes. Thus, the meat industry is coming under pressure to respond to these concerns in a range of forums and at multiple diverse levels. These include: regulatory-led processes involving the development of national-level dietary guidelines; the elaboration of international standards, protocols and/or principles; a growing research focus on sustainable food systems policy and action; and increasing public discourse in reaction to civil society campaigns to reduce meat consumption. Major global sustainability challenges such as climate change, biodiversity loss, obesity, famine, urbanization, waste, water scarcity and pollution are also contributing to a growing focus on food, and specifically meat consumption. The combination of real and/or perceived serious concerns about the sustainability of current meat consumption along with the persistent public focus on these concerns is therefore leading to a growing re-

evaluation of the role of meat within a modern, sustainable, ethical and healthy diet. This presents enormous challenges to the meat industry. If current production and consumption of meat is no longer seen as desirable, proper or appropriate then it could be considered that the industry (and individual entities) may be facing a challenge to legitimacy.

The industry already undertakes a variety of legitimation actions aimed at maintaining and sometimes repairing legitimacy. Yet the industry has also traditionally enjoyed a strong and enduring societal acceptance of meat as being a valuable and critical component of the diet. This acceptance is being increasingly challenged. The cumulative effect of legitimacy challenges across such a broad range of issues is also likely to prove to be an increasingly demanding area for the meat industry to manage. Exploring how the meat industry frames and makes senses of legitimacy challenges offers a rich opportunity to better understand how industries are coping with legitimacy threats but also how they make sense of the wider societal problem of overconsumption, and their own role in addressing that. Both quantitative and qualitative research is lacking in the area. A review of studies showed a predominance of legitimacy-related research examining corporate social disclosures, as well investigation of legitimation in response to one-off disruptive events. There appears a paucity of research looking at erosion of legitimacy over time through continuous and diverse attacks on legitimacy, and there appeared to be little research looking at how an industry makes sense of legitimacy challenges relating principally to the problem of overconsumption. A great deal of legitimacy research is based on appraisals of public documents and written statements, which while being very useful in themselves, overlooks an important opportunity to build up an understanding from within an industry, in response to legitimacy challenges, and based on collecting data from 'live' participants. There is benefit for example, in understanding if the meat industry itself believes that its legitimacy is being challenged, and if so - on what issues and to what degree of severity. Understanding industry perspectives on institutional legitimacy versus strategic legitimacy would also offer rich insight into sensemaking on the issue.

There is a paucity of academic work carried out on the meat industry that seeks to understand how decision-makers within the industry make sense of the sustainability pressures it is facing, especially on issues related to meat consumption. Yet, as discussed, it is an industry that is facing increasing and significant challenges on its sustainability credentials. Together these can be considered as threats to legitimacy, contributing to sustained reappraisal of the role of meat as a major part of a healthy and sustainable diet, and to the legitimacy of the

meat industry itself in meeting societal expectations. There are therefore three primary objectives in this research:

(i)   To identify how the role of meat as part of a healthy and sustainable diet, and the meat industry itself, is being challenged in public discourse;

(ii)   To identify how managers in the meat sector makes sense of the challenges of achieving sustainable meat consumption and threats to legitimacy; and

(iii)   To refine and further develop legitimacy theory by developing a model designed to understand better the relationship between sensemaking and managing legitimacy in response to legitimacy threats.

The role of business, specifically the meat industry to respond to issues associated with overconsumption is of considerable interest if we are to address concerns in a long-term and sustainable manner. Understanding how business decision-makers view the issue is therefore of importance. This research is exploratory and thus the framework used throughout this thesis attempts to build a more holistic picture of the different issues, pressures and responses that might impinge on business decision-making and lead to specific responses. The structure of this thesis is made up of 4 chapters which seek to demonstrate how the meat sector is 1) challenged by issues of overconsumption and 2) makes sense of these challenges.

The methodological approaches chosen recognises that research on this topic is not well-advanced and further that the purpose of this thesis was to inductively build up an exploratory account of sense-making within the meat industry in relation to challenges to legitimacy. Accordingly, the thesis draws on a social constructivist paradigm. Social constructivism is based on several assumptions (Crotty, 1998): that humans construct meaning as they engage with the world they are interpreting; that how humans engage with the world and make sense of it is based on their historical and social perspectives; and, that the basic generation of meaning is always social, arising in and out of human interaction. Social constructivism thus considers interaction, language, communication, culture and context to be key elements in shaping individuals' understanding of knowledge and reality and thereby also societal processes and knowledge construction at large (Derry, 1999; McMahon, 1997). A multi-method quantitative approach was chosen using framing analysis, sensemaking, and case-study strategies to draw out multiple diverse perspectives. Grounded theory approaches are used extensively throughout the study. Grounded theory as a method of investigating basic underlying social processes and building theory based on rich data collected from the field

(Glasser, 1978) provides a useful and refreshing contribution to this complex area. As well, it can aim to help inform emerging policy and practice within the meat industry.

The structure of the thesis is as follows. The challenge of sustainable meat consumption and the importance in addressing issues that confront the industry regarding this topic is discussed in Chapter 1. Chapter 2 explores the theoretical background to the thesis. The relevance of Legitimacy theory is discussed with specific examples drawn from the meat sector to help draw out potential questions that might arise in the qualitative studies following. Exploration on Sensemaking and Framing and their potential contribution in aiding deeper understanding of how the meat industry makes sense of threats to legitimacy is then addressed. Chapter 3 discusses the methodologies used in understanding the pressures confronting the industry, as well as the wider contextual environment and the industries own sensemaking efforts in response. This requires several different qualitative methods to enable the problematique to be studied from different perspectives. Chapter 4 presents the findings from the exploratory studies outlined in Chapter 3. Results of each investigation are discussed in detail. Linkages between framing, sensemaking and the case study approaches are also identified. Finally, Chapter 5 summarises the results across the papers, discusses the limits of the dissertation, the potential future research opportunities, and the possible implications for the meat industry and public policy.

RESEARCH OBJECTIVES

Legitimacy theory indicates that a corporation will react to issues where its reputation and/or its ability to continue to operate successfully, is threatened. This threat comes about because of perceived inconsistencies between the corporation's norms and values, indicated by its actions and activities, and the norms and values of the society in which it operates. The goal therefore is to understand how legitimacy theory can serve as a useful guide to how the meat industry makes sense of, and responds to, challenges based around the legitimacy of its product/s as being key components of a healthy, ethical and sustainable diet. Therefore, there are three main objectives of this research. The first is:

Objective 1: To identify how the role of meat as part of a healthy and sustainable diet is being challenged in public discourse, along with the meat industry itself. To achieve objective 1, this research will:

(i)   Establish what the challenges to legitimacy are, with respect to the environmental, health, and ethical impacts related to the overconsumption of meat, and identify the role of different actors;

(ii)   Understand how the meat industry is being framed by influential stakeholders such as the media, as well as how the role of meat in the human diet is being framed in public discourse.

Objective 2: To identify how managers in the meat sector makes sense of the challenges of achieving sustainable meat consumption and threats to legitimacy. To achieve objective 2, this research will:

(iii)   Determine the processes by which the meat industry is making sense of the challenges to current meat consumption and what actions are perceived as legitimate by the industry.

Objective 3: To refine and further develop legitimacy theory by developing a model designed to understand better the relationship between sensemaking and managing legitimacy in response to legitimacy threats. To achieve objective 3, this research will:

(iv)   Identify the level of concern within the industry as to perceived threats to a legitimacy from challenges based on concerns associated with overconsumption of meat products;

(v)   Identify the motivations and commitment to sustainability across the sector to ascertain internal and external drivers for action;

(vi)   Identify and categorise frames used by the meat industry in making sense of legitimacy threats;

(vii)   Identify any industry blockages to sensemaking efforts;

(viii) Identify innovative business strategies by downstream "gatekeepers" which may provide valuable insight to any future meat industry responses;

(ix)   Explain any relationships observed between the variables identified above; and

(x)   Develop a legitimacy theory model, designed to explain the extent of relationships observed.

BACKGROUND TO CHAPTER STUDIES

The following section provide further detail on each chapter and any relevant contextual background. Figure 1 outlines the framework of the thesis.

I. Issue: The Challenge of Sustainable Meat Consumption

II. Theoretical background: institutional theory and sensemaking and framing

- Legitimacy theory and its potential applicability to the meat sector
- Framing
- Sensemaking

III. Methodology

- Understanding legitimacy in the meat sector through framing
- Understanding how fastfood burger retailers makes sense of legitimacy issues of meat
- Understanding how managers make sense of legitimacy issues in the meat industry

IV. Findings

- Findings part 1: The framing elements
- Findings part 2: Identifying potential downstream signals
- Findings part 3: Sensemaking by industry
- Findings part 4: Links between framing and sensemaking

V. Discussion: Theoretical and practical contributions

Figure 1. Framework of Thesis

Chapter 1: The Challenge of Sustainable Meat Consumption

Chapter 1 draws attention to the urgent need for action to address the negatives impacts of consumption on our environment and health. It addresses diverse and serious concerns related to unsustainable meat consumption. An understanding on the pressures facing the meat industry from various stakeholder groups regarding growing concerns around sustainability, health and ethical issues resulting from the overconsumption of meat is developed. The importance of a holistic and systems-driven perspective is discussed.

Chapter 2: Theoretical background: legitimacy theory, sensemaking, framing

Chapter 2 discusses the theoretical background of the research drawing on legitimacy theory, sensemaking and framing.

i)   Legitimacy Theory

This section reviews and evaluates the use of legitimacy theory to develop a better understanding on how the industry might frame, make sense of, and respond to the challenges it faces related to demands to address unsustainable meat consumption and production. Examples are used to illustrate the application of legitimacy theory to the meat industry. Several research avenues are recommended for further investigation. Finally, the use of a combination of multiple perspectives and research approaches is stressed as being critical to forming a deeper appreciation of legitimacy management within the industry.

ii)   Framing

According to Nisbet (2010, p. 44): "framing is an unavoidable reality of the public communication process. The choice as a journalist, expert, or advocate is not whether to employ framing, but rather how to effectively frame a message for your audience." News media represent a key derivative stakeholder for the meat industry with significant power to communicate and potentially influence stakeholder decision-making. Understanding the use of frames and their appearance in public debate on sustainable meat consumption can help shed light on how societies are currently negotiating the role of meat in consumption. This section reviews relevant literature around framing, including the use and function of frames in public discourse. Framing analysis is discussed with the use of a signature matrix approach. Relevant framing studies investigating sustainability, food, environmental and health issues are examined. Studies that highlight framing of industry in media reporting on relevant issues are highlighted. Limitations of framing are then considered.

iii)   Sensemaking

Sensemaking can help shed light on the process by which the meat industry "develops some sort of sense regarding what they are up against, what their own position is relative to what they sense, and what they need to do[1]". This section introduces sensemaking, its seven characteristics, and its applicability in understanding how organizations navigate challenges to legitimacy. Attention is given to the differences between ambiguity and uncertainty in sensemaking literature. The importance of frames or narratives that might emerge in sensemaking occasions are discussed, along with the relevance of prospective sensemaking. Finally, the limitations of sensemaking are canvassed.

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[1] Weick (1999, p42) defines sensemaking as a response to events in which "people develop some sort of sense regarding what they are up against, what their own position is relative to what they sense, and what they need to do"

Chapter 3: Methodology

Chapter 3 focuses on framing, case study and sensemaking methodologies used in the thesis. The following outlines the order of discussion.

i)   Framing study

The methodology for the framing analysis, based on two high-profile events that challenged the role of meat in a healthy, ethical and sustainable diet, is outlined. These events, the release of the Scientific Report of the American Dietary Guidelines Advisory Committee (February 2015), and the release by the World Health Organizations' International Agency for Research on Cancer (IARC) (October 2015) evaluation of the carcinogenicity of the consumption of red and processed meat, drew significant public attention. A qualitative framing analysis of media reporting, based on 159 news articles, is described.

ii)   Case-study

An exploratory case study approach using a descriptive qualitative approach and drawing on content analysis of publicly available information across 15 fast-food burger restaurants is described. A smaller sample of 7 restaurants are then purposefully selected to compare initiatives across sustainable meat consumption in more detail and according to size and age profile of the company. To complement the material gathered, further assessment of actions by Max Burgers Sweden, is then investigated. The methodology underpinning the in-depth interview with the Chief Sustainability Officer for Max Burgers is set out. Coding and categorization of data is then discussed along with limitations of the case study approach.

iii)   Sensemaking

The methodology for the sensemaking investigation is outlined. Based on a grounded theory approach, the process of conducting in-depth interviews with key industry leaders is presented. The coding and categorization process of themes that emerge from the interview data and which the industry uses as guiding frames to make sense of challenges to legitimacy is described. Limitations of the methodology are discussed.

Chapter 4: Findings

Results of the investigations are presented. This Chapter is divided into four sections to reflect the different elements of the thesis, with Part 4 focused on discussing linkages that emerge from across the different investigations.

i)   Part 1: Framing of meat and the meat sector

The findings from the framing analysis of the meat and the meat sector are presented. Discussion of the nine dominant frames that emerged in media reporting on the two events under investigation is provided. The use of framing devices to increase salience of issues is also examined.

ii)   Part 2: Fast-food retailers: making sense of potential down-stream signals

Results from a review of actions undertaken by fast-food burger retailers in response to challenges associated with sustainable meat consumption are provided. Data gained from the in-depth interview with the Chief Sustainability Officer of Max Burgers Sweden is also included as a relevant tool for industry to understand downstream innovation by meat retailers who are actively addressing sustainability issues concerning meat consumption.

iii)   Part 3: Sensemaking by managers in the meat industry

Results from the grounded theory investigation on sensemaking by managers in the meat industry are presented. 15 thematic sub-frames, and 6 overarching categories that emerge as characteristics of sensemaking by industry are identified and discussed. Examples from the 12 in-depth interviews with senior managers from the meat industry are used to illustrate sensemaking efforts. Three of Weick's (2005) seven characteristics of sensemaking, identity construction, extracting cues, and enactive of sensitive environments, are identified as being of relevance. Three other aspects, industry structure, ambiguity/uncertainty, and prospective sensemaking, that arise in the investigation are also addressed.

iv)   Part 4: Links between framing, sensemaking and legitimacy theory

Major links between the findings across all three investigations in relation to legitimacy theory are discussed. A potential model for demonstrating current positioning of the meat industry with regards to current sensemaking efforts and legitimation is discussed. Possible implications of this model are then outlined.

Chapter 5: Conclusion

Chapter 5 will evaluate the main results of the research and implications for the meat sector, as well as the development of public policy. The limits of this research will then be examined and possible ideas for extension identified.

Delimitations of scope and key assumptions

The research pertains to understanding how the meat industry the meat industry makes sense of, and responds to, challenges based around the legitimacy of its product/s as being key components of a healthy, ethical and sustainable diet. In this sense, the meat industry is defined as comprising of producers and processors of meat, or representatives thereof, who are involved in business-to-business trading relationships and sell meat. This excludes those in the meat sector who are selling directly to consumers, such as butchers or small farm enterprises selling at the farm gate or in local community cooperatives. Individual farmers are also excluded from any sampling. This decision was made to simplify the unit of analysis from what is already a complex and diverse set of stakeholders in the meat value chain. To enrich knowledge on powerful downstream stakeholder demands, a limited case-study looking at meat-centric (hamburger) restaurants is included, however, this is included from the perspective of stakeholder demands and pressures, outside the meat industry, like news-media.

Consumption of meat per se is not the subject of interest in this paper. Addressing overconsumption is not aimed at elimination of meat from the human diet. While it is noted that there are interest groups that do argue for such an outcome, and often passionately for various reasons, this argument is not currently seen as realistic nor beneficial to society from an environmental, social or economic perspective. A healthy and sustainable diet does not need to eliminate whole food groups to achieve its objectives. But it does need to be cognisant that our diets are a powerful reflection of our sustainability as a species.

The focus is therefore squarely on the overconsumption of meat, that is, where levels of meat consumed exceed healthy dietary levels and/or impact negatively on animal welfare and/or impact on the carrying capacity of the biophysical environment to such a degree that serious harm is caused, to illustrate just three examples. It is also stressed that issues related to overconsumption are not isolated to the meat sector. Overconsumption is part of a wider societal problem which is threatening the capacity of the Earth's biophysical system to provide a safe and supportive operating system for humanity to thrive. One can point to numerous products and services which are vastly overconsumed. In almost all respects, many consumers need to buy less, eat less, use less, and waste less.

CHAPTER 1

OVERCONSUMPTION

Chapter 1 is divided into two parts. Part 1 examines the need to address overconsumption. Part 2 looks at meat as a prominent example of growing public attention on issues related to overconsumption.

PART 1

1.1 Introduction

In Part 1, the problem of overconsumption is discussed. Serious concerns around the ability of the earth's planetary boundaries to support future sustainable development of humanity in an optimum manner is addressed explicitly. The various ways to address overconsumption and the role of business is then considered.

1.2 Consumption

1.2.1 The Great Acceleration

According to Steffen et al. (2015b) the last 60 years have without doubt seen the most profound transformation of the human relationship with the natural world in the history of humankind. This profound transformation is often referred to as the "Great Acceleration", denoting a period from the second half of the 20th Century-onwards where human activities and impacts sharply accelerated (Steffen, Crutzen & McNeill, 2007). Simply, across this period our consumption has rapidly increased as our populations have grown, become wealthier, more mobile and connected, and supported by technology innovation that has led to substantial behavioural change. This change can be illustrated through selected socioeconomic trends over the last 100 years in Figure 2 which illustrate sharp upwards trend from 1950 onwards across all indicators. This acceleration in consumption, however, also comes with significant questions as to whether this is sustainable, not just over the long term, but in the immediate future. This is because the way in which we are consuming in now impinging on the capacity of earth's biophysical systems to support humanity in the optimum way. It is also noted that growth has not been equitable across countries. Most of the population growth since 1950 has been in the non-OECD world but the world's economy (GDP), and hence consumption, is still strongly dominated by the OECD world, with OECD

countries accounting for 74% of global GDP in 2010, but with only 18% of the global population (Steffen, Broadgate, Deutsch, Gaffney, Ludwig., 2015, p.91). However, the BRICS countries (Brazil, Russia, India, China and South Africa) and some other developing countries with rapidly growing economies and associated rising middle-class populations are now consuming at increasingly higher rates.
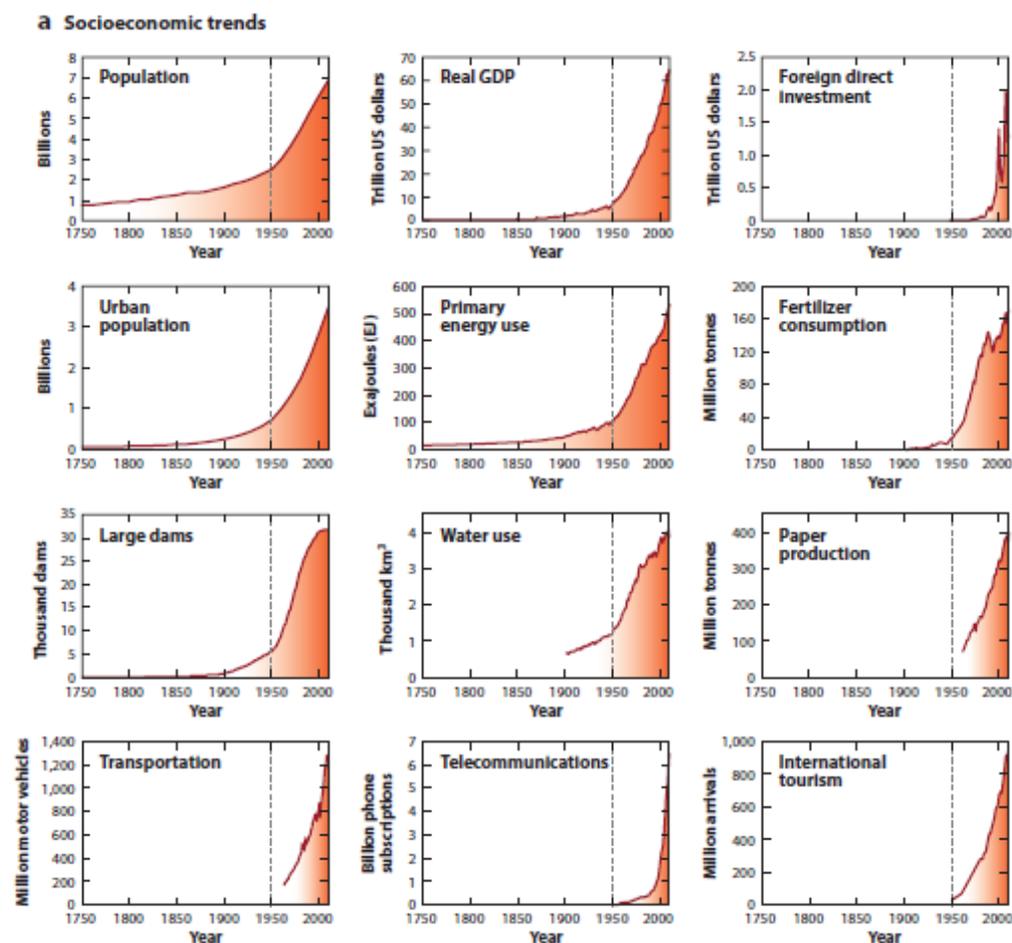
Figure 2. Trends from 1750 to 2010 in globally aggregated indicators for socio-economic development. This figure is taken from Steffen, Broadgate, Deutsch, Gaffney, Ludwig (2015, p. 84).

1.2.2   Increasing environmental impact (IPAT)

Our growing consumption has resulted in substantial and increasing environmental impacts. A simple way to visualise how population (P), affluence (A), and technology innovation (T) drive human impacts on the environment (I) is the IPAT equation (Ehrlich & Holdren,1971). Essentially, it states that negative ecological impacts increase as affluence and population grow and decrease with technical efficiency improvements (O'Rourke & Loola, 2015). As a framework for demonstrating the driving forces of environmental change it can show simply the substantial change over the last 100 years. Figure 3 demonstrates the major impact of population and affluence, with affluence being a proxy for consumption in the equation. The

rise in consumption is of particular importance. Bradshaw, Giam & Sodhi (2010) found that increasing wealth was the most important driver of environmental impact across the 228 countries analysed within their study. Toth & Szigeti (2016, p.283) state that the main driver of growth and environmental degradation from the 1970s-onwards is a result of consumption
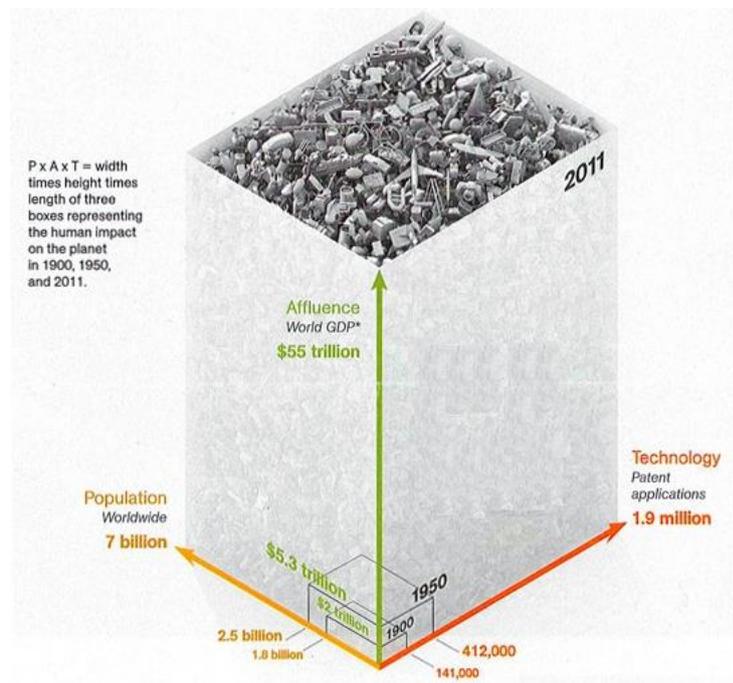
Figure 3. Visual Representation of the IPAT Equation. From National Geographic, March 2011.

patterns and levels multiplied by the number of consumers, especially in developed economies. Therefore, without major behavioural change (e.g. shift to more sustainable patterns of consumption) and in the absence of major technological advancements that more effectively decouple environmental degradation from consumption, then environmental impact will continue to increase markedly.

1.2.3   Ecological footprint

Bastianoni et al., (2013) point out that the human use of resources and services within the planet's regeneration capacity (or biocapacity) is a necessary condition for sustainable human societies and economies. Yet, humanity is already operating beyond this capacity. From an ecological footprint perspective (Wackernagel and Rees, 1996), a measure that considers human demand on the planet's resources relative to the Earth's supply of biologically productive areas, humanity is using 1.6 times more ecological "budget" than is available (Global Footprint Network, 2016). The general principle of the ecological footprint concept is that resources should not be consumed faster than they are regenerated, and waste should not

be emitted faster than ecosystems can assimilate it (Lin & Wackernagel, 2014). The ecological footprint is thus a measure of how fast we consume resources and generate waste, and how fast nature can absorb that waste and generate new resources (GFN, 2017). Developed countries have high rates of consumption per capita and correspondingly high per capita ecological footprints. For example, each person in the United States require 8.59 global hectares to sustain current consumption levels whereas in the China, each person requires 3.59 global hectares per person[2]. There is also a strong relationship between greenhouse gas emissions per capita and income per capita with wealthier countries having higher emissions per capita largely due to higher rates of consumption and more energy-intensive lifestyles (WRI, 2005). Blair and Sobel (2006) found in study on "luxus consumption" between 1983 and 2000 in the United States, involving food waste and overconsumption which leads to storage of body fat, health problems, and excess resource utilization, that food availability (food consumption including waste) increased by 18% or 600 kcal (2.51 MJ) per person. And that overconsumption alone required an additional 0.36 hectares (ha) of land and fishing area per capita, 100.6 million ha for the US population, and 3.1% of total US energy consumption (p.63).

1.2.4   Rising middle class in developing countries

Difficulties, with regards environmental impact, increase dramatically when countries with low consumption per capita move towards higher individual consumption levels that emulate Western patterns of overconsumption. For instance, while consumption in developing countries show historically low per capita consumption, this is changing rapidly in emerging economies which have experienced rapid economic growth. China for example, which accounts for some 29% of total global emissions (Olivier, Janssens-Maenhout, Muntean & Peters, 2016) has had historically low per capita GHG emissions. However, increasing personal affluence has resulted in significant increases in per-capita GHG emissions and consumption in general over the last 20 years. Wiedenhofer et al. (2017, p. 75) found that between 2007 and 2012 the total GHG footprint from Chinese households increased by 19%, with 75% of the increase due to growing consumption of the urban middle class and the rich. Also, in 2012, urbanised wealthy Chinese, comprising just 5% of the population, induced around 19% of the total carbon footprint from household consumption in China (p.

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[2] The ecological footprint as expressed in global hectares is a measure of how much area of biologically productive land and water an individual requires to produce all the resources he/she consumes and to absorb the waste he/she generates, using prevailing technology and resource management practices. (GFN, 2016)

75). Other indicators show large increases in consumption. Increasing affluence in most societies is linked to increased consumer demand for livestock-derived protein (Popkin and Du, 2003). In China, meat consumption doubled from 1990 to 2000 (Myers & Kent, 2003). According to Shimokawa (2015, p.1024) China's per capita meat consumption is forecast to increase by 2.4% annually from 2013 to 2023 with total consumption increasing from 84.5 million metric tons to 98.5 million metric tons in 2023, to be almost 2.5 times larger than that in the US. It is noted, however, that this increased per capita consumption level in China (54.6kg) would still be 57.7% of that in the US (94.7 kg) in 2023 (Shimokawa, 2015, p.1024). In 2000, car purchases in China represented 1% of global car sales, by 2010 this had increased to 13% and China now represents the world's largest car market (OECD, 2010). In 2016, over 28 million automobiles were sold in China up 13.7 percent on the previous year[3]. In 2016, the volume of online retail sales rose 26.2 percent over the previous year to US$755.3 billion in 2016[4]. From an ecological footprint perspective, China requires 5 billion global hectares to sustain current total consumption levels compared to 2.7 billion global hectares required by the total population of the United States. Therefore, the rapidly growing middle class in China and in other developing countries creates a considerable rise in total global consumption. In turn, this has enormous implications on future global aspirations for sustainable development.

1.2.5   Increasing population

While global population growth is slowing, the world's human population is still expected to increase by a further 2 billion to 9.6 billion by 2050 and towards 11 billion by 2100 (UNDESA, 2012). This growth in population and consumption is happening at a time where already more than 80 percent of the world's population live in countries that are running ecological deficits, that is, using more resources than what their ecosystems can renew (GFN, 2016). Further, natural resources are not always limitless.

So, if we are to continue to consume in the same manner, then we must simply ask ourselves "where will all the resources come from to meet the demands of our growing, wealthier global population?". Or, can we live in a different manner and be healthier, happier and more sustainable? The answers to these questions involve more than a focus on technology as the solution. The ability of technology innovation alone to ameliorate the combined negative

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[3] *China Daily* (21 February 2017) China's consumption to maintain strong growth in 2017. At http://www.chinadaily.com.cn/business/2017-02/21/content_28288559.htm. Accessed 15 March 2017.
[4] Ibid.

environmental impacts of increasing population and increasing affluence is highly unlikely. Profound changes in how and what we produce and consume, along with technology innovation to both reduce environmental impact and support more sustainable lifestyles, is needed.

1.3   Urgent Need for Action

The illustration of the Great Acceleration with regards socioeconomic trends as set out in the previous section provides a clear indication of the scale and acceleration of human activities and indeed consumption over the last century. To appreciate the impact on the natural environment one can look at earth system trends over the same period as shown in Figure 4. Like Figure 2, this also demonstrates rather starkly the increase in impacts over a range of indicators related to earth systems trends that human activities have contributed to and shows a major acceleration of impacts starting from the 1950s.
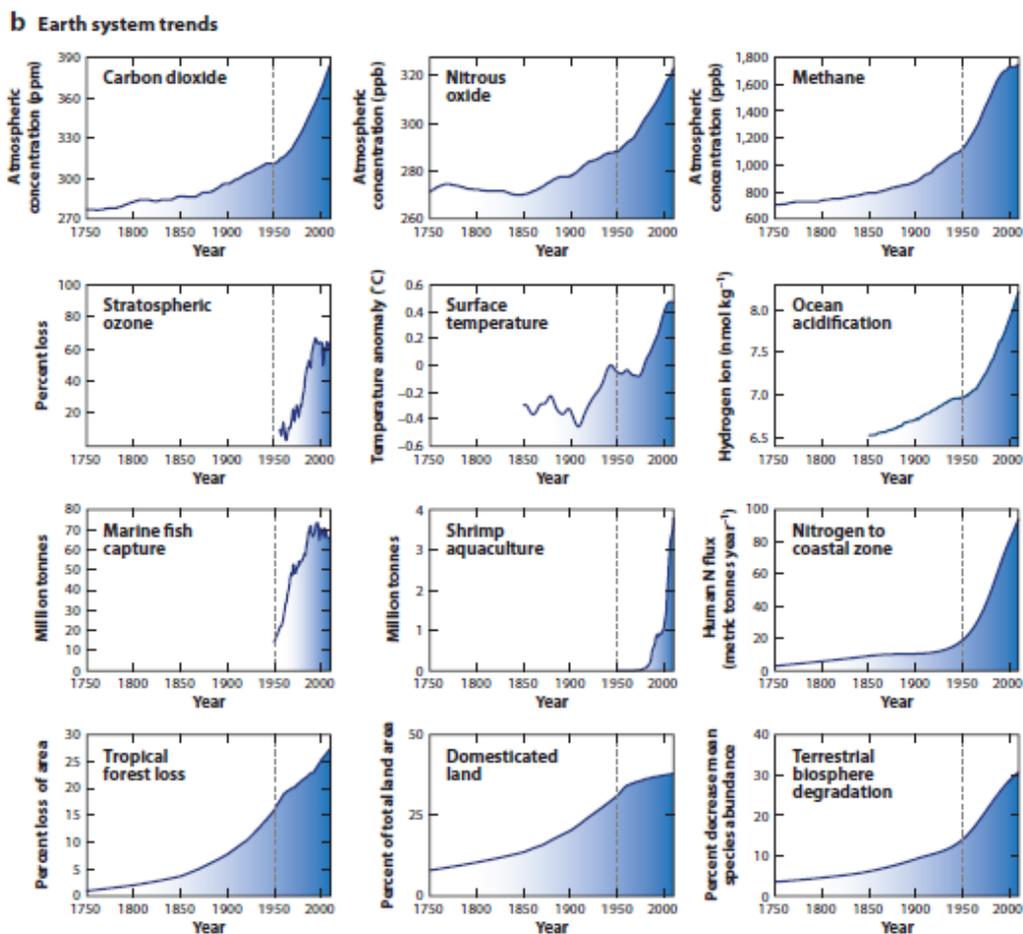
Figure 4. Trends from 1750 to 2010 in globally aggregated indicators for earth system trends. From Steffen, Broadgate, Deutsch, Gaffney, Ludwig (2015, p. 86).

1.3.1   Planetary Boundaries

Rockstrom et al (2009) point out in *"Planetary Boundaries: Exploring the Safe Operating Space for Humanity"*, that humanity has flourished over the last 10,000 years because the biophysical environment in the Holocene age has provided a safe and supportive biophysical environment for humanity (and agriculture) because of stable and warm climatic conditions. This seminal paper, supported by updated papers released since (e.g. Steffen et al, 2015) suggests that humanity is now crossing into a new era, called the Anthropocene, so described because humans constitute the dominant driver of change to the Earth System (Crutzen 2002, Steffen et al. 2007). The Planetary Boundaries research demonstrates that the impact of humanity through its production and consumption is now so great that it is now having an undeniable impact on local, regional and global biophysical support systems. Accordingly, the scale, pace, and impacts of humanity on the Earth's biophysical system have "have reached a scale where abrupt global environmental change can no longer be excluded" (Rockstrom et al, 2009, p. 13).

The planetary boundary concept aims to define environmental boundaries within which humanity can safely operate within (Rockstrom et al, 2009). The underlying premise of this concept is based on the understanding that humans develop and thrive on earth within an ideal set of biophysical conditions or planetary boundaries. The development of humanity today is therefore a consequence of, and is also reliant on, the conditions supported by a stable biophysical system. To avoid unacceptable global environmental change, which would potentially destabilise human development, humanity should therefore aim to operate within the Planetary Boundaries. Therefore, a boundary exists for each critical biophysical system This boundary is set at a "safe" distance from a dangerous level (for processes without known thresholds at the continental to global scales) or from its global threshold (Rockstrom et al., 2009) which if surpassed might tip the biophysical system into a new state. Transgressing one or more planetary boundaries may be catastrophic due to the risk of crossing biophysical thresholds that might trigger non-linear, abrupt environmental change within continental- to planetary-scale systems (Rockstrom et al., 2009). The boundary therefore seeks to represent an early-warning device or initial "alarm-system" placed upstream of the position of the biophysical threshold and within a safe operating space.

1.3.2   Nine planetary boundaries

Nine planetary boundaries are currently identified, seven of which are quantified to some degree. The nine planetary boundaries identified cover the global biogeochemical cycles of nitrogen, phosphorus, carbon, and water; the major physical circulation systems of the planet (the climate, stratosphere, ocean systems); biophysical features of Earth that contribute to the underlying resilience of its self-regulatory capacity (marine and terrestrial biodiversity, land systems); and two critical features associated with anthropogenic global change (aerosol loading and chemical pollution) (Steffen et al., 2015). These are shown in Figure 5.

Climate change is the issue perhaps that most people would recognise as a phenomenon that is human induced and that threatens the sustainable development of all humanity. But climate change is not alone. Based on extensive studies, the evidence shows that we are already operating well beyond two of the planetary boundaries, genetic diversity (related to biodiversity) and biochemical flows (related to phosphorous and nitrogen pollution). We are operating outside the boundaries of two others – climate change and land-system change in a zone of uncertainty or increasing risk.
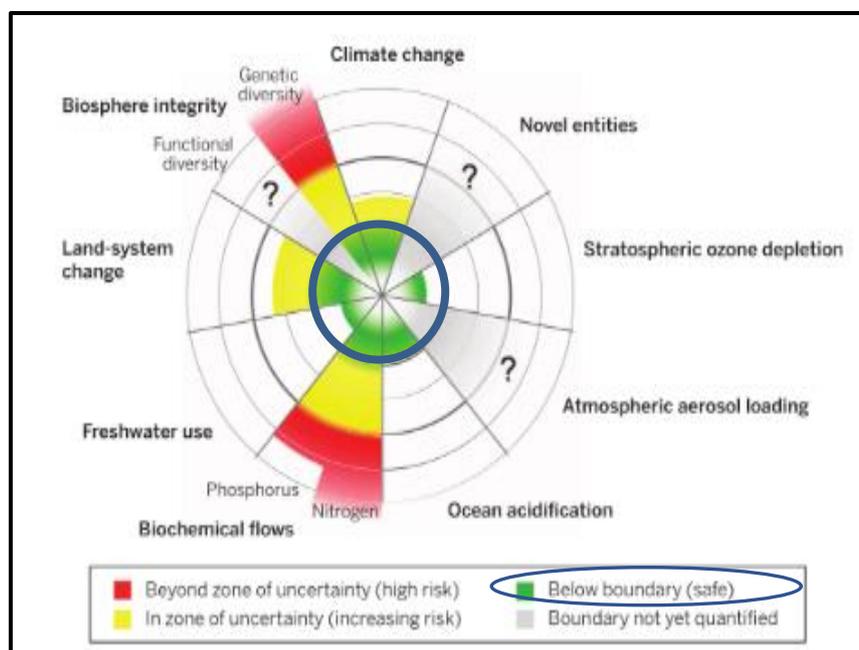
Figure 5. Nine Planetary Boundaries, Steffen et al (2015). A thicker line has been added to show more clearly the Planetary Boundary in the case of black and white printing. Note that boundaries have not yet been qualified for some Planetary Boundaries, marked by a question mark.

1.3.3 Health and wellbeing

If the warning of possible catastrophic environmental change or impacts was not sobering enough we can also look at overconsumption through another lens, that is through our health and wellbeing. Globally, we are faced with an "obesity" epidemic. According to the World Health Organisation, 39% of men and 40% of women aged 18+ were overweight and 11% of men and 15% of women were obese in 2014 (WHO, 2017). Thus, nearly 2 billion adults worldwide were overweight and, of these, more than half a billion were obese. Both overweight and obesity have shown a marked increase over the past 4 decades. From 1975, overweight rates have risen by just under 21% in men and from just under 23% in women (WHO, 2017). Numbers of overweight people now represent two-and-a-half times more people than chronically undernourished people[5]. More than one in three adults are overweight. Once considered a high-income-country problem, the numbers of obese or overweight people are now rising in low- and middle-income countries, especially in urban areas and in rapidly growing economies like China, Mexico and Brazil. The economic cost in managing obesity-associated health problems from conditions such as diabetes and heart disease is huge. However, cost to personal wellbeing and health is also considerable. The causes of obesity are complex and different foods contribute to the problem in different ways. Other factors such as genetics and underlying health problems are also factors. However, fundamentally it is the gap between calories consumed and calories used that causes excess energy consumed and that leads to weight gain. Simply, many people just eat too much in comparison to the amount of energy they expend through exercise. Our health therefore depicts a situation where overconsumption is now having a serious deleterious impact on society in general.

Lastly, wellbeing can sometimes be forgotten in discussions on consumption. Yet there is a plethora of studies that show that beyond a certain comfort level that increased consumption does not necessary equate to better wellbeing and happiness (Latouch, 1993; Lyubomirsky, Sheldon, & Schkade, 2005; Jackson, 2009). It is a very complex relationship, yet certainly once an individual's basic needs are met, wellbeing requires more than the ability to over-consume. The wellbeing of future generations will also certainly be tested in the face of

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[5] 795 million people of the 7.3 billion people in the world, or one in nine, were suffering from chronic undernourishment in 2014-2016. (FAO, 2015)

serious negative environmental and health pressures as a result of the overconsumption of natural resources by previous generations.

Responding then to the perils of overconsumption requires a complete transformation of how we currently consume and produce goods and services. We need to consume less, consume better and value consumption in new ways. At the same time, when we produce we must be smarter, more efficient and support behaviour change towards more sustainable consumption.

1.4   Sustainable Consumption

1.4.1   Definition of sustainable consumption

Sustainable Consumption is often discussed as a way to address the negative impacts of consumption. It was defined by the Oslo Symposium in 1994 as, "the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations" (Norwegian Ministry of the Environment, 1994). From a business perspective, much of the focus around sustainable consumption has tended to focus on efficiency measures or partial decoupling along with broader corporate social responsibility measures. This is not to say there has not been efforts to support behavioural change towards more sustainable products or services. Indeed, many parts of the business world have capitalised on huge opportunities around meeting consumer demand for more sustainable products and services (Bockman et al., 2009; Schmeltz, 2012). However, even "green products and services" have environmental impact, albeit lower than their more resource intensive counterparts.

1.4.2   Partial decoupling

Carbon footprinting, where businesses measure and then aim to reduce the GHG emissions caused in the production and consumption of a product, is a good example of an action that many businesses pursue, and which reflects actions towards partial decoupling. Partial or relative decoupling refers to a situation where resource impacts decline relative to GDP (for a country) or a company's annual profit. This does not address, however, the issue of the rise in total environmental impact because in partial decoupling impacts may still rise, just more

slowly than the GDP or profit[6]. The attraction for businesses with carbon footprinting or actions aimed at achieving greater efficiency is that by reducing GHG emissions for example, a business win-win result can often be achieved through productivity improvements, potential cost-savings and better market positioning from a sustainable or climate friendly perspective. It is not surprising therefore to see terms like "greening production", "increasing efficiency", "reducing GHG footprints", "low carbon", "zero waste" used often in company sustainability reports or in public communications.

1.4.3   Rebound, backfire and halo effects of greening products and services

While many products or services may be becoming "greener", it may not be enough to make up for the impacts of increasing consumption. And other factors such as "rebound or backfire effects" should also not be ignored. The rebound effect refers to a behavioural or other systemic response to a measure, taken to reduce environmental impacts, that offsets the effect of the measure (Hertwich, 2005: p. 85). Consequently, the environmental benefits of eco-efficiency measures can be lower than anticipated (rebound) or even negative (backfire) (Jevons, 1865; Saunders, 2000; Sorrell, 2007; Jenkins et al., 2011). For example, if a lower carbon footprint resulted in a reduction of cost, and those cost-savings are passed on to the consumer, this could in turn drive up consumption of both that product, and other products (through savings on the "greener option"), resulting in an overall increase in negative environmental impacts. Further consumers may consume more of a product because they view it as a "green" and/or "healthy" product and feel good about consuming it, an effect called the Halo effect (Chandon & Wansink, 2007). This entails a need to think beyond relative decoupling (where resource impacts decline relative to the GDP but still rise) to a state of absolute decoupling and in some cases, sizeable reduction in consumption of resource-intensive products and services. But can business tackle this issue?

1.5   Strong Sustainable Consumption Approaches

Approaches to achieving strong sustainable consumption consider not only the need for both partial and absolute decoupling of consumption from environmental degradation but also considers consumption as part of a wider social, cultural, economic and political system that exists within, and is supported by the biophysical system (Jackson, 2009; O'Rourke & Lollo, 2015). Such a systems-based approach entails a need for significant behavioural change in

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[6] See Tim Jackson (2009) for an excellent summary of partial and absolute decoupling and its relevance to sustainable consumption.

how we consume and what we value regarding consumption. For example, this directly questions how we perceive "wellbeing" in society and re-examines the often-dominant attachment to consumption as a marker of happiness and/or wealth. This is also likely to involve radical change towards more sustainable low environmental impact lifestyles. Examples of relevant actions investigated included reduced car and air travel (Carlsson-Kanyama & Lindén, 1999), reduction of food waste (Hall, Guo, Dore & Chow, 2009), recycling (Jackson, 2005), organic food (Seyfang, 2006) and decreased meat consumption (Garnett, 2011; de Bakker & Dagevos, 2012). Freidman and Friedman (2010) urge the promotion of values of voluntary simplicity as a solution to tackling overconsumption. The basic idea being to become less materialistic, reduce consumption, and lead a life with more meaning and purpose (Johnston and Burton, 2003). This raises the concept of a 'double dividend' whereby we might 'live better by consuming less'(Jackson, 2005, Jackson, 2008). Other options, which are not mutually exclusive, have included calls for stronger government regulation of production and consumption activities that are resource intensive, for example through calls for the introduction of taxes on meat products to drive a decrease in consumption and aid in mitigation of GHGs (Wellesley, Happer & Froggatt, 2015). Sector specific environmental taxes are considered as more appropriate to help mitigate rebound effects (Saunders, 2011). Bonus and malus schemes are also an option (Maxwell et al., 2011), along with cap and trade schemes at production level to help drive reduced environmental impact at production phase and potentially lead to changes in consumption through price impacts (Durning, 2009). Successful government-led ratings schemes are evident in the whiteware industry and have led to improvement in efficiency and environmental outcomes. Environmental rebates and subsidies have also been used to incentivise changes in consumption by rewarding consumers choosing environmentally friendly products (Speck, 2008). Education and information is also seen as an important tool. A number of initiatives have attempted to shift consumer buying behaviour with communication campaigns related to the use of voluntary environmental labels (green labelling) or information on products (ethical-based production information), although there is varying success on how effective such schemes can be across a wide cross-section of products and people. Ultimately, however, strong sustainable consumption requires a new way of thinking about consumption, one that is not focused on growth in consumption (O'Rourke & Lollo, 2015). This presents a completely different paradigm to our current economic system and many of our societal values. The evidence entails that we must major changes to how we produce and consume, and notably some people must make bigger changers than other. This will extend across all

stakeholders in society -individual, communities, civil society groups, government, and businesses, at all levels and in all countries.

1.6   The Role of Business

The Anthropocene raises an important question: "What is the role of business in addressing the problem of overconsumption?" Businesses exist to supply products and/or services to meet consumer demand and play an important part in influencing consumption patterns. This influence is often considerable and can be a powerful driver in creating and extending demand for particular products. A focus on strong sustainable consumption as outlined in section 1.4 calls for a profound change in how business operates in our society. However, it is not clear exactly what "role/s" business can, and already play in tackling overconsumption.

Before embarking on this thesis, I conducted several preliminary discussions with various business leaders across different industries on the question of sustainable consumption. Feedback pointed to a struggle within companies on how to understand the problem, how to respond, and how to address rising external concerns placing pressures on their businesses to tackle over-consumption of their products and/or services. This was perhaps not surprising. The role of the corporate in addressing the problem of over-consumption represents a "wicked problem" with no easy solution. On one hand, companies are encouraged forever towards greater returns, multiplying efforts to increase profits, and reporting back to shareholders with a seemingly insatiable appetite for growth. At the same time, businesses are increasingly pressured to respond to demands for "real" action on addressing sustainability issues, from diverse stakeholders, and often from diverse complex social, economic, and environmental perspectives. The idea that businesses should be involved in limiting consumption somehow of their own products is considered as an anathema to many, and as a difficult "sell" to board members anxious to see quarterly returns increasing, or employees looking for stability in an uncertain job market. Freidman (1970) would advise strongly that the role of the corporate is only to deliver to its shareholders and be driven by the sole purpose of profit maximisation. This would assume that there is limited role for a company or industry to address sustainability-related, ethical or health concerns associated with its products or services and issues associated with consumers over-consuming a company's product or service. However, this view appears somewhat outdated.

The fact is that businesses do engage in activity that seeks to improve their sustainability over and beyond what is demanded as legal requirements. Corporations also routinely seek to

influence the rules of the game through powerful lobbying attempts and being actively engaged in the development of rules, regulation and policy. In 2015, around US$4.57 million was reportedly spent on political campaign contributions in the United States by the meat processing & products industry (Center for Responsive Politics, 2015). Corporations also call for some regulatory involvement to help set the rules of the game to ensure a "level-playing field" on issues that are seen as too difficult to tackle individually. For example, this was recognised in the UK House of Commons Childhood Obesity Report (2015, p.27) where regulation of food portion size was considered as an option to ensure a level playing field for businesses[7]. Finally, corporations cannot argue that there is no role for business in addressing one of the most pressing societal issues of our time, overconsumption, and then on the other hand present themselves as being committed to sustainability, contributing to sustainable development goals, and/or playing a role in health and wellbeing of local communities.

There are many examples already of innovative changes in mainstream business models as well as new business models that are aiding a transition to more sustainable production and consumption patterns and levels. For example, alternative business models based on ideas of circular flows of products and materials, in both production and consumption phases are emerging. Business models based on alternative modes of consumption are also becoming popular, like those focused arounds new opportunities to extend the lives of products (e.g. through reselling of second-hand goods or reconstitution of waste products into new products), access-based consumption (e.g. renting and leasing), and collaborative consumption (e.g. sharing platforms). These are driving new ways of consuming which can help lead to more sustainable consumption.

However, the model of consumption that focuses on growth as a primary outcome for business is an extremely strong institutional enforcer. And in the conversations alluded to at the start of this section, business managers ultimately often returned to two points that underlie current thinking, and they were: that ultimately the consumer is responsible for their own consumption and secondly, that a business must be profitable and provide what the consumer values. Addressing overconsumption from a business perspective remains therefore very complex.

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[7] The example was given of fruit juice portions for the lunch market, where most bottles sold for the lunch market were 200ml, the recommended maximum daily limit for children was 150 ml due to high sugar content. Changes in portion size were recommended. Regulation was viewed as an option to help support a level playing field for business, if needed.

1.7   Research on Corporate Social Responsibility (CSR)

According to Taneja, Taneja & Gupta (2011) in a review of CSR literature between 1970 and 2009, much of the research in sustainable consumption and business focuses on sustainability more generally, such as the field of corporate social responsibility (CSR) and specific environmental performance improvements - across the supply chain or at a pressure point. CSR research can therefore be roughly be summarised in five very broad areas, relating to: (1) specific case studies and actions (2) impacts of CSR more broadly (3) measurement and reporting of CSR (4) factors determining CSR and (5) meaning, models and definitional issues. Ghobadian, Money & Hillenbrand (2015) present a very useful summary of the last 60 years of corporate social responsibility within the context of business organisational research and point to several factors in the business environment that are driving major changes in corporate responsibility actions. These are summarised as: (1) increasing global connectivity resulting in substantial information and transparency demands; (2) increasing disparity between governments and large businesses leading to power imbalances and powerful companies with significant influence; (3) a growing acceptance of the negative impacts of business, which includes a shift in mind-set away from the science of proving impacts to one that incentivises action towards seeking solutions and challenging paradigms relating to more sustainable business models and responsible consumption (Leach et al., 2012). The paper is particularly refreshing in its discussion of the future of CSR research and in recent models put forward by researchers. It points to innovative ideas including shared value approaches (Porter & Kramer, 2011) and hybrid organizations (Billis, 2010). The authors also raise the potential contribution of psychological theories of human behaviour and motivation to help form the foundation of new theories to existing business and society theory. And they stress a critical need for corporate responsibility debates to be connected more explicitly to the field of sustainability and strategy. They, "welcome approaches that decouple economic growth from consumption" (Ghobadian, Money & Hillenbrand, 2015: 281).

Yet, there remains a frustrating lack of research looking at how companies might make sense of responding to the problem of overconsumption. Indeed, CSR as a whole, to which much of the attention on corporate environmental and social action falls, still appears to be maturing in both theory and practice (van Marrewijk, 2003; Scherer and Palazzo, 2007, Dahlsrud, 2008, Barrena-Martinez, Fernández & Fernández, 2015). Certainly, there is a common understanding that companies have some 'responsibility' to meet societies requirements or expectations (Carroll, 1991; Schwartz & Carroll, 2003; Windsor, 2006; Garriga & Mele,

2004, Carroll & Buchholtz, 2014). And that these requirements and expectations consist of a range of economic, legal, and ethical obligations (Schwartz & Carroll, 2003). Corporations are also expected to recognise that the wider interests of those that are impacted by the activities of the corporation (Crane & Matten, 2010, p. 62). Yet these responsibilities and expectations still principally addresses actions within a predominant neo-liberal growth economy and doesn't seek to explicitly limit production or consumption.

1.7.1 Extended corporate citizenship

An emerging area of work in business ethics around the concept of extended corporate citizenship offers some potential. Extended corporate citizenship conceptualises the role of business, within a broader and deeper public accountability framework that has become more prominent in discussions of business ethics globally (Crane & Matten, 2010: 73). This would appear to acknowledge an extended political role of business in society, their impact on the rights of citizens, and their growing role in taking actions that are increasingly like that of traditional political actors (Matten & Crane, 2005; Scherer & Palazzo, 2008). This is particularly relevant when business hold substantive market power and operate as powerful gatekeepers in the supply chain. For instance, in the UK the largest 4 supermarkets (i.e. Tesco, Asda, Sainsbury's, Morrisons) together account for 72% of retail sales in the sector (GAIN, 2016). In this respect, coalitions of businesses, sectors or multinational companies might use market power to help drive significant reduction in environmental impact by demanding changes in production, or by changing consumption patterns through application of choice architecture or other action. For example, Walmart's decision in 2006 to launch a campaign to sell 100 million compact fluorescent light bulbs (CFLs) at its Wal-Mart and Sam's Club locations by the end of 2007 (PR Newswire, 2006) helped to change the US light bulb market leading to huge interest and growth in CFL sales[8]. Reaching the goal by October 2007, Walmart also worked to decrease mercury content, changed the shelf position of CFLs and shelf space to encourage greater consumer purchase and raised awareness with other large companies on the need for better energy efficiency (Walmart, 2007). Continuing to use its huge market power in the area to drive change, Walmart announced in 2016 that it was phasing out sales of CFLs to embrace LED (light-emitting diode) lighting as LEDs were even more energy efficient, have lower GHG emissions and are relatively non-toxic compared to

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[8] CFLs save money for consumers, use up to 75 percent less energy than traditional light bulbs and have lower greenhouse gas emissions.

CFLs (GE, 2016). Leading UK supermarkets are, for example, starting up Supplier Engagement Programmes (SEP's) with specific carbon management purposes to get ahead on emissions reduction activities (Tidy, Wang, Hall, 2016, p.3295). MAX Burgers Sweden aims to increase sales in non-red meat and plant-based options on its menu and decrease red meat consumption (see Chapter 3). Yet, Tidy, Wang & Hall (2016) point to a dearth of research into such collaborative action. And there are limited studies that consider the success of corporate coalitions or powerful gatekeepers in driving sustainable consumption. One aspect also worth noting is that high profile and resource intensive products are likely to attract the attention of market-based coalitions or powerful gatekeepers in the supply chain who are looking to make public progress on sustainable consumption.

1.7.2   Sustainable business models

According to Bocken, Rana, Short & Evans (2014), understanding of sustainable business models and the options available for innovation for sustainability seems limited at present. They define a sustainable business as having to provide a measurable ecological and/or social value in concert with economic value as defined by Boons & Lüdeke-Freund (2013). They call for more research on sustainable business models (SBM) that incorporate a triple bottom line approach and consider a wide range of stakeholder interests, including environment and society. Such approaches are considered important in driving and implementing corporate innovation for sustainability, embedding sustainability into business purpose and processes, and serving as a key driver of competitive advantage (p.42). They point to an extensive literature on the theory of business models for delivering sustainability and examples on specific companies but an absence of current research on any comprehensive view of how firms should approach embedding sustainability in their business models (p.43). They also note that in some cases, industrial practice appears to be ahead of academia in exploring and developing novel business models relating to sustainability.

1.7.3   Systems-based research

Lastly, many researchers and practitioners highlight the importance of business being involved in achieving sustainable consumption (Kunz et al., 2013; Lüdeke-Freund, 2010). However, the issues are incredibly complex. For example, to move to a more circular economy, radical innovations and disruptive business models likely be needed in order to address challenges with overconsumption (Antikainen & Valkokari, 2016)

Neither companies (Barber, 2007), individual consumers (Stø, Throne-Holst, Strandbakken & Vittersø, 2006) or government (Hartmam, Hoffman & Stafford, 1999) alone can reduce overconsumption. Systems-based approaches are needed that look at the drivers of overconsumption within the wider socio-economic system that supports production and consumption, and which must respect the biophysical limits of earth to support humanity. In relation to this aspect, there appears a lack of theoretical and practical research in understanding the role of business in addressing overconsumption and how influential corporations can be in driving sustainable consumption. Further research of industries where overconsumption creates considerable pressures on health, welfare and sustainability, is critical. In these industries, businesses are likely to be presented with serious, highly complex and ambiguous demands for change. These demands may be so intense that they might create a challenge to the legitimacy of products, processes or services provided by that industry, and to the industry itself. In this case, legitimacy theory could provide useful insight as to how businesses make sense of their role in addressing overconsumption and how they seek to maintain acceptance of their products, processes, and actions as being desirable, proper, or appropriate in the face of serious challenges over their ethical, health and sustainability credentials.

Finally, it was noted that much of the research emerging is from the environmental and science community. There appears a lack of academic work reflected in business journals on "overconsumption" and its links to wider health, sustainability and ethical issues and indeed the challenge humanity has set itself in relation to operating within its Planetary Boundaries. Given the complexity of the issues involved and the need to understand business, environment and broader social and economic systems, multi-disciplinary research is very important. A keen appreciation of how business can help drive more quickly the fundamental transformation needs towards more sustainable consumption is essential.

PART 2

1.8   Part 2: Introduction

Part 1 of this Chapter outlined the urgent need for action to address the negative impacts of our consumption. It also demonstrated how consumption has radically increased over the last 60 years and that this consumption will continue to grow markedly. Part 2 of this Chapter examines the meat industry as a case study to demonstrate issues arising with overconsumption of products and/or services. It will consider rising interest on sustainable

food consumption before discussing meat consumption levels. The positive role of meat consumption will then be examined before identification of rising concerns related to overconsumption of meat products related to wide-ranging ethical, sustainable and health-related issues. The role of different stakeholders in relation to these aspects will then be considered.

1.9   Meat Attracts Attention

The overconsumption of some products, like meat, receive much more intense scrutiny than others. This level of scrutiny can be so intense and sustained over time that it can threaten the legitimacy of production methods, products, services and businesses.

The reasons for the increasing level of scrutiny on meat are not always clear or straight-forward. Concerns around meat production and consumption often involve a "bundle" of issues that attract engagement from diverse and motivated interest groups, ranging from animal welfare, health and safety, human development and environment advocates. It is perhaps this convergence of the "bundle" of serious and complex issues that offers some explanation as to the growing focus on sustainable meat consumption.

At the same time, another important aspect is a consequence of the nature of the product, having come from a living animal that must be raised and slaughtered for the express purpose of eating. The production and killing of another animal therefore raises complex ethical and psychological factors to societal debate around the consumption of meat.

The way the industry itself resolves public discourse around the role of meat in a healthy, ethical and sustainable diet may also attract increased attention on meat and the industry itself. For example, sustained public debate or arguments involving the meat industry may prolong attention on negative aspects of meat or re-examination of meat values.

It should also be noted that despite substantial progress and much action to improve sustainability of production, livestock production systems have been, and can still be, a major driver of environmental degradation. Therefore, there is also an historical legacy and ongoing action needed to address serious negative sustainability impacts.

Negative environmental and health impacts of meat production and consumption might also attract more attention when people become concerned about wider environmental issues or their personal health. Hence, worries over climate change, cancer, antibiotic resistance, food safety might intensify public or personal interest.

Lastly, the topic of sustainable food consumption in general has attracted growing notice over the last ten years which is discussed in more detail in the following section. The meat sector is therefore routinely and increasingly faced with responding on various fronts to multiple legitimacy challenges.

1.10   Sustainable Food Consumption

The emergence of the food sector, along with transport and housing as key areas which must be addressed in achieving sustainable consumption is not surprising. The central nature of food to all our lives means that food represents a useful indicator for sustainable consumption. It is also representative of a sector that has one of the biggest impacts on environment, health, economy and culture and social wellbeing. Food can epitomize how we live, what we value, and what ultimately drives us.

A sustainable food system is defined as "a system that delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised" (HLPE, 2014). Yet we appear to be far from this ideal. 795 million people are estimated to suffer from chronic hunger worldwide, representing around 12.9% of the population in developing countries (FAO, 2015). At the same time, over 39% of adults globally are estimated to be overweight or obese, and obesity related health conditions are rising rapidly in both developing and developed countries (WHO, 2016b). There is also significant food loss and waste with up to 30% of the food produced worldwide, about 1.3 billion tons, lost or wasted every year (FAO, 2011).

Food production itself has caused wide-scale changes in ecosystems, is a major source of GHGs, is responsible for 70% of water withdrawal and is an important driver of deforestation and loss of biodiversity. Indeed, the production and consumption of food has and continues to contribute to severe pressures on all the nine planetary boundaries. Food systems are also dependent on the natural resource base, at a time where natural resources are becoming increasingly more fragile, scarce and vulnerable to climate change and other biophysical changes such as soil degradation, biodiversity loss and water pollution. In addition, with increasing global population, income and urbanization there will be growing demands for greater quantity, quality and diversity of food, with food demand predicted to increase by 60% by 2050 (UNDESA, 2014; Alexandratos & Bruinsma, 2012).

Many recent studies call for a radical change to our food systems to ensure they will be able to meet the demands of our global population as well as support future sustainable and equitable development. The UK Foresight Report (2011, p.176) states that, "to address the unprecedented challenges that lie ahead the food system needs to change more radically in the coming decades than ever before, including during the Industrial and Green Revolutions." These thoughts are echoed in other key Reports such as the EU Global Food Security 2030 Report (2015), World Resources Report 2013-2016: Creating a Sustainable Food Future (Ranganathan et al., 2017) and the IRP UNEP Food Systems and Natural Resources Report (Westhoek et al., 2016). All point to a multitude of pressures and complex challenges facing our food systems and the need for urgent change.

1.11   Meat consumption

Eaten in a responsible manner meat can provide a valuable nutrient-rich, protein-dense, low fat contribution to a balanced diet. However, it cannot be denied that in many countries people consume meat products over recommended dietary levels. There is also likely substantial loss and waste of meat products amongst some populations, notably in Western countries, at both retail and consumer stages of the meat value chain through for example poor handling, non-consumption at retail, and consumer waste after purchase which results in meat thrown out. This overconsumption, including the meat waste has consequences not just for health but for broader sustainable development.

1.11.1 High and/or increasing meat consumption

Advocates pursuing actions to reduce current meat consumption point to three major factors related to meat consumption that need to be considered: already high per capita consumption in developed countries that far exceed recommended healthy nutritional guidance, rapidly growing per capita consumption in emerging economies due largely to urbanisation and income growth; and, increasing absolute global demand due to natural population growth. Accordingly, to meet all this demand, world meat production may need to double by 2050, from around 196 million tonnes (2005/2007) to reach 455 million tonnes by 2050 (Alexandratos & Bruinsma, 2012). Given the pressing range of environmental, social, health and ethical issues associated with current meat production and consumption levels, which many argue is already unsustainable, questions are therefore raised as to it whether future projected production and consumption is achievable, sustainable, or even desirable. This creates a strong argument for

the urgent need to address meat consumption from a combination of environmental, social and economic perspectives to achieve more sustainable consumption and production. It also presents a serious legitimacy challenge to the meat industry who must respond to these concerns in a way that responsibly address the negative impacts of overconsumption and protect the legitimacy of meat as an important part of a balanced diet that is also sustainable, healthy and ethical over the long term.

1.11.2 Data reliability

Before looking at overall trends of meat consumption the reliability of data is addressed. For instance, Hallstrom & Borjesson (2013) caution as to the overall reliability of data and point out the lack of harmonisation of definition and regulations of how data is obtained. There is certainly a range of data that is used across the research sector and in public domains. There is also often sizable differences is estimates depending on the data source, analysis and definition of 'meat' (Fehrenbach, Righter & Santo, 2015). The data drawn from the OECD-FAO Agricultural Outlook Database 2016-2025, and used in Table 1 below, represents only the quantities available to the consumer, (after losses and waste during harvest, storing, processing, distribution, and up to retail) and expressed in retail weight. It does not consider, for example, household wastage during storage, preparation, and cooking nor does it factor in the meat yield after cooking. It also represents only beef & veal, poultry, pork and sheep meat. It therefore excludes other meats such as buffalo, goal, camel which are popular in some countries. It simply indicates available supply per person in a country. From an environmental and ethical perspective, the broad picture of total meat production and consumption globally, and thus the available meat supply, is of great interest. This is simply because available supply indicates a sustainability or ethical impact that has already occurred because an animal has already been produced, slaughtered and made available for consumption, whether or not, it is eaten. Also, the largest resource impacts occur in the production phase. For example, in a study calculating the GHG footprint of New Zealand beef exported to foreign markets in North America or Europe it was found that only 3.3% of all GHG emissions occurred in the consumption phase, with the remaining 96.7% of emissions produced in the production, processing and transporting of meat to the consumer and the bulk of the emissions caused in the production phase (Lieffering, Ledgard, Boyes & Kemp, 2012).

From a policy perspective, however, with regards understanding the drivers for demand along with actual impacts on consumers like on health and wellbeing then details relating to individual consumption behaviour is of critical importance. This is because supply statistics do not provide any specific insights about consumption characteristics in different populations, regions, socioeconomic groups, or among individuals in households (FAO, 2001). In this case, household budget surveys and individual's dietary surveys (IDS) are needed. IDS are one of the most accurate but costly methods for obtaining data on meat consumption yet even these can have issues with accuracy, as they rely on people accurately completing the survey.

1.11.3 Meat consumption trends

In this thesis, we are interested mainly in general trends and consumption across countries at population level. Figure 6 therefore shows different meat consumption levels per capita, in terms of retail weight, and based on available supply across a selection of countries.

Per Capita Meat Consumption 1995-2015 (kg)

	Australia	Brazil	BRICS	China	EU	Korea	Mexico	OECD	Russia	USA	Vietnam	World
1995	79.55	50.09	21.88	30.33	63.13	30.04	29.54	61.06	39.8	93.85	14.2	27.51
2015	92.48	75.12	32.05	49.98	68.32	52.42	47.1	67.11	57.9	95.43	51.9	34.1
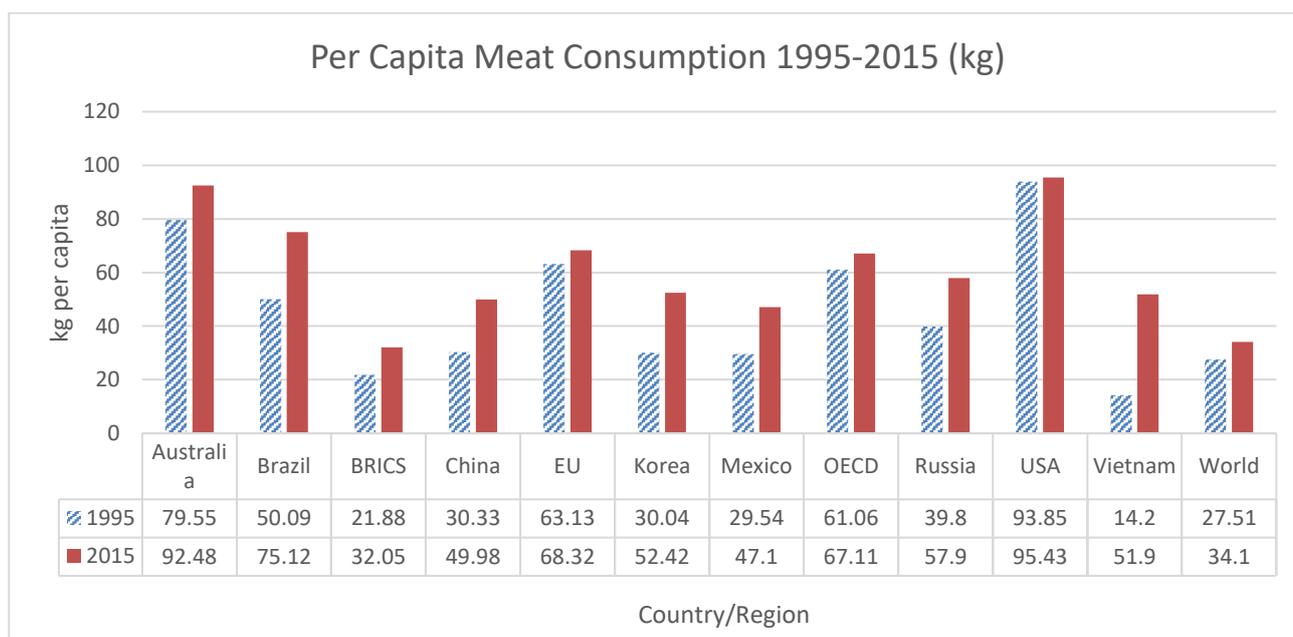
Figure 6. Per capita meat consumption (kg) across selected countries, including World, OECD, BRICs, and EU country groupings

Based on data from the OECD-FAO Global Outlook Database. At OECD (2017), Meat consumption (indicator). doi: 10.1787/fa290fd0-en (Accessed on 19 April 2017). *This indicator is presented for beef and veal, pig, poultry, and sheep. Meat consumption per capita is measured in kilograms of retail weight per capita.

Figure 6 shows that total meat consumption has increased across all countries between 1995 to 2015 with total world meat consumption increasing by around 24%. BRICS countries show 46% increase in meat consumption per capita over the period compared to OECD countries (8%), however, per capita consumption is still just less than half that of OECD

countries. In China and Mexico, available meat consumption per capita has increased by over 60% over the period 1995-2015. Vietnam's per capita available meat consumption in 2015 was around 265% more than in 1995. This substantial increase in meat consumption is a result of over 5 times more poultry consumption and 4 times more beef consumption than 20 years earlier. Rapid population growth, urbanisation and increasing per capita wealth within many developing regions remains a core driver of total consumption growth. Developing countries are also expected to account for 80% of the growth in global meat production over the coming years, with per capita meat consumption growth only slowing as the major developing economies approach the levels of developed countries (OECD, 2013, p.11). Per capita meat consumption remains very high in developed countries and often well over recommended health limits. This is also already true in some developing countries who traditionally share a strong meat culture, such as Uruguay, Argentina and Brazil. Total meat consumption statistics also hide the major trend of rising poultry consumption. This is shown in the Figure 7 where the percentage change in meat consumption per capita is shown across the four main meat categories. World poultry consumption has thus increased by nearly 58% over the last 20 years, with significant growth across all countries. Note that while world sheep meat consumption has increased, consumption remains relatively small at 1.71kg/capita in 2015. BRICS countries show growth across all meat categories measured.
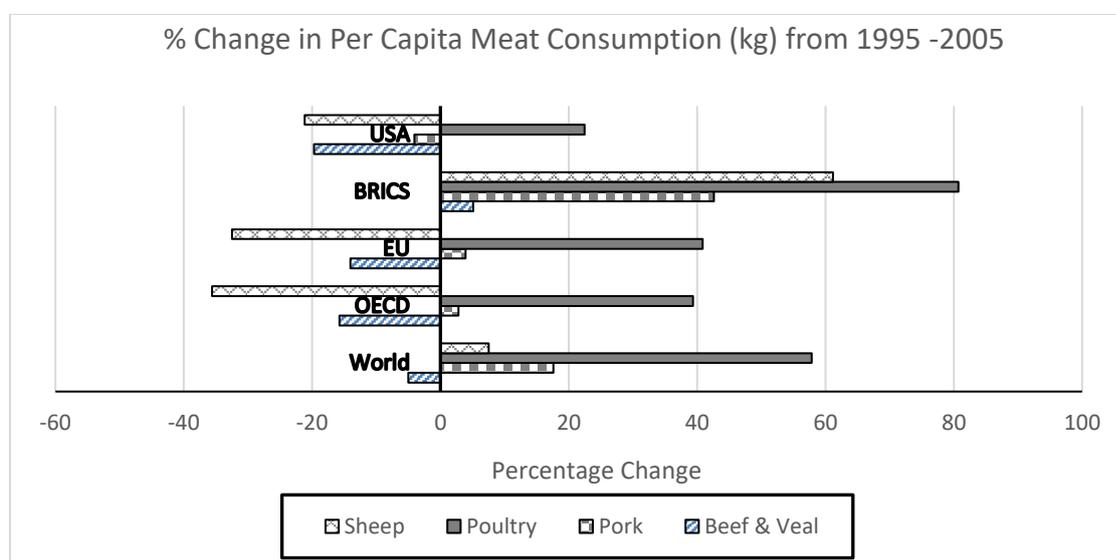
Figure 7. Percentage Change in per capita meat consumption (kg) from 1995 to 2015.

Based on data from the OECD-FAO Global Outlook Database. At OECD (2017), Meat consumption (indicator). doi: 10.1787/fa290fd0-en (Accessed on 19 April 2017)

Despite variance in meat consumption using different data sets, major trends over the last 20 years can largely be summarised as:

- high meat intakes in developed countries where demand is relatively stable;
- significant growing meat consumption in developing countries with rapidly growing economies;
- large growth in global chicken consumption;
- decrease in beef & veal and sheep meat consumption in developed countries

According to Euromonitor International (2016), an average American reduced annual intake of beef and veal by nearly 4 kilograms (cooked weight) between 2010 and 2015, and an average Western European by 1kg, due to growing awareness around health and increased flexitarianism. Nevertheless, it is worth noting that per capita US meat consumption (red meat and poultry) remains very high and although consumption of beef remains below peak levels some decades earlier, it has increased slightly over the last 2 years and is projected to increase over the coming decade (USDA ERS, 2016).

1.11.4 Dietary advice regarding recommended individual-level meat consumption

With respect to individual meat consumption there is limited explicit advice around actual recommended dietary intake of meat. For example, in an international review of National-level dietary advice across countries only 20 out of 83 guidelines (24%) recommended reducing or limiting meat intakes, with some of these distinguishing between red and processed meat (Fischer & Garnett, 2016, p. 26). Much of guidance around meat intake follows a pattern of broad recommendations to decrease saturated fat intake and the importance of ensuring a variety of protein foods as part of a 'balanced diet'. There is a focus on eating more healthy foods such as vegetables, fruit and wholegrains, and lean meat (if meat is included). There are limited examples where there is a specified intake amount, for instance recommended quantity of meat per day/ week. Examples of countries that do this in their national dietary guidelines include Sweden which advises to eat no more than 500 grams of cooked meat a week) with only a small amount of that being processed, Qatar which advises to limit red meat to 500g per week, and Germany which advises eating no more than 300–600 grams of meat and sausages per week (Fischer & Garnett, 2016). Guidelines in the Netherlands recommend 500gm of meat per week with no more than 300gm of that to be red or high carbon meat (Netherlands Nutrition Centre, 2016). The UK National Dietary Guidance encourages people to eat no more than 70 gm per day (Public Health England, 2016). The World Cancer Research Fund recommends intake of up to 500 g of red meat per week, with no or minimal processed meat (WCFR, 2017). The American Institute for Cancer Research likewise recommends eating no more than 500 grams (cooked weight) per week of

red meats, like beef, pork and lamb, and avoid processed meat such as ham, bacon, salami, hot dogs and sausages (AIVR, 2017). Both organisations, however, have the overall goal, for average consumption in a population, of no more than 300 g of red meat a week, very little if any of which should be processed meat.

1.11.5 Individual-level meat consumption

Understanding individual consumption is difficult due to limited studies that use the same methodology and limited studies in general. A comprehensive review of dietary studies based on food diary approaches could not be found for example. This would be useful in informing future discussions. Some examples of studies across selected countries are provided below. It is noted that some news organisations sometimes use per capita consumption supply statistics to derive an estimate of daily individual consumption. This results in often huge numbers which may considerably over-estimate daily consumption. For example, the Independent newspaper states that average annual meat consumption in 2009 in the United States was 120.2 kilos (The Telegraph, 2017). This equates to around 329gm per day which appears to be excessive.

However, some household budget/diary-based studies may also underestimate meat consumption. It is worth remembering that 70gm recommended daily consumption of meat (Public Health England, 2016) is quite small, around a palm-size portion. For example, Young and Nestle (2007, p.244) point to 500% portion increase difference between burgers in 1955 and 2007, where hamburger meat weighed around 45gm. Most gourmet burgers today sold in burger restaurants include meat patties that well exceed 100gm and many are over 200gm.

Per capita available meat consumption in the US for 2015 was around 95.4kg, according to the OECD-FAO Outlook Database statistics. This equates to 261,36 gm per day per person[9]. However, this does not include post-retail waste such as remaining bone or meat loss in preparation and eating, or water loss in cooking. If we use a very rough estimate based on a cooking yield of 75% and wastage of 10%, this would roughly fall at around 176.4gm per day per person. It is noted, that this is a very rough estimate to only show that figures used in popular press are often misleading, for instance it indicates a much lower level than 329gm per day. But it also remains much higher than the recommended 70gm indicated in much of

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[9] Based on 365 days per years.

the guidance above. And it does not consider the fact that babies, elderly, and vegetarian consumers eat meat in much smaller quantities or none at all. It therefore indicates significant overconsumption by some parts of the populations and/or meat wastage. Both drive substantive environmental and health impact.

A selection of studies showing estimated daily consumption based on food diary surveys in different populations are shown in Table 1. The data shows in general high average consumption. It is difficult to compare studies, however, due to different methodologies and whether the study was focused on red meat, processed meat, and/or total meat consumption. A comprehensive review of studies would be highly useful and perhaps critical in understanding better what is happening across populations at individual level as well as research gaps and methodological issues.

Reference	Methodology	Country	Estimated Total Meat Intake (Adults)
Daniel, Cross, Koebnick & Sinha (2011)	National Health and Nutrition Examination Survey (NHANES) data (based on a mix of interview/ other data collection methods	USA	Mean total meat intake was 128 g/day.
Cosgrove, Flynn, Kiely (2005)	Food diary	Ireland	110g/day The mean intakes of red meat, white meat and processed meat were 51, 33 and 26 g/d
de Carvalho, César, Fisberg, Marchioni (2013)	24 h dietary recalls/food diary	Brazil	The mean red and processed meat intake was 138 g/d for men and 81 g/d for women. About 81% of men and 58% of women consumed more meat than recommended.
Rohrmann et al. (2013)	24-Hour dietary recalls/food diary	France, Italy, Spain, Netherlands, United Kingdom, Greece, Germany, Sweden, Norway, Denmark	Mean red, processed and poultry meat intake was 51 g/d, 33.2 g/d and 15.1 g/d for men. Mean red, processed and poultry meat intake was 33.1 g/d, 21.4 g/d and 12.6 g/d for woman. 19% of red meat consumption was over 90 g/d, 59% eat over 20 g/d processed meat.
Wie et al., (2014)	3-day Food Diary	Korea	The mean intake of red meat for men was 85·3 g and for women 59·5 g

Table 1. Selection of studies showing average individual-level meat consumption intake across populations

1.12   Positive Role of Meat Consumption

Before looking in further detail at growing concern over negative impacts of meat overconsumption, the valuable contribution of meat to society should also be addressed. Meat represents a very important cultural component of the diet across many societies, representing strongly held values associated with health, wealth, power, strength and masculinity (Twigg,

1979; Fiddes, 1991; Adams, 1991; Rozin, Hormes, Faith & Wansink, 2012). Meat consumption culture is also described as being involved in the early development of language, social grouping and religions (Swatland, 2010, p. 80) and retains a major role in many popular traditions and customs today. It is often viewed as being a central part of the meal, as well as being a key feature of festive and celebratory occasions (Twigg, 1983; Fiddes, 1992; Rozin et al., 2012). Nutritionally, meat is a concentrated source of high quality, highly digestible protein, and is useful supplier of essential amino acids, such as lysine as well as B-complex vitamins including thiamin, riboflavin, niacin, biotin, vitamins B6 and B12, pantothenic acid and folacin (Bender, 1992). Meats are excellent sources of minerals, such as iron, copper, zinc and manganese, and play an important role in the prevention of zinc deficiency and particularly of iron deficiency which is widespread in many populations (Bender, 1992). Livestock farming systems can also contribute in an environmentally positive way through for example, environmental management of grasslands and biodiversity and they can be an efficient "waste" converter by converting low grade food residues into high quality nutrient-dense foods (Elferink, Nonhebel & Moll, 2008; Janzen, 2011, Gerber et al., 2013). Such systems can also play an important role for food security, for example as they can enable the use of grasslands that would otherwise not, or only be marginally usable for food production, (Suttie, Reynolds & Batello, 2005). Across many countries, both developed and developing, the production and consumption of meat plays an important economic and social role and arguably an expanding one in developing economies. Globally, it is estimated that around 1.3 billion people are employed across the livestock sector and it directly supports the livelihoods of 600 million poor smallholder farmers in the developing world (Thornton et al. 2006). In developing countries, livestock production can often be considered "a corner stone of the economic and social life of the people" (Asresie & Zemudu, 2015, p.79) and is an important element of human food and nutrition security (Otte et al., 2012). The North American Meat Institute states that the United States meat industry generates around US$864.2 billion annually to the U.S. economy, or roughly 6% of the entire GDP, with companies involved in meat production, along with their suppliers, distributors, retailers and ancillary industries employing approximately 6.2 million people in the U.S., totalling $200 billion in wages (NAMI Website, 2017).

1.13   Negative Impacts of Meat Consumption

Despite many benefits as discussed in section 1.12, the production and consumption of meat has considerable adverse environmental, ethical, health and safety impacts, in particular as a result of excessive meat consumption.

There is growing evidence of a range of health-related issues related to dietary meat overconsumption. These include increased risk of cancer-related illnesses and other diet-related disease such as cardiovascular disease, stroke, type 2 diabetes, and earlier death (IARC, 2015; Feskens, Sluik, and van Woudenbergh, 2013; Larsson & Orsini, 2014, Battaglia et al., 2015). An analysis of data from 10 studies looking at the relationship between cancer and meat consumption estimated that every 50-gram portion of processed meat eaten daily increases the risk of colorectal cancer by about 18%, with data from some studies also suggesting that the risk of colorectal cancer could increase by 17% for every 100-gram portion of red meat eaten daily (IARC, 2015). 24% of national-level dietary guidelines now recommend reducing or limiting meat intake, mostly for health reasons although national guidelines in Sweden and Germany also mention meat's high environmental impact (Fischer & Garnett, 2016, p. 26).

The potential rapid spread of novel zoonotic diseases into human populations (e.g. avian influenza, swine influenza) are also of huge concern. Agricultural drivers are significant for the spread of novel zoonotic diseases and include major changes such as new agricultural practices, modernisation and intensification of farming systems, and habitat clearing for cropping and grazing (Wang and Crameri, 2014, p. 570). Intensive industrial meat production practices, where several thousand cattle or pigs, or 100,000 or more chickens, are fed grains and produced in a single facility, may also facilitate spread of disease as a bridge between wild animal reservoirs and human populations, and as the locus of pathogen evolution itself (Leibler et al, 2009). The rise in antibiotic resistance in human populations through the overuse of antibiotics in livestock systems is also attracting growing awareness for its potential catastrophic impacts on human health and safety (Zhu et al., 2013; WHO, 2015).

Livestock production systems are a key contributor to pressures on Planetary Boundaries. They are a high emitter of greenhouse gasses, have been a leading driver for deforestation and biodiversity loss and have been a major contributor to land degradation (Steinfeld et al., 2006). They are not only a primary user of freshwater but contribute substantively to the

pollution of global water resources (Ongley, 1996). For example, they are a primary contributor of significant and environmentally detrimental amounts of nitrogen and phosphorus to terrestrial ecosystems (Vitousek, Mooney, Lubchenco, Melillo, 1997). Around 50% of global usable land is already in pastoral or intensive agriculture (Tilman et al, 2001). The use of pesticides in agricultural systems, especially bioaccumulating or persistent organic agricultural pollutants are also of concern. There significant body of evidence now showing the high risk of many of these chemicals to human health and other life forms and unwanted side effects to the environment (Forget, 1993, Aktar, Sengupta & Chowdhury, 2009).

Anthropogenic GHG emissions from deforestation and agricultural emissions from livestock, soil and nutrient management make up the greater part of emissions in agriculture, forestry and other land use sector (AFOLU) which is responsible for just under a quarter (~10 – 12 GtCO2eq / yr) of anthropogenic greenhouse gas emissions. (Smith et al., 2014). Gerber et al. (2013, p.xii) estimate the contribution of livestock to global GHG emissions at 7.1 gigatons CO2-eq per annum, representing 14.5 percent of human-induced GHG emissions. The significant contribution of GHG emissions of this sector therefore is critical in future mitigation of climate change (Gerber et al., 2013, Smith et al., 2014). Recent research by Springmann, Godfray, Raynera & Scarborough (2016) argues that a transition towards more plant-based diets, in line with standard dietary guidelines, could reduce global mortality by 6–10% and food-related greenhouse gas emissions by 29–70% (p.1).

Intensive industrial-scale farming most often involves feeding animals protein rich energy-dense concentrate feed. Around one-third of arable land is currently used for feed production (Steinfeld et al., 2006) and one-third of global cereal production is fed to animals (Alexandratos & Bruinsma, 2012). According to Schader et al. (2015) this leads to considerable trade-offs with producing food for direct human consumption. And increasing production of livestock feed to meet growing demand for meat products is likely to put increasing pressure on arable land areas (Alexandratos & Bruinsma, 2012). The production of feed crops can also be a significant contributor to environmental degradation in the country of origin, if not managed in a sustainable manner. The United Nations Food and Agricultural Organisation (Steinfeld et al., 2006, p. xx) states that, "The livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global".

Ethical and animal welfare issues are also attracting increasing public attention and concern (European Commission 2007; Boogaard et al. 2011,). These include worries around animal welfare in intensive large-scale meat production systems where large populations of animals are farmed in confined spaces (often referred to as "factory or industrial farming") to alarm generated over individual and often high-profile cases of animal cruelty. Rising concern around pig and chicken meat production practices has resulted in sizeable public attention. For example, the culling of unwanted male animals from production systems has been raised as a serious ethical concern. Male chickens for instance are not optimum for meat production and are killed shortly after hatching with some estimates asserting that some 6 billion male chicks are killed worldwide each year because they are unwanted (Animal Ethics, 2008). Also, genetic selection to enhance productivity of meat production may also pose issues related to welfare. For example, Knowles et al. (2008) found that intense genetic selection over the past 50 years had led to an increase in broiler chicken growth rates of over 300% (from 25 g per day to 100 g per day) which was resulting in impacts on the walking ability of chickens.

The complexity of meat supply chains has led to concerns over transparency driven by a number of high-profile scandals (e.g. pink slime, horsemeat & fox meat scandals) has contributed to highly visible public debate on the merits of current meat production and consumption practices. These impact on the meat industry as a whole, for example the European horsemeat scandal had impacts across meat value chains and on consumer confidence (Yamoah & Yawson, 2014). Health and safety issues also attract attention. For example, disease outbreaks related to poor supply chain practices (e.g. E. coli contamination) place considerable pressure on meat supply chains. Bovine spongiform encephalopathy (BSE)-contaminated meat problems created considerable consumer alarm in a number of countries, including, UK, Belgium, Germany, US, Canada and Japan (Verbeke, 2001; Kamisato, 2005; Wales, Harvey & Warde, 2006). Negative impacts of the livestock industry on health and safety of workers also arise. For example, there is research that links negative impacts on worker health in pig production facilities with higher frequencies of respiratory symptoms, more frequent colds and absence due to chest illness, and a history of pneumonia (Donham, Haglind, Peterson, Rylander & Belin, 1989; Crook et al., 1991). Globally, it is estimated that farm workers run at least twice the risk of dying on the job than workers in other sectors (Forastieri, 1999). Slaughterhouses also have some of the highest reported injury rates in the manufacturing industry (Broadway & Stull, 2006) with injury rates

reported to be as high as 20–36% per annum (Dalla et al., 2005; Dillard, 2008; Victor & Barnard, 2016).

1.14   The Rise of Flexitarianism

Concerns about the sustainability, health and ethical attributes of meat, along with a growing consumer interest in health and wellness, have contributed to increased interest in flexitarianism behaviour amongst consumers. The definition of flexitarian behaviour differs across studies (Rothgerber, 2014; Derbyshire, 2016). It could be broadly described as behaviour where consumers reduce meat intake in their diet, but do not eliminate it and favour a predominantly plant-based diet. Flexitarians are not considered a homogenous consumer group, and may reduce meat intake for a variety of reasons including for health, environment and ethical aims with a different weight on either, according to personal values (Verain, Degevos & Antonides, 2016). Flexitarians might be further described as either being strong or weak, with strong flexitarians making substantial meat consumption reductions, and weak flexitarians less so, with potentially a higher interest in hybrid meat products or behaviour (Fuchs & Lorek, 2005; de Bakker & Dagevos 2012). Market analysts predict the "Flexitarian Effect" to continue to be a key food market trend for the coming years and has contributed to a surge in interest in plant-based foods over the last five years (Whole Foods, 2016; Innova, 2016, Baum + Whitman, 2016, YahooFood, 2016). Innova Market Insights reported a 60% rise in global food and beverage launches using a vegetarian claim between 2011 and 2015 (Food Navigator USA, 2016). The meat substitutes market is projected to reach USD 5.96 Billion by 2022 (Markets and Markets, 2016). A growing number of consumer surveys show increasing interest in meat reduction behaviour. Mintel (2015) has revealed rising interest in meat-free eating and flexitarianism in Germany, with 33% of German adults saying they are actively reducing their consumption of red meat**,** and 19% saying they are incorporating more vegetarian foods into their diet compared to a year ago (Mintel, 2017). Amongst consumers in the United Kingdom, research points to growing awareness and sensitivity around meat. According to Murphy and Thomas (2016), 40% of UK adults agree that 'These days I eat less meat than I used to do' – rising to 45% of women, with 27% of all women agreeing that 'by 2025, my diet will probably be mostly meat-free'. Further, 36%-40% of UK consumers agree that 'it would be better for the wellbeing of our countryside if adults in Britain were generally to eat less meat – rising to 44% among 16-24 years olds" (Murphy and Thomas, 2016). Ipsos FIVE research in Canada found that 24% of

Canadians identified themselves as following a flexitarian diet, with consumers eating less meat 8% less often in 2015 than 2013 (Canadian Grocer, 2016). The biggest change occurred among so-called "trailing" millennials (aged 18 to 24) and "leading" millennials (25 to 34) who decreased meat consumption by more than 20% between 2014 to 2015 (Canadian Grocer, 2016). A Report by the Nutrition Business Journal (2015) stated that roughly 26% of the U.S. population said 'they've consciously chosen to eat less meat in the last 12 months'. Nordic consumers also demonstrate willingness to decrease meat consumption, with 23%, 16% and 17% of Swedish, Norwegian and Finnish consumers agreeing that they plan to eat less meat during the upcoming six months according to a Sustainable Brands Index survey (2016, p.13).

However, there remains a lack of research around flexitarian behaviour. It is evident that flexitarians are more open to eating plant-based options and meat alternatives and that meat is not a centrepiece of every meal. But, some caution should be taken as to whether flexitarians are on average reducing their total meat consumption and if so, by how much and whether this behaviour is sustained over the long term. For example, there does not appear to be significant drops in meat consumption per capita in many of those countries with growing flexitarian consumers. Consumer-based surveys also do not always appear to be well matched to national-level statistics regarding total meat production and/or consumption. This could be due to several reasons however: including wastage of meat not adequately being accounted for in statistics at national level; misinterpretation of statistics, for example, meat consumed is normally on a cooked weight basis, but national level statistics may be based on carcass or retail weight; and a lack of robust studies that well reflect the actual meat-eating behaviour of consumers. It would also be particularly interesting to look at individual dietary behaviour over longer time-frames. While such surveys are inherently costly and resource intensive it would better pick up any potential compensatory eating habits, in that some flexitarians may reduce or limit meat-eating opportunities, but when eating meat may eat larger portions at each individual meat meal. Such behaviour might result in total meat consumption remaining fairly stable. Despite this potential paradox, between stated and actual actions, there are substantial opportunities to capitalise on the increased interest in plant-based options. This is perhaps evidenced in the increasing interest in meat-substitutes such as Impossible Meat, a plant-based meat that bleeds like animal meat due to the inclusion of plant-extracted haemoglobin, and recent acquisitions by traditional meat industry companies, like Tyson Foods, in alternative protein companies. Tyson Foods bought a 5% ownership stake in the

company Beyond Meat in October 2016 (Fortune, 2016). As interest grows in these meat alternatives this also often brings attention to meat as a sustainable, healthy and ethical product because comparisons are often made for example in marketing and communication of such products. It is also often marketed as an 'alternative to meat' and therefore potentially drives further focus or increased attention on the negative impacts of meat consumption.

1.15   Increasing and Diverse Stakeholder Interest

There are increasing demands for more sustainable meat consumption from a diverse range of stakeholders. While many organisations often enter the debate from a particular perspective on the issue, such as animal welfare, many organisations also incorporate broader messages and put forward multiple concerns to justify the need to reduce meat consumption and change meat production practices. Compassion on World Farming, for example seeks to reduce factory meat based on ethical[10] concerns over factory farming but also addresses concerns around environment, health and poverty as reasons for change.

A 2014 study by Laestadius, Neff, Barry & Frattaroli found that animal-protection and food-focused NGOs in U.S., Canada, and Sweden were more active in promoting reduced meat consumption as a means of mitigating climate change than compared to environmental NGOs. Animal-protection and food-focused NGOs were also more likely to carry out formal meat reduction campaigns and engage the public in outreach programs. Since 2014, however, two high profile events have occurred that have increased public attention on the future role of meat in a sustainable, ethical and healthy diet. In respect to the first of these events, the US Dietary Guidelines Advisory Report, a petition set up by organisations in favour of sustainability considerations in the final Dietary Guidelines and an emphasis on less meat and more plant-based diets, gained over 150,000 signatures in support (Center for Biological Diversity, 2015). 100 organizations, experts, and prominent individuals also signed an open letter, published in 4 major US papers, urging support for the inclusion of sustainability considerations in the final 2015 Dietary Guidelines, specifically the reference to a diet with less meat[11]. The second event, the WHO IARC Evaluation on Cancer and Red and Processed Meat, drew huge international interest and alarm over the identification of cancer risk from sustained high-levels of meat consumption.

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[10] Compassion in World Farming. At https://www.ciwf.org.uk
[11] The letter can be downloaded as a pdf at https://www.ciwf.com/news/2015/03/usda-dietary-guidelines-testimony-press-release

There is also an increasing diversity of stakeholders now engaging on sustainable meat consumption issues. Traditionally, animal-welfare groups like the Compassion on World Framing and PETA have campaigned against meat consumption and factory farms yet there is evidence of new pressure groups and campaigns that are emerging. The Farm Animal Investment Risk & Return initiative (FAIRR) bringing together 39 institutional investors whose members manage some US$1.25trn in assets, recently called for substantive change in the meat sector on wide-ranging issues. The initiative urged 16 multinational food companies to outline how they plan to deal with the risks of industrial animal production, with "the world's over-reliance on factory-farmed livestock to feed the growing global demand for protein [being] a recipe for a financial, social and environmental crisis"[12]. Companies were encouraged to identify their plans to respond to the risks posed by industrial animal production, as well as strategies to diversify into plant-based sources of protein (FAIRR, 2016). Another example, is the UK-based investment fund EdenTree which offers an ethical investment fund that excludes intensive farming companies and supports external benchmarking assessments such as the Business Benchmark on Farm Animal Welfare (BBFAW) which assesses companies, including fast-food restaurants on their animal welfare policies (EdenTree, 2016). At the end of 2016, 45 large investors collectively managing $1.2trn in assets urged some of the largest meat producers in the United States to set policies for reducing water pollution in their feeding, slaughtering and processing operations (Reuters, 2016). Internally, shareholders are also seeking to present shareholder proposals to address issues associated with industrial production of animal meat or health and sustainability issues associated with high meat consumption. For example, some investors have made shareholder proposals requesting quick phase-out programmes of harmful antibiotic use in meat production systems across several fast-food brands, including Yum Brands (KFC), Wendy's, BurgerKing (Fortune, 2016b) and McDonalds (ICCR, 2016). A shareholder proposal was made to the 2016 Annual General Meeting of Chipotle calling for Chipotle to publish an annual Sustainability report (Chipotle Annual Report, 2016, p. 32). A group of nuns, the Benedictine Sisters of Boene, Texas, which own stock in McDonald's as part of the Interfaith Center on Corporate Responsibility (ICCR), recently introduced a shareholder resolution to require those that supply McDonald's with any type of meat – be it chicken, pork or beef – to stop giving their animals antibiotics that are used to fight disease in humans (Reuters, 2016). Some civil society groups are also investing in shares in companies to have potentially

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[12] Founder of FAIRR and CIO at Coller Capital, Jeremy Coller, quoted in IPE (2016).

greater opportunities to demand change. For example, People for the Ethical Treatment of Animals (PETA), a well-known animal welfare NGO, has bought shares in McDonalds as well as BurgerKing to be able to attend annual meetings and propose shareholder resolutions with the aim to bring change to animal welfare practices (PETA, 2012).

Several high-profile research-based policy organisations are now also looking at meat reduction policies and/or evaluating action towards more sustainable meat consumption. This includes the World Resources Institute, who present a comprehensive case for the food industry, governments and NGOs to develop strategies to influence people to choose plant-based foods over animal products (WRI, 2017). British-based Chatham House also argues for reduction in meat consumption (Wellesley, Froggat, Happer, 2015). Forum for the Future, a UK based thinktank has a specific work programme looking at raising the profile of protein as an integral part of a sustainable food system by 2020 and exploring growth in plant-based protein consumption, along with more sustainable production and consumption of animal protein (Forum for the Future, 2017).

Environmental NGOs have some dedicated campaigns focused on meat reduction. For example, the Center for Biological Diversity has a Meatstinction Campaign[13] which includes information, individual pledge programme, calls for vegetarian option burgers in McDonalds, meat-free recipes and more resourcing by US officials towards sustainable diets[14]. Greenpeace International (2017) includes a "Eat less Meat" message as part of a broader campaign on sustainable agriculture.

Health-based civil society and research organisations are increasingly more vocal about meat consumption and they often present guidance on meat consumption limits through daily or weekly consumptions limits. The World Cancer Research Fund International, American Institute for Cancer Research (AICR), Cancer Research UK, the Academy of Nutrition and Dietetics all promote balanced diets with appropriate levels of lean meat consumption and minimal processed meat. 20 out of 83 national-level dietary guidelines analysed (24%) show recommendations for reducing or limiting meat intakes (Fischer & Garnett, 2016, p. 26). Research exploring the relationship of meat consumption and health also appears to be increasing. Academic research may have also increased. Looking roughly at trend data in

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[13] See Center for Biological Diversity Meatstinction Campaign. At http://www.takeextinctionoffyourplate.com/meatstinction/.
[14] Ibid.

citations within MEDLINE[15], a health medical database, and using the search terms meat and consumption shows 12-fold increase in the amount of publications over the thirty-year period from 1985 related to research that directly address meat, health and consumption.
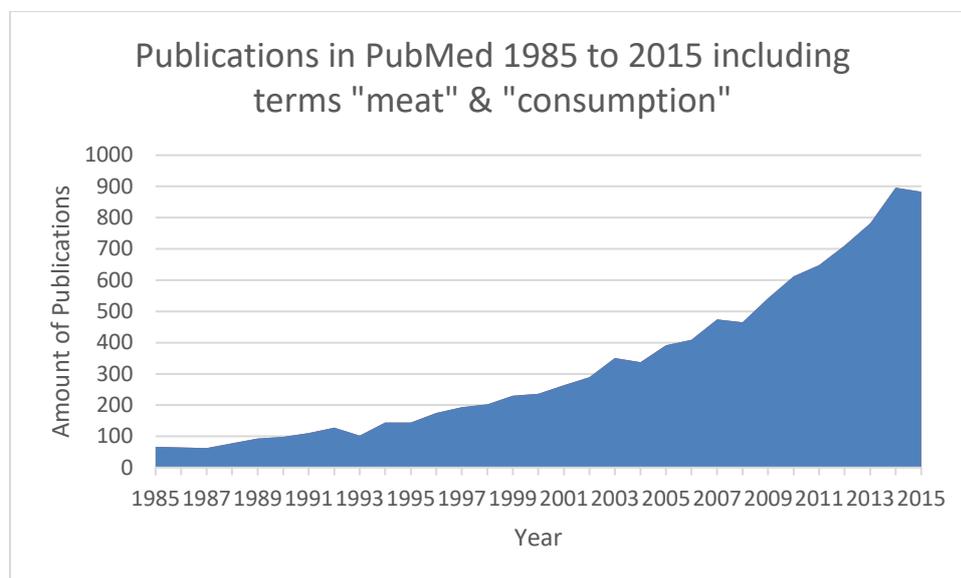
Figure 8. Publications in PubMed including the terms "meat" & consumption from 1995-2015

The data was obtained using the following search on PubMed Database on 20 March 2017: ("meat"[MeSH Terms] OR "meat"[All Fields]) AND ("economics"[MeSH Terms] OR "economics"[All Fields] OR "consumption"[All Fields]). It is noted that this is only useful as a guide to show ta general trend towards increased research published on PubMed related to meat and consumption and health.

The meat industry also faces pressures to meet the demands of downstream partners in the meat value chain. Indeed, retailers that sell meat such as supermarkets and restaurants are often powerful "gatekeepers" in the meat supply chain with significant ability to control and dictate market conditions. Supermarkets, multinational retail and grocery manufacturers and fast-food burger restaurant companies, for example, are increasingly faced with wide-ranging concerns from various organisations, including animal welfare activists, environmental and health advocacy groups, as well as public organisations and regulators in relation to the negative impacts of meat consumption. Internal sustainability policies are also driving reflection on high resource-impact products. Accordingly, concerns are often reflected in changing supply agreements or retail-imposed standards on meat producers and processors. For example, McDonalds is working towards a global policy on the elimination of antibiotics important to human medicine in chicken in its restaurants, Waitrose UK has a policy has set

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[15] MEDLINE is the U.S. National Library of Medicine premier bibliographic database that contains more than 23 million references to journal articles in life sciences with a concentration on biomedicine. At https://www.nlm.nih.gov/pubs/factsheets/medline.html

a minimum standard for farmers that conventional dairy cows (producing non-organic milk) must spend at least 100 days outside grazing in fields (Waitrose, 2017). All abattoirs supplying meat to Waitrose are equipped with CCTV to ensure welfare standards are maintained and Waitrose maintain that Footage is independently reviewed on a regular basis (Waitrose, 2017).

Another approach is direct contact with the consumer. For example, in 2016 two Swedish supermarkets (COOP, ICA) launched consumer meat reduction campaigns based largely around concerns over the environmental impacts of meat[16].

Several processes are also emerging at international and national level that focus on the desire to move towards more sustainable diets and systems approaches to both research and action. These include the UNEP 10YFP Sustainable Food Systems Programme[17], IPES-FOOD[18], Oxford Martin Programme on the Future of Food[19], and the High-Level Panel of Experts (HLPE) of the Committee on World Food Security (CFS)[20]. Sustainable consumption of meat is a critical discussion and potential action point in many of these processes. The international organisation Slow Food is one example, amongst a growing number of international civil society organisations building networks of actions based around sustainable food consumption goals. It argues for Slow Meat campaign, which essentially can be summarised by a "eat less meat, of better quality" philosophy (Slowfood, 2017). The Eating Better Alliance based in the UK and representing over 40 civil society organisations has goals to "raise awareness of why we need to talk about a shift to more plant-based eating with less and better meat"; and "stimulate long-term cultural shifts by devising new ways of framing the 'eat less meat' message that are compelling and inclusive[21]. Support for meat reduction initiatives like meat-free days in some schools (e.g. Sweden[22], Argentina, Australia, Belgium, Brazil, Finland, Germany, South Africa, South Korea, Taiwan, Netherlands, and

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[16] See the COOP Meat Reduction Campaign video at https://www.youtube.com/watch?v=-axWzQK8uqs&feature=youtu.be.

[17] 10YFP Sustainable Food Systems Programme. At https://sustainabledevelopment.un.org/partnership/?p=12411. Accessed 10 March 2017

[18] The International Panel of Experts on Sustainable Food Systems (IPES-Food). At http://www.ipes-food.org/. Accessed 10 March 2017

[19] Oxford Martin Programme on the Future of Food. At http://www.oxfordmartin.ox.ac.uk/research/programmes/future-food. Accessed 10 March 2017

[20] High Level Panel of Experts to the Committee on World Food Security (CFS). At http://www.fao.org/cfs/cfs-hlpe/en/. Accessed 10 March 2017

[21] Eating Better Alliance (2017) Our Work. At http://www.eating-better.org/what-we-do.html

[22] In a two-year period, the number of Swedish municipalities that introduced meat-free days in their school cafeterias increased by 80 percent (The Local, 2016).

US) is also increasing. Education campaigns (WFF Livewell for Life Campaign[23]) are also promoting a less-meat message. At international level, international organisations such as the United Nations Environment Programme[24], and WHO (IARC, 2015) have highlighted negative impacts of meat overconsumption.

Consumers also appear to be showing increased notice to how meat is produced and a desire for external product attributes based around sustainability, health, and ethics. Market intelligence by Packaged Facts in 2016 revealed that more than 6 in 10 restaurant meat and poultry eaters in the United States say that "all natural" is important to them when selecting meat/poultry dishes at a restaurant and that they weigh whether the dish has no hormones, no antibiotics, and no preservatives (Packaged Facts, 2016). 45% of restaurant meat and poultry eaters said that '"free range" is important to them when selecting meat/poultry dishes at a restaurant", with 47% saying the same for 'sustainability' (Packaged Facts, 2016).

1.16   Conclusion

The projected rise in meat consumption over the next 50 years, a near doubling of capacity, must be addressed in a way that considers the multiple objectives and impacts of meat consumption. Any action must consider the diversity of production systems, the contribution of livestock farming to food security and sustainable development, along with the cultural, social, health and economic values of meat to society. But it must also address the problem of overconsumption, including meat waste, and the negative impacts arising from meat production.

The role of meat in a healthy and sustainable diet will be increasingly negotiated across society in the coming years. This is already noticeable in the rise of more organised and coordinated efforts across those stakeholders advocating for meat reduction. All stakeholders will have responsibility in helping to support more sustainable consumption. The meat industry itself, has a vital role to contributing to sustainable change towards healthy, sustainable and ethical outcomes in relation to the human diet and to broader societal goals of operating within the earth's biophysical boundaries.

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[23] See Livewell For Life. At http://livewellforlife.eu/. (Accessed 1 March 2017)
[24] Westhoek, H., Ingram, J., van Berkum, S., & Hajer, M. (2016)

CHAPTER 2:

THEORETICAL BACKGROUND

Chapter 2 will discuss legitimacy theory along with its direct relevance to challenges facing the meat industry in respect to sustainability, health and ethical concerns. Secondly, Part B will discuss the conceptual basis of sensemaking will be examined. Finally, a review of framing and framing analysis will be provided in Part C.

PART A: LEGITIMACY THEORY

2.0   Introduction to Legitimacy

Legitimacy is considered vital for an organisation's survival. Why? Because it attracts and retains the resources needed by the organisation to continue to function, for example capital, labour and customers necessary for its continued viability (Ashforth & Gibbs, 1990; Neu, Warsame & Pedwell, 1998). Efficient mitigation of threats to legitimacy are also advantageous in that timely and well-crafted responses can help to forestall or manage constraints or attacks on the organisation. These might include regulatory action, disciplinary procedures, boycotts, and disruptive action. This can enable the organisation to act "with a degree of autonomy to decide how and where business will be conducted" (Neu, Warsame & Pedwell, 1998, p.265). To this end, organisations will attempt to establish congruence between "the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are part" (Dowling & Pfeffer, 1975, p. 122). A "threat to legitimacy" in the meat sector is defined as being "where a disparity exists, now and/or in the future, which represents some incongruence between the meat sector (and its individual actors') actions and the society's perceptions of what these actions should be". Where legitimacy threats are serious, society could seek to revoke the organization's "contract" to continue its operations (Deegan, Rankin & Tobin, 2002) through the withdrawal of resources. For instance, investment companies may withdraw, or threaten to withdraw, funding. Recently, a US$1.25 trillion coalition of 40 institutional investors launched an engagement with 16 multinational food companies to highlight the material risks posed by industrial animal production, urging both risk reduction strategies and diversification into plant-based sources of protein (FAIRR, 2016). Customers might choose, to stop buying meat products or reduce consumption in response to acute disruptive events

(e.g. BSE outbreak, IARC Cancer Report, animal cruelty exposé) or rising concern over health, safety or transparency (e.g. EU Horsemeat scandal). A Japanese company reported that sales of sausages plunged 20 percent immediately after the 2015 IARC Evaluation report, which linked some forms of meat consumption with elevated cancer risk[25]. Changing social values or expectations around meat consumption might also result in slow erosion of sales over time. If enough consumers reduce or eliminate meat consumption in response to broader sustainability, health and ethical concerns then these concerns or threats to legitimacy have manifested in legitimacy loss. The meat industry is then confronted with the task of defending and regaining legitimacy in the minds of concerned consumers or powerful stakeholders. Highly disruptive events, and especially a history of such events, often represent serious threats to legitimacy. For example, the publication in March 1996 of health concerns raising possible links to CJD disease in humans from beef consumption, led to an immediate 40% decline in domestic sales of UK beef products, with consumption one year later remaining 26% below levels before the crisis (Atkinson, 2001). This represented a serious legitimacy challenge to the British beef industry which required huge efforts and resources to recover from. The collective impact of numerous disruptive events over time can also work to slowly erode confidence and therefore legitimacy in the meat sector. A number of high profile animal welfare incidents (e.g. shocking videos of inhumane slaughtering or intensive animal housing conditions) combined with transparency-related issues concerning contaminated or wrongly labelled meat (e.g. 2014 European horsemeat scandal), as well as high profile novel zoonotic disease concerns (e.g. Bird flu, Swine flu epidemics) can cause a corrosive impact, ultimately leading to a widening incongruence between the actions of the meat sector (and its individual actors') and the society's perceptions of what these actions should be.

2.1   A 'Systems' Approach

Legitimacy theory derives from broader political economic theory (Gray, Kouhy & Lavers, 1995) where 'political economy' is described as the "social, political and economic framework within which life takes place' (Gray, Kouhy & Lavers, 1995, p.46). This underscores the importance of a set of broader social and political perspectives being taken

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[25] Tokuo Kudara, president of Marudai Food Co., told a Nov. 6 news conference that the firm's sales of sausages plunged 20 percent immediately after the WHO report's release, adding that it could not predict when demand would pick up. In *Japan Times* (2015). Japan Processed Meat industry's year end gift sales take hit in wake of cancer report. At http://www.japantimes.co.jp/news/2015/12/06/national/japan-processed-meat-industrys-year-end-gift-sales-take-hit-wake-cancer-report/#.Vz2HwZF97IU

into consideration if economic activities are to be meaningfully investigated (Deegan, 2009). The nature of 'systems orientated theories' (Gray, Kouhy & Lavers, 1995) such as political economy is also appropriate for the use in researching actual and potential business responses to overconsumption. In utilising a 'systems theory' framework, researchers need to understand (1) the interrelated parts of the system and how they are interrelated; (2) the processes that link the systems' parts together; and (3) the goals of the system (Kast, Rosenzweig, & Johnson, 1967). Such an approach is ideally suited to a study on how an industry responds to overconsumption (a broader societal problem) and entails a need to understand the problematic more broadly, including the relationship between stakeholders and industry, as well as the drivers for the industry in responding to concerns around overconsumption and subsequent demands for meat reduction. This also emphasises the importance of observing and understanding multiple perspectives in building up a more comprehensive awareness how an industry makes sense of legitimacy challenges. This involves both gaining insight into the strategic decision-making and sensemaking of organisational managers within the meat industry, as well as the institutional environment driving industry decision-making, that is, from the perspective of society "looking in". This recognises that the meat sector is a part of a wider system of political, social and economic pressures and one must be cognisant of these when making sense of challenges to legitimacy that confront it. Lastly, the approach is also consistent with the growing interest in food systems theory, whereby food-related matters are nested within a broader consumption and production model and should be addressed in a more holistic manner[26]. Sustainable food systems (SFS) being a concept which embodies consideration of the socio-economic, health and environmental aspects of the production and consumption of food in the development of food-related activities and policy, and which is gaining traction in international and national-level policy-making[27].

2.2   Legitimacy Theory

As discussed in section 2.2, legitimacy theory has developed from a "systems" perspective. A brief overview showing the role of legitimacy theory within broader political economy theory and a systems-based approach is provided in Figure 9. It is important to note the close and

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[26] The United Nations Environment Programmes' International Resource Panel Report on Sustainable Food Systems (2016) provides comprehensive discussion on food systems and the urgent need to move to more sustainable food systems (See Westhoek, Ingram, van Berkum & Hajer, 2016).

[27] Examples of processes on SFS include: 10YFP Sustainable Food Systems Programme, International Panel of Experts on Sustainable Food Systems - IPES-Food, The EAT Initiative, SUSFANS Programme.

often overlapping relationship between legitimacy theory, stakeholder theory and institutional theory. Each offer complementary explanatory power to the other. There is also overlap. For example, both legitimacy and stakeholder theories assume the existence of an implicit social contract between the corporation and society, the terms of which are derived from the expectations of a number of groups within that society (Roberts, 1992; Deegan, 2002, Lanis & Richardson, 2012). The dotted boxes in Figure 9 demonstrate examples of the close relationship between stakeholder theory and institutional theory to legitimacy theory. Understanding legitimacy theory requires an understanding of legitimacy. According to Suchman (1995, p. 574):

> *"Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constricted system of norms, values, beliefs, and definitions."*

This definition is inclusive, incorporating both evaluative and cognitive dimensions and explicitly recognises the role of the social audience in legitimacy dynamics (Suchman, 1995, p.573). For example, it encompasses both the need to explain the processes by which the meat industry justifies its right to exist, along with the need to understand the extent to which the array of established cultural accounts provides explanations for [an organisation's] existence (see Meyer & Scott, 1983, p.201). Legitimacy theory is often separated into two major domains of study: institutional legitimacy theory and strategic legitimacy theory. These are further separated into research that focuses on (1) legitimacy grounded in normative assessments of stakeholder relations; (2) normative evaluations of moral propriety; and (3) cognitive definitions of appropriateness and interpretability (Aldrich & Fiol, 1994; Suchman, 1995).

Legitimacy Theory thus brings together the element of stakeholder expectations of legitimacy, that is, that the actions of the entity are desirable, proper, or appropriate within the broader norms, values, beliefs, and definitions to which the entity exists, along with the element of legitimation, consisting of the actions which support the legitimacy goals of the entity. Legitimation is thereby a process by which an organization seeks approval (or avoidance of sanction) from groups in society" (Kaplan & Ruland, 1991, p. 370). Legitimation can be distinguished from legitimacy because it emphasises the process of the social construction of legitimacy, in contrast to legitimacy which is a property conferred on an organisation by its audiences (Bitektine, 2011, p.152). Both aspects are part of Legitimacy Theory and are discussed further in the following sections, for example, the importance of

different dimensions of legitimacy are raised as well as various legitimacy phases which may require specific legitimation responses.

In summary, Legitimacy Theory would suggest that when an organisation/s perceives that its current and/or future values, output or methods of operation are at variance with social norms, standards and/or values, and there is risk that powerful stakeholders may recognise this and withdraw resources at some point, then organisation/s will tend to alter their values, output or methods of operation through legitimation activities, to conform to current or expected future societal norms, standards and/or values.

Figure 9. Overview of the relationship of legitimacy theory within broader political economy theory
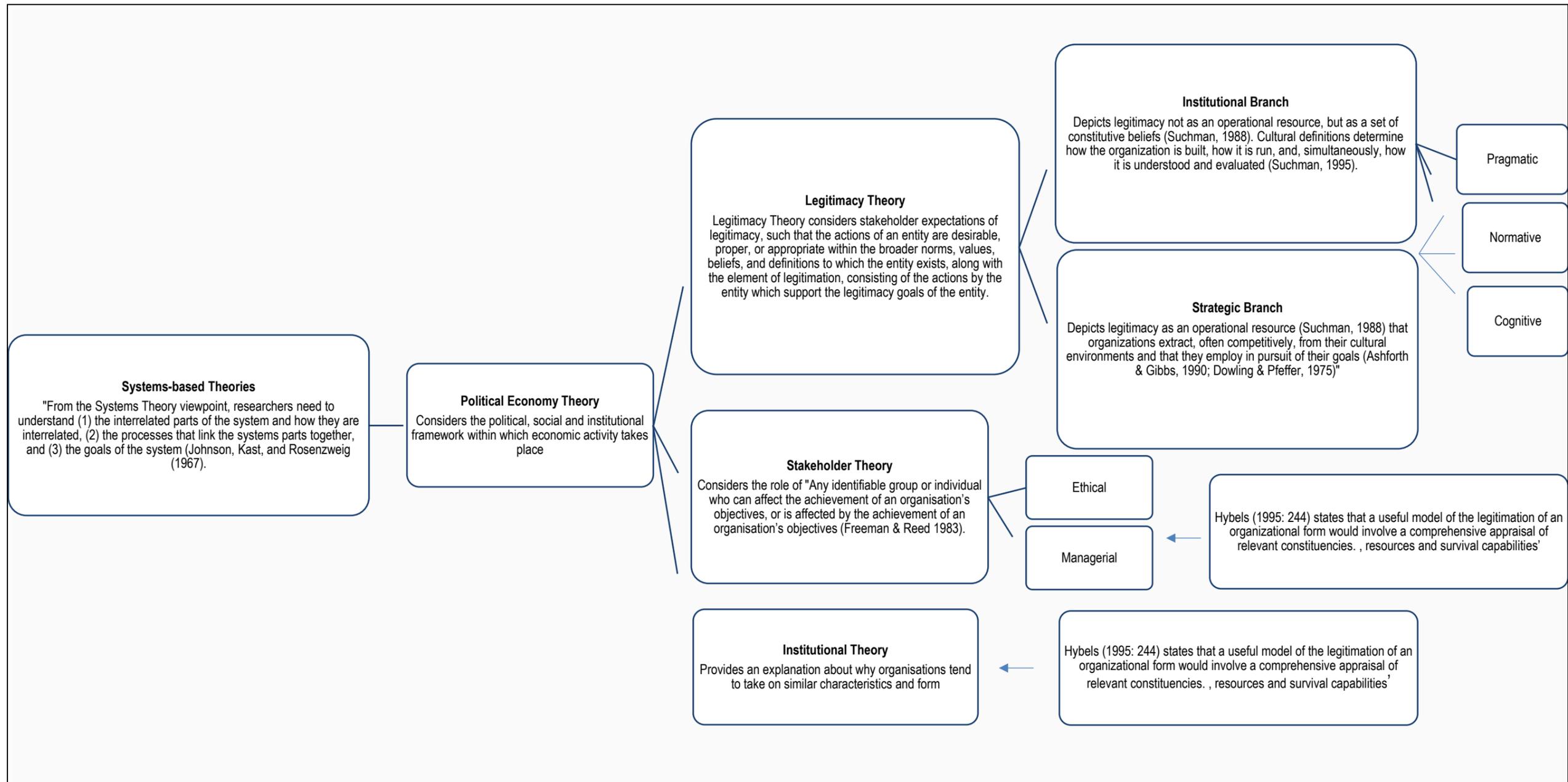
2.3 Institutional and Strategic Branches of Legitimacy Theory

There are two main branches of legitimacy theory, however, it is useful to consider both perspectives to ensure a more holistic understanding of its application.

2.3.1 Institutional legitimacy approach

The institutional approach of legitimacy theory is based on a normative approach in which it views legitimacy as something that is 'virtually synonymous with institutionalization' which empowers organizations by making them seem natural and meaningful (Suchman, 1995, p. 576). Researchers in this field tend to emphasise collective saturation (Dimaggio & Powell, 1983) of entire fields or sectors of organisational life (Suchman, 1995). Analysis therefore considers the properties of "supra-individual units of analysis that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives" (DiMaggio & Powell, 1991, p. 8). This approach also emphasises the role of institutional isomorphism, both structural and procedural, as a way to earn organisational legitimacy (Dacin, 1997; Deephouse, 1996; Suchman, 1995). Accordingly, in order to survive, organisations must conform to the rules and belief systems prevailing in the environment (Scott, 1995; DiMaggio & Powell, 1983; Meyer & Rowan, 1977). The institutional approach depicts legitimacy as a set of constructive beliefs unlike the strategic approach that nests it as an operational resource (Suchman, 1988).

2.3.2 Strategic legitimacy approach

Suchman (1988) states that strategic-legitimacy studies depict legitimacy as an operational resource that organisations extract, often competitively, from their cultural environments which they employ in pursuit of their goals (Ashforth & Gibbs, 1990; Dowling & Pfeffer, 1975; Suchman, 1995). Emphasis on the ways in which organizations instrumentally manipulate and deploy evocative symbols to garner societal support is common (Suchman, 1995, p. 572).

2.3.3 Holistic legitimacy approach

A way of looking at both the strategic and institutional approaches of legitimacy theory is to consider it as a matter of perspective. In this case, one can either pursue the viewpoint of organisational managers looking out, or alternatively the viewpoint of society looking in (Suchman 1995; Elsbach, 1994). A more holistic approach might include looking at both.

Suchman (1995) for instance, cautions against forgetting that real world organisations face both strategic operational challenges and institutional constitutive pressures. This would seem pertinent to legitimacy studies involving the meat industry. One can imagine industry managers wrestling with questions of how and when to develop specific legitimation strategies to secure and/or retain resources. At the same time, they are being confronted with the need to understand the broader institutional forces that place pressure on the industry and which act as powerful drivers of industry behaviour (Scott, 1995; DiMaggio & Powell, 1983; Meyer & Rowan, 1977).

A holistic approach in many respects matches the sensemaking characteristic of being Enactive of Sensible Environments (Weick, 1995), neatly summarised by Follett (1924) where she notes that, "we are neither the master nor slave of our environment". Therefore, a pragmatic or holistic approach to legitimacy recognises the need to look at both perspectives of legitimacy, institutional and strategic, along with the importance of actions.

For example, in the meat industry, animal welfare must be managed daily and requires a standard of care that meets regulatory requirements as a basic minimum. There exists a set of internal industry expectations (e.g. actions that conform to the law and accepted industry practice), as well as a set of external public expectations regarding animal welfare, which may go far beyond legal requirements and which can change rapidly. Long-term management of all these norms, expectations, values, and definitions around animal welfare involves decision-making that consider the strategic legitimacy environment, as well as the broader institutional legitimacy pressures. Failure to adhere to, or meet either internal and/or external expectations can result in highly damaging events which can threaten legitimacy.

Understanding the differences between internal and external expectations, and managing those differences, requires an understanding of both the conforming forces and potential opportunities resulting from institutional and strategic legitimacy demands. This includes managing the inherent trade-offs between both. The usefulness therefore in taking a holistic approach is that it drives a deeper understanding on the potential and real legitimacy gaps that might exist between internal and external expectations. The importance of this, is that it can help to avoid a situation of 'legitimacy loss', which will place an organisation or industry in the unenviable phase of defending legitimacy.

Legitimacy gaps can occur rapidly. For example, if public attention is suddenly focused on animal husbandry or slaughter practices that cause shock, revulsion or alarm, an industry or

organisation can quickly be forced into a position of defending legitimacy, which it may not be well-prepared for. For the meat industry, there is the additional pressure that it often viewed homogenously by many stakeholders. Thus, when there is a serious failure to meet public expectations, for example in the EU Horsemeat scandal, shocking individual cases of animal cruelty, or the IARC cancer report (2015), the result is often not only highly disruptive for specific company/s, but also the wider meat industry.

Crisis events and/or ongoing long-term slow erosion of trust and/or acceptance can therefore represent threats to legitimacy that extend far beyond the organization/s initially viewed as culpable (Desai, 2011). In these cases, strong stakeholder reactions involving perceived shortfalls can spill over organizational boundaries, affecting the legitimacy of other organizations and their overall field (Jonsson, Greve, & Fujiwara-Greve, 2009; Rhee & Valdez, 2009; Yu, Sengul & Lester, 2008; Desai, 2011). Consumers may reduce meat consumption, demands from downstream retailers to change production methods could increase, regulators may step up efforts to investigate and report transgressions, it may even result in wide-scale intervention by government through for example, government-led industry-scale inquiries (Assemblee Nationale, 2016).

2.4   Dimensions of Legitimacy

Suchman (1995) emphasises that organisations seek legitimacy through different ways. Accordingly, in any assessment of the importance, difficulty and/or effectiveness of legitimation activities he draws attention to two important dimensions of legitimacy in relation to legitimation efforts. These are the (a) distinction between pursuing continuity and pursuing credibility and (b) distinction between seeking passive support and seeking active support (Suchman, 1005, p. 574). Examples follow which try to illustrate what this might mean for the meat sector. Firstly, it is worth emphasising that organisations can pursue both continuity and credibility and seek passive and active support at the same time. The difference lies more in the emphasis or focus that an organisation/s will place on either dimension, according to the main drivers or motivations driving legitimation activities. Organisations, however, will tend to seek passive support and focus on actions based around preserving continuity most of the time. The reason being, that organisations who already possess legitimacy, will require little ongoing investment in maintaining legitimacy, if the organisation continues to broadly conform to current expectations or social norms of the industry and wider society. Perhaps however, this may also be a factor of deeply embedded

institutional frameworks and power structures that drive industry identity. For example, legitimation activities that centre around passive support may be chosen, if the organisation does not feel vulnerable due to an internal belief in its own strong identity and rationale in explaining what it is doing and why. This aspect of 'external myopia' caused by a strong organisational identity might be worth exploring further within the context of the meat industry. In contrast, where the organisation has a perceived or real legitimacy weakness or a potential future gap in legitimacy, then an organisation might seek active support and focus on acquiring credibility, such that organisation does not slip into a position of losing legitimacy, which will require the organisation to enter into a phase of reactive defence.

2.4.1   Legitimation versus marketing and reputation management

It is worth noting that there is a distinction between "marketing" and pursuing legitimacy through legitimation activities, although this difference is not always clear or straightforward. There is significant overlap between the two processes and they are certainly not mutually exclusive. The rather simplistic (perhaps naïve) view in this paper is that the difference is largely defined around their underlying purpose. Legitimation activities have as their primary goal, the task of repairing or preventing a disparity, now and/or in the future, which represents some incongruence between the meat sector (and its individual actors') actions and the society's perceptions of what these actions should be. This is different than marketing which is defined as "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large" (AMA, 2013).

It is also a difference between legitimacy management and 'reputation management', although again there is sometime considerable overlap. Reputation as defined by Wartick (1992, p. 34) is "the aggregation of a single stakeholder's perceptions of how well organizational responses are meeting the demands and expectations of many organizational stakeholders". Both legitimacy and reputation are multidimensional constructs (Dollinger, Golden, & Saxton, 1997; Ruef & Scott, 1998; Suchman, 1995) with the relationship perhaps best summarised by Rindova, Pollock, & Hayward (2006, p.54) where legitimacy is a "fit with normative values and beliefs" and reputation is the "perceived ability of the firm to create value". The element of differentiation, is also important, with reputation serving to distinguish one firm from another, compared to legitimacy which as a collective good accrues

to all industry members (Barnett, 2006). Deephouse & Suchman (2008, p.62) also describes the difference as "legitimacy being homogenizing, whereas reputation is differentiating".

Any fuller discussion of these aspects is beyond this paper. It is simply noted that there is considerable overlap between the three areas. The following example, however, illustrates the interaction and close relationship between legitimation (attempting to satisfy social norms and expectations), marketing (creation and communication of value to the company and stakeholders) and reputation (enhancing trust but also driving competitive differentiation) actions. In 2010, Australian poultry brand Steggles ran an award-winning advertising campaign aimed at "dispelling the myths around the use of cages in the Australian chicken meat farming industry" (see figure 10). In part the campaign was a response to a survey conducted in October 2010, in which 78% of respondents said that they believed that chickens raised for chicken meat were kept in cages (Australian Financial Review, 2012). This was despite the fact, that according to Australian Poultry Council, that poultry cages are not used in chicken meat farming operations in the Australian industry[28]. The campaign was considered highly successful for revitalising the brand, educating consumers on aspects of sustainability within the sector and increasing customer perception of quality associate with the brand. It also resulted in a substantial sales increase[29]. Legitimacy and reputation management aims, along with marketing goals to maintain and increase sales, were all important factors in the campaign.
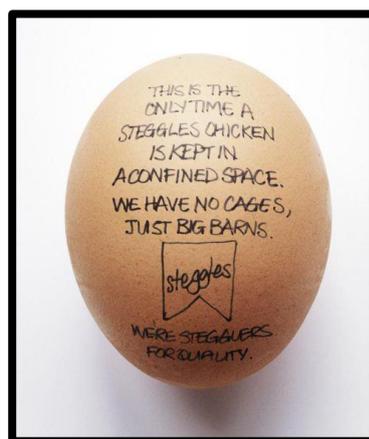
Figure 10. Steggles Advertising Campaign Poster

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[28] Australian Chicken Meat Federation. At http://www.chicken.org.au/page.php?id=150#G1. Accessed 2 March 2017. It should be noted that this applies to chicken meat farming and not egg farming operations, consumers may therefore not be differentiating between the two.

[29] A summary of the campaign and outcomes is provided as a case study by the Australian Financial Review and can be found at http://www.afrbiz.com.au/media/Case%20Studies/Baiada_Case_Study_Ed_7.pdf

2.4.2 Pursuing continuity

Legitimation activities can focus on the pursuit of protecting continuity. Continuity is defined as an 'unbroken and consistent existence or operation of something over time.' (Oxford Dictionary, 2015). This dimension therefore centres on the intention of maintaining social acceptance of the organisations' operations and existence so that it can focus on its own objectives and avoid potential public reappraisal of its actions. Pursuing continuity though legitimation activities can be achieved through active or passive ways. A passive activity that pursues continuity could be for example, adhering to, and reporting on regulatory or industry-level requirements. Other examples might include actions that seek to better connect the consumer to how the animal is farmed (farm open-days) with the aim to maintain ongoing acceptance and understanding of industry practice, as well as "farming" values. Another example of a focus on pursuing continuity might be 'The Glass Walls Project[30]. This project, developed by the American Meat Industry, seeks to bring more transparency to abattoir practices, as well as to develop a better understanding amongst stakeholders, of expected 'normal' slaughterhouse practice in the industry. It includes videos, narrated by an international expert in animal welfare, of slaughter practices. It uses real examples and explains in detail each step of the process.

2.4.2.1 Enhancing persistence

Organisations can also focus on pursuing continuity through actions that centre on the task of enhancing persistence. For example, persistence might be represented in the many activities (both collectively and individually) that companies carry out to maintain the perception of meat-eating as an important cultural or social activity.

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[30] NAMI, The Glass Walls Project. At http://animalhandling.org/ht/d/sp/i/80622/pid/80622. Accessed 1 January 2017.
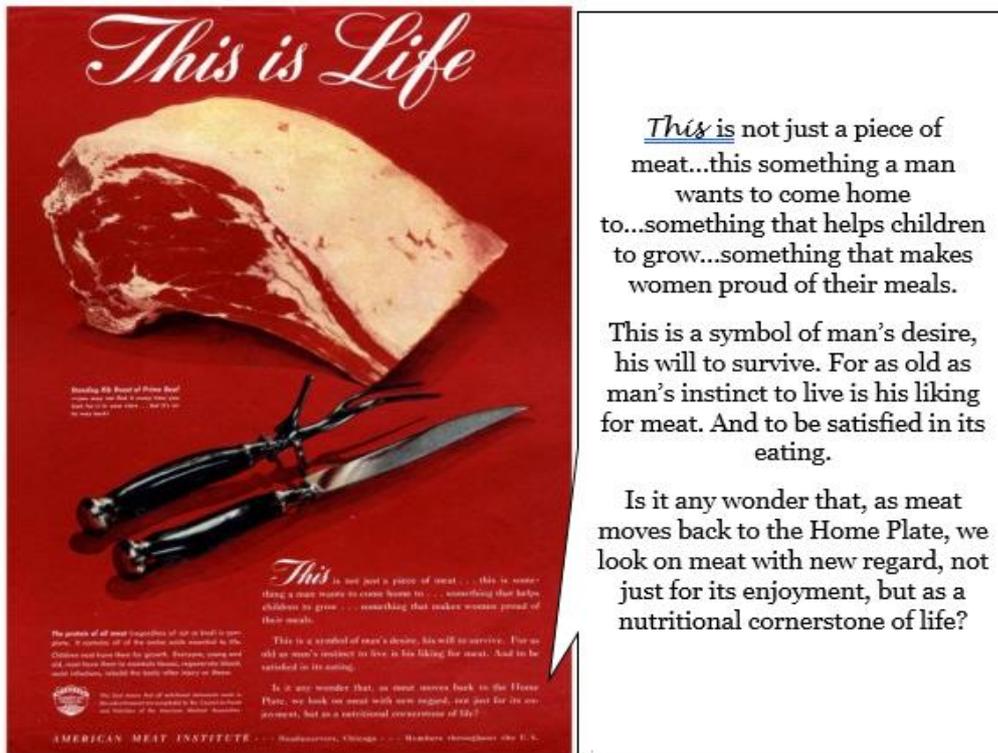
Figure 11. American Meat Institute Advertisement, 1940

Meat advertising campaigns of the 1940-60s in the United States provide an example of how "persistence" is sought through advertising. Figures 11 and 12 highlight themes such as health, power, identity, as well as meat representing the 'nutritional cornerstone of life'. Meat is also described as being essential to growth and wellbeing.
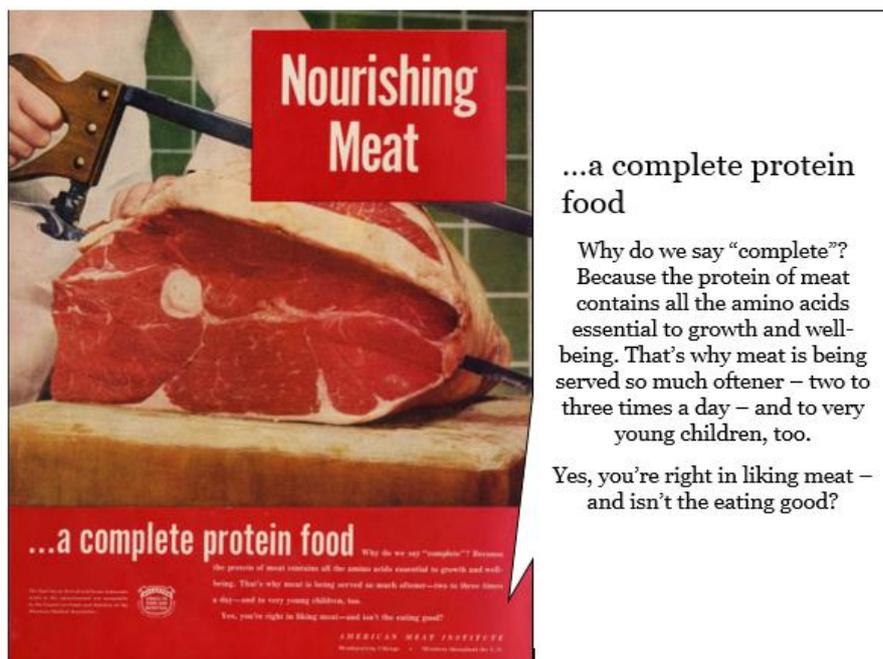
Figure 12. American Meat Institute Advertisement, 1940s

There is also an emphasis on meat as a complete protein food to be 'eaten as much as 2-3 times a day'. These messages are typical of many strongly held persisting stereotypes and beliefs held about meat. For many societies, the ability to consume large amounts of meat has also traditionally been a marker of wealth and social power (e.g., Fiddes, 1991). Red meat, for example, is also thought to occupy a position high in the food hierarchy because it symbolizes power, strength, and human dominance over nature through its visible blood content and associations with hunting, a typically male-dominated activity (e.g., Adams, 1990; Fiddes, 1991; Sobal, 2005).

Swatland (2010) discusses the role of meat consumption culture in the early development of language, social grouping and religions and highlights that laws governing meat industries in the West are also a product of western culture. For example, he reminds us that it was the novel, The Jungle, written by the Pulitzer Prize winner, Upton Sinclair, and published in 1906, that led to President Theodore Roosevelt to accelerate the passage of the US Pure Food and Drug and Meat Inspection Acts. The novel exposed atrocious conditions in the meat industry which led to an immediate public outcry and subsequent government reaction. There has, however, also been significant changes in societal values around meat over the last century. Figure 14, a French advertisement from early twentieth century, emphasises the ability of meat to "fight fatigue", depicting a clever pig happy to contribute to its own demise for the benefit of humans. Figure 14 makes the somewhat explicit connection between solid, compressed and soon to be dead, beef cows.
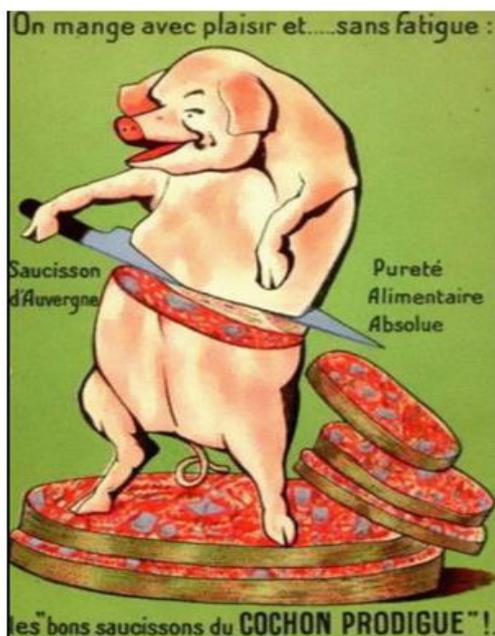
Figure 13. French meat advertisement, 1920   **Figure 14.** St. Louis Beef Canning Company, 1890 - 1920
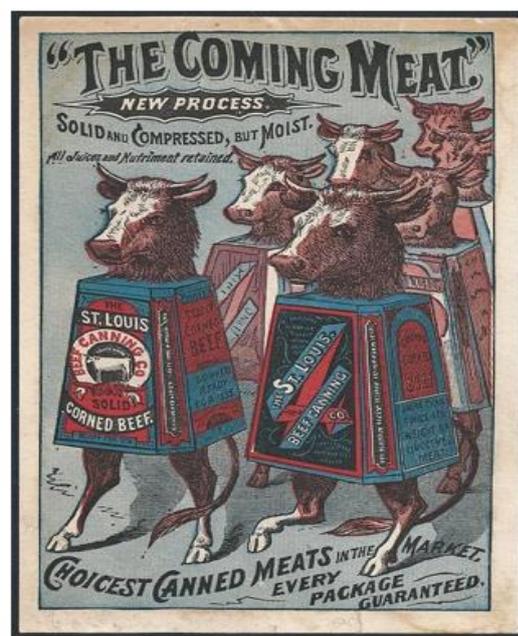
These images would no longer be acceptable in present-day communications. Indeed, Park & Singer (2012, p.123) maintain that the welfare of farm animals has become an issue of international concern over the past decade, caused by the growth in international trade in animals and animal products, and Westerners' reactions to what they perceive as cruel practices both in their own countries and outside their borders. A 2007 European Commission survey on "Attitudes of EU Citizens Towards Animal Welfare,", showed that 77 percent of those responding to the poll wanted further improvements to protect farm animals on top of existing regulations. This was despite the introduction, over the preceding ten years of more stringent regulations, for example, bans on sow stalls, barren battery cages, and individual confinement stalls for calves raised for veal (EC, 2007).

Nevertheless, the persisting belief that "meat eating is an essential part of the diet providing the best form of accessible protein and essential minerals" remains strong in many populations. This was evidenced in research by MacDiarmid, Douglas & Campbell (2016, p. 491) in which consumers were asked for reasons why they might not reduce meat consumption and provided responses based around: the importance of the perceived traditions and role of meat in the diet (e.g. "a proper meal has to include meat", "it is part of a healthy diet", "meat fills you up"); belief that human beings should eat meat (e.g. "man has always eaten meat", "it is part of our staple diet") and the influence of external social pressures (e.g. "others in the household are unwilling to eat less meat", "not wanting to be seen as different from peers").

Maintaining this "persistency", and therefore continuity of norms and values around meat is understandably important to the meat industry. Therefore, any challenges to this dimension would be expected to encounter strong opposition from industry members. This was evidenced in reactions to the Scientific Report of the 2015 Dietary Guidelines Advisory Committee (DGAC) in the United States. The recommendations of this Advisory Report were made with the aim to be a critical contributor to the final development of the 2015-2020 United States Dietary Guidelines. The US Dietary Guidelines themselves hold substantive institutional power, being hugely influential in setting nutritional policies (in the private and public sector), as well as guiding government procurement policy. There are considerable incentives for food companies to comply or provide food products consistent with the advice of the US Dietary Guidelines. For example, the Federal Government uses the guidelines as the basis for federal nutrition and food-assistance programs, including school lunches. The Executive Summary of the 2015 Advisory Report noted that, "The overall body of evidence

examined by the 2015 DGAC identifies that a healthy dietary pattern is higher in vegetables, fruits, whole grains, low- or non-fat dairy, seafood, legumes, and nuts; moderate in alcohol (among adults); lower in red and processed meat[31]; and low in sugar, sweetened foods and drinks and refined grains" (p.4). Contained in a footnote was reference to lean mean, stating that: "lean meats can be a part of a healthy dietary pattern". The removal of lean meat from the substantive text, a change from previous Reports and its reference only in a footnote provoked vigorous reaction from the meat industry, with the Report's recommendations labelled by industry representatives as: "flawed", "nonsensical" and "failing to recognize the role that nutrient dense lean meats can play in a healthy balanced diet" (NAMI, 2015). Further, the view that "Lean meat is a headline, not a footnote[32]" became quickly supported by the wider industry, picked up by media, and further promulgated by politicians. It became a major issue of public discourse in the process of developing the new Dietary Guidelines. This is not surprising. Any perceived or real relegation of the role of meat by a powerful norm-setting process represents a direct threat to the persistency of values associated with meat as being a cornerstone of the national diet and therefore has considerable consequences for the industry.

2.4.3   Pursuing credibility

Pursuing credibility through a compelling collective account or rationale explaining what the organisation or sector is doing and why (Suchman,1995) c also represents an important legitimation activity. For example, a sector-wide approach to help enhance trust, credibility, and ultimately legitimacy can be employed. In these cases, the sector may frame its communications in the narrative of 'working with credible others' to improve its environmental or social performance. These credible others will likely include stakeholders that hold some level of status, for example international organisations, scientists, 'reputable' civil society groups, and governments. Activities might include the development of voluntary certification schemes (e.g. organic labelling scheme, carbon footprint certification) or

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[31] The following paragraph was contained in a footnote: "As lean meats were not consistently defined or handled similarly between studies, they were not identified as a common characteristic across the reviews. However, as demonstrated in the food pattern modeling of the Healthy U.S.-style and Healthy Mediterranean-style patterns, lean meats can be a part of a healthy dietary pattern." (DGAC Report, 2015)

[32] Statement by North American Meat Institute (NAMI) President and CEO Barry Carpenter. In, NAMI (Tuesday, February 24, 2015). "Institute Issues Strong Response to Final DGAC Report". At https://www.meatinstitute.org/index.php?ht=display/ArticleDetails/i/110158

international guidance, standards, principles (e.g. LEAP Partnership[33], Global Roundtable on Sustainable Beef) to help measure and improve environmental performance, animal welfare practices, health and/or safety, and may also be aimed at informing consumers in a "credible" way about external product attributes.

Many national-level schemes also exist with the goal to improve stakeholder perceptions of reliability, sustainability, safety and trustworthiness and enhance credibility. For example, the Irish OriginGreen[34] initiative is a national-level evidence-based sustainability programme in Ireland, to which participating farmers and food producers are independently verified against. Independent verification is an important element of building credibility in the programme. Another example is the development in Germany of a nationwide voluntary animal welfare label, developed by scientists, meat industry members and the German Animal Welfare Association[35].

2.4.4   Passive acquiescence and/or active support

The difference between seeking passive acquiescence or active support is important. To seek active support requires an organisation to 'mobilise affirmative commitment' from stakeholders and this is often demanding and requires additional resources (Suchman, 1995).

Because of the significant rise in total meat consumption globally over the last 100 years and its historically valued position in the social and business fabric of many countries, one would argue that seeking passive acquiescence has been historically sufficient for legitimacy. This would appear, in general, to still hold true, particularly in developing countries where meat consumption is rising rapidly and there may be less attention to quality or sustainability issues or in countries with very strong meat cultures[36]. However, in many developed countries it could be argued that the sector must now go beyond seeking mere passive

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[33] The LEAP Partnership was founded in 2012 and involves stakeholders across the livestock sectors. The objective is to develop comprehensive guidance and methodology for understanding the environmental performance of livestock supply chains. It has significant industry involvement. See http://www.fao.org/partnerships/leap/en/

[34] OriginGreen (2017). At http://www.origingreen.ie/about/our-sustainability-charter/

[35] See BMEL (2017) The BMEL supports introduction of an independent animal welfare label. At https://www.bmel.de/EN/Animals/AnimalWelfare/_Texte/Tierschutzlabel.html

[36] Although in many developing countries there is increasing interest in health and safety concerns related to food.

acquiescence in maintaining legitimacy to a position of seeking active support across a range of issues related to sustainability, health, and ethical practices.

There is evidence in industrialised countries that meat consumption levels per capita appear are nearing or have reached saturation. For example, OECD countries show a 7% increase in total meat consumption from 1995-2015, however, consumption per capita of all meats (beef veal, poultry, pork and sheep meat) from 2005-2015 shows less than 1% growth in total consumption[37]. In the period 2009-2014, world meat consumption growth also declined, to nearly reach the pace of population growth (EU Agricultural Markets Briefs, 2015). Closer examination also shows substantive differences in consumption between meat species. Data for OECD countries from 1995 to 2015 shows a small increase in pork and particularly large growth in poultry consumption with significant decreases in beef/veal and lamb consumption. This is interesting in that the persistence of red meat as a key component of the diet is potentially being challenged by "white meat" alternatives[38]. It may therefore reflect a possible change in cultural values around red meat and growing willingness or acceptance to substitute red meat with white meat alternatives based not just on price but also qualities such as taste, values, and perceived ease of cooking.

Studies also point to a growing willingness amongst consumers to reduce meat consumption in industrialised countries. De Bakker & Dagevos (2012, p.212) pointed to a possible shift going on in the cultural image and appreciation of meat amongst Dutch consumers with meat becoming less of a token of masculinity as it once was. A large proportion of the Dutch consumers surveyed in the research, approximately 70% of the sample of 800 consumers, were also identified as ''meat reducers'', who had at least one meatless day weekly (De Bakker and Dagevos, 2012). The national 2014 British Social Attitudes (BSA) survey showed that 29% of respondents reported reducing their meat intake in the last year, and that the major driver for this was concerns around health (58%) (NATCEN, 2016). A 2013 survey of the British public commissioned by Eating Better found that around one in three (34%) people said they were willing to consider eating less meat, with a quarter (25%) saying they had already cut back on the amount of meat they were eating over the last year (NATCEN, 2016b). There is also an increasing interest in meat substitute foods. A 2014 global report by market research company Allied, estimated that the global meat substitute market will grow

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[37] OECD (2016), Meat consumption (indicator): doi: 10.1787/fa290fd0-en (Accessed on 27 May 2016)
[38] Noting that pork meat is considered as a red meat.

by an average of 8.4 percent annually in the next five years, reaching a size of USD 5.2 billion by 2020 (Allied Market Research, 2016).

Campaigns by NGOs which highlight the negative impacts of meat consumption are also becoming increasingly sophisticated, organised and coordinated. A number of scandals (horse meat, animal cruelty) and health scares (mad cow disease, salmonella, bird flu, swine flu) have and continue to draw considerable media attention. Research and guidance from highly respected organisations (e.g. WHO, American Cancer Society, Oxford University) are also highlighting the detrimental health effects of meat consumption.

Increasing urbanisation will also have a huge impact on traditional meat-eating values and norms in society. While urbanisation can be positive because it is linked with rising income levels and rising meat consumption, it also brings an additional complexity due to a potential weakening of shared values as urban consumers become less connected to rural areas and farming.

> *"When Congress created the U.S. Department of Agriculture in 1862, it was called "The People's Department" because nine out of ten Americans lived on farm. Today, fewer than five percent of Americans live on farms. The majority are separated from farming by multiple generations."[39]*

At the same time, a growing and more urbanised global population and associated rising middle class in the developing regions, will create an increase in total meat demand over the coming years. Therefore, the meat sector will need to meet increasing and shifting global meat demand, in a progressively resource-constrained world, whilst being increasingly scrutinised on its environmental, ethical, social, health, safety and economic performance. Rising total global meat consumption, and corresponding increasing production, will no doubt also aggravate many of the pressure points already evident in current meat consumption and production practices.

Without proper management of these issues, including a reduction in overconsumption, the sector is likely to be faced with an increasing level of disruptive events which will continue to confront current industry values and norms, and which will further challenge legitimacy. Together, these pressures and demands may well require more than 'passive acquiescence' but a more active 'mobilisation of support' amongst a broad set of stakeholders. According to

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[39] American Meat Institute. Meat Mythcrushers. At http://www.meatmythcrushers.com/ . Accessed 10 February 2017

Suchman (1995, p.575) achieving active support also requires that an organisation/industry 'have value'. Yet, many of the sustainability, health, ethical demands facing the industry are also issues related to a fundamental re-examination of the values of meat, in society. Therefore, legitimacy of meat, and the meat industry, is likely to be increasingly contested over the coming years.

2.5 Pragmatic, Moral and Cognitive Approaches to Legitimacy Theory

There are three broad types of organisational legitimacy as applied in both strategic or institutional legitimacy context. These refer to pragmatic, moral and cognitive legitimacy (Suchman, 1995). All three approaches are based around the generalised perception or assumption that organisational activities are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions (Suchman, 1995, p. 577). The distinction between the three lies in the different behavioural dynamics underlying each approach (Suchman, 1995). In considering legitimacy in the context of the sustainability, ethical and health-related challenges facing the meat industry, investigation of the pragmatic, moral and cognitive types of legitimacy are all worth exploring, at least initially. This maintains an open-mind and can also provide different perspectives on issues early in the investigation that might guide later methodological choices and/or specific focus points of the research. With a view to assessing potential applicability to the meat sector, several questions or examples are provided in Table 2, alongside a brief description of the three approaches.

Table 2. Approaches to legitimacy theory

Approach	Definition	Types	Description	Potential Example
Pragmatic	"Rests on the self-interested calculations of an organisation's most immediate audiences." (Suchman,1995: p.578).	Exchange legitimacy	Support for an organisational policy based on that policy's expected value to a particular set of constituents (Dowling & Pfeffer, 1975). The contribution a firm will make is valuable, the groups that will benefit the most from it should take it seriously, and the firm is responsive to the needs and interests of these groups.	Powerful lobbying efforts to secure support for pro-meat industry outcomes based on mutual exchange of support.
		Influence legitimacy	Constituents support the organisation not necessarily because they believe that it provides specific favourable exchanges, but because they see it as being responsive to their larger interests.	Co-opting constituents in nutritional campaigns that have pro-meat industry outcomes. Appointment of industry-funded advisers/scientists in development of industry/national/international standards. Appointment of cultural ambassadors for meat promotions such as athletes, celebrities, chefs.
		Dispositional legitimacy	A type of legitimacy that emphasises the relationship between constituents and the organisation where the constituents consider the organisation as "sharing the same values" or possessing individual qualities that they share, as though the organisation is indeed an individual itself.	Meat marketing campaigns that underscore an intimate connection between consumer and company, sharing meat values, emphasis on connection of the consumer to the producer, emphasis on "family" farming systems, production practices in line with individual consumer's beliefs such as "local" production or "organic".
Moral	Rests not on judgments about whether a given activity benefits the evaluator, but rather on judgements about whether the activity is "the right thing to do". (Suchman, 1995)	Consequential legitimacy	Organisations should be judged by what they accomplish (Meyer & Rowan, 1991).	Supply of safe quality meat with transparency across the meat supply chain, from producer through to consumer, embracing regulatory procedures expected by consumers. Transgressions, such as the European "horse meat scandal" of 2013, where goods advertised as containing beef were found to contain undeclared or improperly declared horsemeat can have serious impacts on the industry. The killing of animals in a humane manner is expected as the "right thing to do". Meat industry is judged on its ability to carry out this expectation. General code that communication on slaughtering procedures is avoided, however, implicit in this is an expectation that such procedures are carried out in a humane manner. Transgressions have serious consequences.
		Procedural legitimacy	Organisations garner moral legitimacy by embracing socially accepted techniques and procedures (Scott, 1977)	Embracing voluntary certification schemes, industry standards and guidance for farming and production of meat. Industry should follow regulations and be transparent in operations.
		Structural legitimacy	The organisation is valuable and worthy of support because its structural characteristic located it within a morally favoured taxonomic category.	The meat industry and specifically farmers are providing an essential service for society by providing safe, nutritious food. Farms are considered as part of the landscape and "look" similar. Farm "open-days" allow consumers to connect with the structural dynamics of farming. Food safety is standardised and regulated. Performance is measured and reported on. Government officials are seen to support industry, direct or indirect economic subsidies may exist. Avoidance of communication on large-scale intensive farming operations. Avoidance of the use of "factory farming", "corporate farming".
		Personal legitimacy	Rest on the charisma of individual organisational leaders. Often transitory and idiosyncratic.	No evidence of any charismatic global leader, however, nationally there may be instances of well-known leaders/CEO/owners of meat companies or meat retailing businesses, which are identified by consumers and act as compelling reason to support company or trust in its leadership/products/services.
Cognitive	Legitimacy based on cognition rather than on interest or evaluation.	Comprehensibility	Cultural models that furnish plausible explanations for the organisation and its endeavours and which help participants arrange their experiences into coherent, understandable accounts.	General acceptance of meat-eating as necessary or inevitable based on cultural and nutritional importance of the role of meat in the human diet. Supported through research, marketing, cultural exchange. Reinforced actively by activities of the industry.
		Taken-for-grandness	"For things to be otherwise is literally unthinkable", glacial, integrative change is a feature.	Meat viewed still as "cornerstone of the main meal" of the day in many households. Other options such as veganism, vegetarianism still only a small minority in many countries and may be marginalised behaviour in some cultures. Farming (meat/dairy) is viewed as the "fabric" of society in many countries. Meat eating is considered natural, normal and essential. "Humans need meat to survive in a healthy way."

2.6   Threats to Legitimacy

Mathews (1993, p. 350) defines legitimacy and subsequently the threats to legitimacy, as when:

> *"Organisations seek to establish congruence between the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system in which they are a part. In so far as these two value systems are congruent we can speak of organisational legitimacy. When an actual or potential disparity exists between the two value systems there will exist a threat to organisational legitimacy."*

It is worth noting that it is not possible for an organisation to satisfy all constituents, at any time. However, satisfaction of all is not the criteria on which legitimacy rests on. Simply, no organisation would be legitimate if this was the case. Legitimacy is socially constructed, dependent on a collective audience, yet independent of particular observers (Suchman, 1995). As well, legitimacy can be, and is most often is resilient to specific events. One might expect, however, that this would be somewhat dependent, on the severity of the challenge to legitimacy and the stage any individual company was in, with regards seeking legitimacy. For example, a particularly damaging event could be catastrophic to a "new entrant" seeking to build legitimacy, or to an established company which was already in a serious phase of repairing or defending legitimacy.

Legitimacy is, however, dependent on a history of events (Suchman, 1995). These events do not necessarily need to be long-lasting but can be transitory or episodic in nature, the key point being that legitimacy is a dynamic construct. Deegan, Rankin & Tobin (2002, p. 319 - 20) state that "community expectations are not considered static, but rather, change across time thereby requiring organisations to be responsive to the environment in which they operate. An organisation could, accepting this view, lose its legitimacy even if it has not changed its activities from previous activities. Thus, companies need not only be ready to respond to the sudden unexpected legitimacy crisis but be consciously aware of any slow erosion of legitimacy over time.

The increasing interconnectivity of societies through the rapid process of globalisation over the last 50 years has also resulted in the potential for increased scrutiny of organisations. Information can be circulated quickly and be of interest to stakeholders who may reside far from the event or incident that occurs. In this case, corporations must be aware of potentially legitimacy-damaging activities in other countries. Industry bodies set up at an international level, for example the International Meat Secretariat or the Round-Table on Sustainable Beef,

which bring representatives from different companies from around the world to a common platform to discuss and strategize can be useful mechanism to help address such legitimacy issues. At an individual level, we are also reminded that almost every corporation will regularly need to defend its legitimacy, by the mere fact that:

> "*Corporations must fulfil both a competence and community requirement to realize legitimacy… Satisfaction of stockholder interests often occurs at the expense of community concerns (e.g., the despoiling of the environment) while, conversely, responsibility to the larger community often occurs at the expense of the stockholder*" (Hearit, 1995, p. 3).

Suchman (2005) also outlines three points where legitimacy maintenance can be problematic. Firstly, legitimacy represents a relationship with an audience, and the audience is likely to be heterogenous, therefore audience demands can change over time. Secondly, in maintaining legitimacy an entity can become rigid and unresponsive through legitimatisation that institutionalises industry structure and behaviour preventing required change/s to respond appropriately to legitimacy threats. Thirdly, institutionalisation can itself generate opposition (p.594). For example, attempts to attract positive attention (marketing campaigns) can result in the opposite effect of negative attention and allow certain stakeholders to attempt to delegitimise the whole sector.

2.7   Phases of Legitimacy

Table 2 identifies phases of legitimacy in which a company/industry will operate within. These different phases indicate whether the organisation is in a phase of gaining, maintaining, repairing, defending or even extending legitimacy, along with specific examples in the meat sector. In each phase, organizations will employ various strategies and actions to ensure that their operations are, or become to be, perceived as legitimate (Dowling & Pfeffer, 1975). That is, they will attempt to establish congruence between 'the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are a part" (Mathews ,1993, p.350). The addition to other stages of legitimacy management to the three (gain, maintain, repair) set out by Suchman (1995) is helpful in providing further detail to the legitimation activities that might be employed by companies in different phases. For example, the additional stage of extending legitimacy, whereby an organisation enters new markets or changes the way it relates to its current market (Tilling, 2004; O'Donovan, 2002; Ashforth & Gibbs, 1990) provides further detail to the specific legitimation activities that might be employed at this time, and which could be

"intense and proactive as management attempts to win the confidence and support of wary potential constituents" (Ashford & Gibbs, 1990, p. 180). Legitimacy may also be threatened by a sudden disruptive event (internal or external) and therefore require immediate defence of legitimacy. In this stage, "legitimation activities tend to be intense and reactive as management attempts to counter the threat" (Ashford & Gibbs, 1990, p. 183). Tilling (2002) argues for the addition of the 'possibility that a firm may not successfully (or may be unable to) defend the threat to its legitimacy and actually start to lose legitimacy' and ultimately exit legitimacy and be disestablished because the loss might be so serious and/or ongoing in nature that it could prove to be fatal. Industries of this nature might include CFC manufacturers, nuclear power stations in countries where nuclear accidents have led to overwhelming social disapproval or the tobacco industry (Tilling, 2002). Table 3 also identifies the use of different strategies and activities in different organisational phases of legitimacy as they might apply to the meat industry.

2.8   Model of Legitimation

A possible cycle or model that sets out different phases of legitimacy, as indicated in Table 3, is outlined in Figure 15. There are, however, a few additional notes to the model that extend further than the earlier discussion in sections 2.5 to 2.8. For example, it is proposed that actual legitimacy defence only occurs when there is some real or perceived loss of legitimacy. This is because maintenance of legitimacy requires some efforts from the organisation, yet these efforts, are aimed largely at maintaining passive support. They are also generally centred around perceiving future change and protecting past accomplishments (Suchman, 2005).

In contrast, pursuing active support, requires mobilisation of stakeholder support towards something of 'value', and therefore represents a resource intensive activity for an organisation, involving an active decision on behalf of the organisation to invest in such a strategy. Therefore, any investment in active legitimation activities will only occur when there is perceived or real loss of legitimacy, now or in the future. Or, if the organisation is seeking to extend legitimacy which goes far beyond mere maintenance of current legitimacy to the creation of new 'value' and with it new legitimacy expectations. In the case of perceived or real future loss of legitimacy, the organisation will be forced into defending its legitimacy. It is suggested that once organisations move into a phase of defending legitimacy, the goal should be to move as fast as possible out of this phase, to "repair" and "regain"

legitimacy to acquire again the relatively stable phase of maintenance. This avoids becoming trapped in the vicious cycle of attack and defence which reinforce attacks on legitimacy and ultimately lead to further loss of legitimacy.

There is interest in understanding further, however, what happens in organisations that do not successfully repair legitimacy and who may continue to lose legitimacy over time. This is depicted by the arrows at (a) in both directions in Figure 15. For those extending legitimacy, the aim will be likewise, to move quickly out of the extending legitimacy phase to gain and then reach a new stable maintenance phase. In the case of the meat industry, there is interest therefore, in determining how the industry makes sense of the difference phases of legitimacy, maintenance, defence, and repair phases and whether it sees opportunities for extending legitimacy (b), for example into 'a differentiated protein strategy' which is not solely reliant on animal meat.
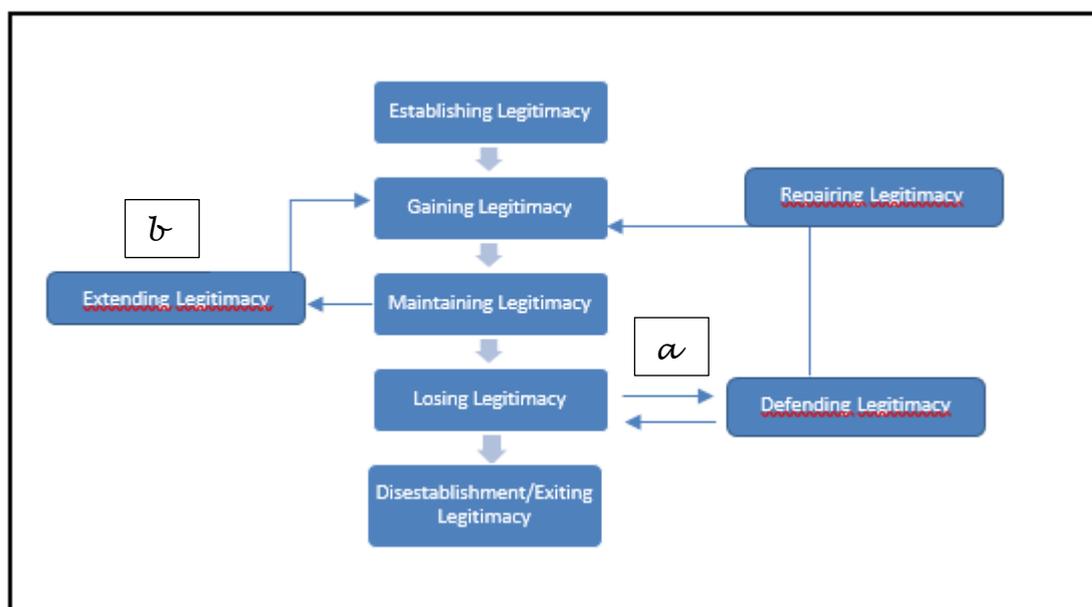
Figure 15. Proposed Model of Phases of Legitimacy

Table 3. Phases of Legitimacy

Phase	Description	Strategies and Actions	Examples
Establishing/Gaining Legitimacy	Early stages of a firm's development, "organisation must be aware of socially constructed standards of quality and desirability as well as perform in accordance with accepted standards of professionalism" (Hearit, 1995, p. 2).	Proactive Strategies utilised fall into 3 main categories (a) efforts to conform to established institutional environments; (b) efforts to select audiences that are supportive; (c) efforts to manipulate environments to create new audiences and legitimation beliefs (Suchman, 1995). Potential actions: • Seek to change the perception of the "relevant publics' • Seek to educate and inform its 'relevant publics' about changes in the organ's performance and activities; • Adapt output and goals to conform to prevailing definitions of legitimacy. • Attempt through communications, to alter the definition of social legitimacy so that it conforms to the organisation's present practices, output and values. • Attempt through communications, to become identified with symbols, values or institutions that have a strong sense of legitimacy.	Interesting examples of emerging meat alternatives that are potentially in a phase of gaining legitimacy could be: in-vitro meat production, insects as alternative protein source, growth of meat substitutes (mock meat), Impossible Burger.
Maintaining Legitimacy **(majority of organisations).**	Societal limits on business are continuously defined and redefined. Organisations will monitor changes and seek to preserve current legitimacy status.	Strategies utilised fall include (1) ongoing role performance and symbolic assurances that all is well, and (2) attempts to anticipate and prevent or forestall potential challenges to legitimacy (Ashforth & Gibbs, 1990: 183). Seek to manipulate perception by deflecting attention from the issue of concern to other related issues through an appeal to emotive symbols Use of symbolic activities to affect images of the organisation by providing explanation, rationalisations, and legitimation for activities (Pfeffer,1981: 4) Seek to change external expectations of its performance. Stop highly visible legitimation efforts. Stockpile supportive beliefs, attitudes, goodwill and accounts	Utilisation of CSR reporting, development of Partnerships with international policy and research organisations, partnerships with CSOs, Round-Tables on Sustainability/Sustainable Beef, Development of industry or voluntary market certification; input and participation into development of standards in international standards processes (e.g., ISO). Lobbying.
Extending Legitimacy	A point where an organisation enters new markets or changes the way it relates to its current market.	Proactive. Strategies "apt to be intense and proactive as management attempts to win the confidence and support of wary potential constituents" (Ashford and Gibbs, 1990, p. 180).	Investment by traditional "meat" companies in meat alternatives such as soy-based alternatives as diversification strategy.
Defending Legitimacy	Legitimacy is threatened (internal or external) and organisation is forced to defend legitimacy.	Reactive. "Legitimation activities tend to be intense and reactive as management attempts to counter the threat" (Ashford and Gibbs, 1990, p. 183).	Reaction to WHO IARC Monographs evaluation of the carcinogenicity of consumption of red meat and processed meat. Lobbying
Repairing Legitimacy	Organisations actively seek strategies and interact with stakeholders to	Proactive. Elements of a strategy to repair legitimation, that an organisation may utilise, include[40]: • Educate and inform its "relevant publics" about actual changes in the organisation's performance and activities; · • Change the perceptions of the "relevant publics" • Manipulate perception by deflecting attention from the issue of concern to other related symbols through an appeal to, for example, emotive symbols; • Change external expectations of its performance.	BSE, Horsemeat Scandal. Marketing campaigns. Partnerships with trusted partners. Co-opting respected athletes, scientists, celebrities to endorse safe, healthy meat.

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[40] Note that these elements emerge from Lindblom (1994) where she uses them in the context of gaining or maintain legitimacy, however they appear to more appropriate for the stage of repairing legitimacy because they talk about "reactive change" (real or not) to some event or disruption.

2.9 Measuring Legitimacy

Measuring legitimacy enjoyed by a company or industry can be difficult. Hybels (1995, p. 243) explains that legitimacy is obtained as resources are transferred from other institutions, yet legitimacy is required before external actors will confer resources. This paradox can be resolved satisfactorily by recalling that legitimacy grows over time. Legitimacy accumulates as resources are obtained and resources accumulate as legitimacy is established. While resources and legitimacy are not synonymous, Hybels stresses that resources flows can be among the best evidences of legitimacy. "Rather than engage in the further development of entirely abstract constructions of the legitimation process… researchers should investigate the flow of resources from organizational constituencies as well as the pattern and content of communications" (Hybels, 1995, p. 244). Terreberry (1968) also discusses this in some detail. This would appear to entail a need to understand all the resources flows and the stakeholders involved in transfer of those resources. It also emphasises the relationship between legitimacy theory and stakeholder theory which may be regarded as overlapping perspectives situated within the broader framework of assumptions supporting 'political economy' (Deegan, 2000: Gray et al, 1995). Several studies also look at legitimation actions as a way to understand the social construction of legitimacy, and the relationship between the entity and stakeholders who ultimately confer legitimacy.

2.9.1 Organisational stakeholders

Table 4 summarise a list of several organisational stakeholders of the meat industry. The definition of stakeholders being "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p.46). Organisations, however, are unlikely to consider, and will not meet the expectations of all stakeholders, simultaneously or even at all. One should be cognisant then that "stakeholder theory should not be used to weave a basket big enough to hold the world's misery" as Clarkson (1995) reminds us. And, as mentioned earlier, legitimacy does not rest on the approval of all stakeholders. Stakeholders can also be considered as either being legitimate in a normative sense, or from a derivative sense (Phillips, 2003). This makes the distinction between a moral obligation an organisation might have to respond to the needs of certain stakeholders, over and above humans in general (for example, meat-eaters, regulators, supply chain partners), as opposed to those stakeholders who have derivative legitimacy because they can potentially affect the organisation and its normative stakeholders (Phillips, 2003) yet the industry does

not have any specific moral obligation to satisfy them. This effect by derivative stakeholders can either be positive or negative, the key distinction being that it is the effect on the organisation and/or its normative stakeholders that give them derivative legitimacy, not any effect on "them" ("the derivative stakeholder") per se (Phillips, 2003). An example of a stakeholder who holds derivative legitimacy in the meat industry could be the news media. The news media can have a significant effect on the interests of the industry and the industry's normative stakeholders, such as consumers. Yet, the meat industry does not have any moral obligation to consider the needs of the news media. In practical sense, some filtering of stakeholders is necessary by managers in the meat industry to efficiently make sense of, and act on stakeholder concerns that challenge organisational legitimacy. Accordingly, Mitchel, Agle, & Wood (1997) recommend that managers consider (1) the stakeholder's power to influence the firm, (2) the legitimacy of the stakeholder's relationship with the firm, and (3) the urgency of the stakeholder's claim on the firm.

Table 4. Normative and Derivative Legitimacy Stakeholders

Stakeholder	Resources controlled	Example Organisation	Example Programme/Project/Activity
Public sector (The state Governmental bodies)	Control critical resources directly through the awarding of contracts and grants, but also indirectly influence the transfer of resources through regulation, legislation and incentives such as subsidies. Government procurement which provides significant financial incentives/signals as government is a major potential customer. Government as a norm setter through for example, education programmes, nutritional guidance, procurement policy. Drives conformity across the industry in respect to regulation and behaviour.	Federal or State governments. Courts, Public health sector, Educational institutions.	2015-2020 Dietary Guidelines for Americans European Union Common Agricultural Policy
International Multilateral Organisations	Controls critical resources directly through the awarding of contracts and grants, but also indirectly influence the transfer of resources through regulation at international level, as well as directing research efforts and priority-setting. Drives multi-stakeholder approaches which may help set policy or priorities. Represents powerful norm setting agencies. Provides evidence-based research and recommendations to help set policy, priorities and drive conformity.	World Health Organisation, UNEP, FAO	FAO Livestock Environmental Assessment and Performance Partnership (LEAP) 10YFP Programme on Sustainable Food Systems OECD Guidelines for Multinational Enterprises
Research community	Legitimates behaviour and products and services by determining performance and safety levels, as well as identifying conformance (or not) with standards or socially constructed benchmarks. Develops understanding and provides evidence-based information to	Universities, Think-tanks, research institutions	Oxford Martin Programme on the Future of Food Johns Hopkins Center for a Livable Future International Panel of Experts on Sustainable Food Systems (IPES-Food)
Financial community	Legitimating both new and established organizational forms by determining the present values of firms. Similarly, the accounting profession provides a rationalized appraisal of organizations' financial accounts. The dual functions of finance and accounting together certify the economic legitimacy. Might set guidance for investment based on social or environmental standards.	Insurance companies, stock exchange, lending institutions, accounting institutions	Farm Animal Investment Risk and Return (FAIRR) The Sustainability Accounting Standards Board (SASB) Rabobank's Food and Agribusiness Principles
Civil Society Groups, including NGOs	Legitimises behaviour, products and services by making judgements, providing communication platforms, setting standards, disseminating information. Brings attention to contested societal problems, ethics and values. Raises attention on industry practice, norms and values that might conflict/support wider community social norms and values. Can affect legislation and regulation directly through lobbying and indirectly through influence on voters.	CSOs, NGOs.	Global Roundtable for Sustainable Beef (GRSB) World Wildlife Fund (WWF) Greenpeace HIVOS World Cancer Research Fund International
Consumers	The public in general, whether organized or not, plays a vital role in the legitimation of organizational forms through the control of critical resources, not only on the demand side, but also in the supply of labour.	Consumers	Consumers International
Media	They play a critical role in the legitimation of business and other types of organizations, not only by reporting illegitimate activities, but by defining and evaluating grounds for the actions of entrepreneurs, managers, regulators, and investors. Thus, the media not only perform a monitoring service, but also provide a 'vocabulary of motive' (Mills, 1940) for organizational activity. Social media can be a powerful form of communication which can quickly threaten legitimacy if stakeholders are mobilised sufficiently.	Various	Print media, TV, Film industry, Digital, Social media
Producers, Suppliers	Legitimises means of production, use of products, and behaviour, norms and values in the industry. Legitimises certain production practices as normal or necessary or structurally unchangeable.	Feed supplier's, Fertiliser suppliers, ancillary services.	European Feed Manufacturers' Federation (FEFAC) International Fertiliser Association
Meat Producers, including Farmers	Legitimises means of production, use of products, and behaviour, norms and values in the industry as well as culture.	Producers, farmers	Various International Meat Secretariat (IMS)
Meat Processors	Legitimises means of production, use of products, and behaviour, norms and values in the industry as well as culture. Drives conformity through significant pricing power. Controls production through pricing and position in the supply chain. Structural organization of slaughterhouses, highly industrialized and mechanised, along with significant capital concentration legitimises practices, labour costs, pricing, animal handling practices, meat preparation and presentation.	Processors	Various Meat Processing Industry in the European Union (CLITRAVI)
Downstream value-chain partners	Sets and imposes norms and values and legitimises behaviour, including production, products but also consumer behaviour. Drives conformity through significant structural and pricing power. Powerful influencer of emerging legitimacy demands.	Supermarkets, Food and retail sector, Restaurants	McDonalds Beef Sustainability Programme

2.9.2   Legitimacy as a constraint

One approach to recognising legitimation attempts by an organisation is to focus on legitimacy as a constraint on organisational behaviour, "the hypothesis being that an organisation which values, output or methods of operation that are currently at variance with social norms or values will tend to alter their values, output or methods of operation to conform to societal values (Dowling and Pfeffer, 1975, p.131). Efforts by some parts of the meat industry to change and/or specifically communicate methods of operation might provide an example of this, such as changing farming practices to conform with emerging animal welfare demands, like "free-range" eggs, "free-walking" pigs, bans on use of antibiotics in animal rearing facilities. This may require a change in operations, values or output or it may require a change in communication on these aspects, whether the operations, values, or outputs have changed or not. Other recent research that has sought to 'test' for legitimacy includes studies that have focused on demonstrating a link between public disclosure of information related to perceived societal demands for such information, for example CSR reporting (e.g., O'Dwyer, 2002; Wilmshurst & Frost, 2000; Adams, 2008). Deegan, Rankin and Tobin (2002) utilised Legitimacy theory to explain how the social disclosures included within the annual reports of companies in selected industries changed around the time of major social incidents or disasters that could be directly related to their industry. For example, Hogner (1992) showed that the extent of social disclosures varied from year to year and he speculated that the variation could represent a response to society's changing expectation of corporate behaviour.

2.9.3   Legitimacy in reputation management

Another much explored angle has been company responses, actions and disclosure following events (crisis events, financial controversies, prosecution, environmental and health disasters) or public pressures which have tipped companies into phases of defending or retaining legitimacy (see Beelitz & Merkl-Davies 2012; Elsbach 1994; Pattern, 1992; Deegan & Rankin, 1996; Johnson & Holub, 2003). These studies have demonstrated that organisations may utilise a verity of strategies to respond to legitimacy threats. The hypothesis being that there will be a variation in social disclosure after a social crisis or disruption that the company has caused. Patten (1992) for example demonstrated an increase in the level of environmental disclosures by Exxon because of the Exxon Valdez oil-spill, finding that such disclosures increased not only from Exxon but from across other firms in the industry.

Elsbach (1994) carried out a particularly relevant study on how spokespersons from the California cattle industry constructed and effectively used verbal accounts to manage perceptions of organizational legitimacy following controversial events. She found that acknowledgements were more effective than denials, that references to institutionalised characteristics were more effective than reference to technical characteristics, and that accounts combining acknowledgements with references to institutionalised characteristics are more effective that accounts with only one of these components (p.57). CSR engagement by companies has also been analysed to ascertain whether there is a relationship between CSR activities and legitimation ((Rao, Chandy & Prabhu, 2008; Vaara & Tienar, 2008; Claasen & Rollof, 2012).

2.9.4   Legitimacy as a driver for collaboration

Sonpar, Huybrechts, Mertens & Rijpens (2013) provide an interesting initial insight into a relatively unexplored area of legitimacy but which could have relevance to the meat sector. They focused on exploring the role of organizational legitimacy in understanding the emergence and development of 'cross-sector collaboration' between social enterprises and corporations. The paper highlighted how pragmatic and moral legitimacy can be mobilized to justify collaboration throughout three major stages, including the (1) decision of cross-sector collaboration, (2) choice of the partner and the framing of the partnership, and (3) evolution of the collaboration.

PART B: SENSEMAKING THEORY

2.10   Introduction to Sensemaking

How decision-makers construct what they construct, why, and with what effects, are the central questions for people interested in sensemaking (Weick, 1995, p.4). In this regard, investigating how the meat industry makes sense of, and responds to demands around reducing the negative impacts from the production and consumption of meat as part of achieving sustainable meat consumption is well-suited to a sense-making inquiry. These demands are increasingly high-profile and emerge from a range of well-organised and diverse stakeholders. There is a growing sense from within the industry also that such demands need serious consideration. Six of the seven keynote topics of the last World Meat Congress held in December 2016 addressed concerns in the meat sector around sustainability, animal welfare, transparency and human health concerns, either directly as the main topic (e.g. Sustainability, Consumer Trust, Animal Care and Health, Human Health & Nutrition), or indirectly through topics such as Global Trends and Trade and Policies[41].

2.11   Occasions for Sensemaking

Sensemaking is often swift (Weick, 1995, p.49) and therefore some of the 'best opportunities to explore sensemaking efforts are by observing how people respond to prolonged and puzzling problems marked by paradox, uncertainty and ambiguity'. From a theoretical perspective, a case-study of sensemaking across the meat industry offers a significant opportunity to explore sensemaking in relation to serious legitimacy threats that are facing the industry[42]. These threats to legitimacy emerge from ongoing societal change which is challenging the role of meat as part of a healthy, ethical and sustainable human diet, as well from a series of one-off events or crisis that arise which draw immediate critical attention to negative impacts of meat production and consumption[43].

2.12   Characteristics of Sensemaking

As a process, sensemaking is perhaps best defined by its characteristics as set out by Weick (1995). These characteristics can also be used to guide the analysis of sensemaking efforts,

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[41] World Meat Congress, Uruguay, Monday 7-8th November 2016. At http://wmc2016.uy/en/ (Accessed 1 November 2016)

[42] A review of legitimacy theory as it might apply to the meat industry is provided in Part A of this Chapter.

[43] Example of one-off serious events include publications of the IARC Cancer and Meat Report, various meat transparency scandals, BSE/E.coli/Foot and Mouth outbreaks, animal abuse incidents.

providing both defining qualities as well as a potential framework, for identifying how organisations are coping with interruptions to 'business as usual' (Louis, 1980; Weick, 1995). The seven characteristics are set out in Weick's 1995 'Sensemaking in Organizations' describes sensemaking as a process that is: 1) grounded in identity construction; 2) retrospective; 3) enactive of sensible environments; 4) social 5) ongoing; 6) focused on and by extracted cues; and 7) driven by plausibility rather than accuracy (p.17). A brief description of each characteristic is provided in Table 5.

Table 5. Summary of the seven characteristics of sensemaking

Characteristic	Description
Grounded in identity construction	'Sensemaking begins with a self-conscious sensemaker' (Weick, 1995, p.22) Sensemaking efforts demand the establishment and maintenance of identity. This involves asking 'what implications events have for me' and this is a factor of 'who I become while dealing with it or what or who I represent' (p.24).
Retrospective	Creation of meaning is an attentional process, but it is attention to that which is already occurred. Attention is also directed backward from a specific point in time and so whatever is occurring at that moment will also influence what is discovered when people glance backward (Weick, 1995, p.26). In retrospective sensemaking, clarity of values and priorities are important (not more information) because clarity of values illuminates what is important and gives some sense of what the experience means (p.28).
Enactive of sensible environments	People often produce part of the environment they face (Pondy & Mitroff, 1979, p. 17) to help make better sense of their environment. People create their environment as those environments create them (Weick, 1995) and thus acting within this environment also creates constraints and opportunities (p31). In this respect "the activity of the individual is only in a certain sense caused by the stimulus of the situation because the activity is itself helping to produce the situation which causes the activity of the individual (Follett, 1924, p.60).
Social	Sensemaking is a social process. Conduct is contingent on the conduct of others, whether those others are imagined or physically present (p.39). This social characteristic however does not imply that there is shared understanding.
Ongoing	Sensemaking never starts (Weick, 1995, p.43). People are always in the middle of some process or another. This flow is continuous, spread across time, but can be punctuated by moments in which cues are extracted, or events. Streams of problems, solutions, people and choices flow through organisations, can compete, converge and diverge independent of human intention. Any interruption to the expected flow is a signal that important changes have occurred in the environment. This interruption can cause an emotional element to sensemaking (Weick, 1995)
Focused on and by extracted cues	Extracted cues are simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring (Weick, 1995, p.50). These may be points of reference and direct people's attention to specific cues over others. Control over which cues are selected as that point of reference can be an important source of power. What an extracted cue will become depends on context. Context affects what is extracted as a cue, and second, the context affects how the extracted cues then are interpreted (Weick, 1995). Faith in cues and their use as ongoing reference points is of interest as well as how they evoke action.
Driven by plausibility rather than accuracy	Sensemaking is about plausibility, pragmatics, coherence, reasonableness. In real time managers have a speed/accuracy trade-off and sensemaking that brings people together, is plausible, credible, engages and is reasonable, is good enough. Two important parts of plausibility is that it provides explanation and energises towards action (Weick, 1995).

It is important to stress that sensemaking is not the same as decision-making. Hence the purpose of this paper is to look beyond independent decisions to view the ongoing process which trigger decisions, action and even inaction. Eisenberg (2006, p. 1699) neatly sums this

difference between decision making and sensemaking whereby "the former prompts us to blame bad actors who make bad choices while the latter focuses instead on good people struggling to make sense of a complex situation". Sensemaking is also not an interpretation exercise. It goes beyond to include the role of constructing what is interpreted (Sutcliffe, 2013). As Weick (1995, p. 8) points out, 'sensemaking is about authoring as well as interpretation, creation as well as discovery'.

2.13   Sensemaking at Organisational Field-Level

The aim in this thesis is to investigate sensemaking within the meat industry. The focus is therefore at an organizational field level. This differs somewhat in much of the previous research on sensemaking where the focus is largely on one-off extreme events, accidents or shocks that provoke sensemaking, or sensemaking occasions within the same one organisation related to organisational change or disruption (see review by Sandberg & Tsoukas, 2015). Attention is thus directed to how broader social forces related to sustainable meat consumption are forcing and shaping sensemaking efforts across similarly situated organizations, in this case amongst meat producers and processors.

Organizational fields have been defined as "those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resources and product customers, regulatory agencies, and other organizations that produce similar services or products" (DiMaggio & Powell, 1991, p.64-65). The meat industry is diverse, ranging from small-to-medium enterprises to large billion-dollar processing companies. Members also represent a range of meat products, with producers typically specialising in the production of certain meat product/s. For example, producer groups are often differentiated by animal or meat specialisation - pork producers, chicken and turkey meat, beef and/or lamb groups. There are, however, companies that are involved in the production and processing of multiple species. At regional, national and international level, producers and processors of these groups are also represented by member advocacy or policy groups such as the Canadian Pork Council, British Poultry Council, National Beef Association (UK). Yet the industry also represents "classes of organisations that are relatively homogenous in terms of environmental vulnerability" (Hannan & Freeman, 1977, p.166). Meat industry members share many common values and interests with respect to issues related to sustainable meat consumption.

There is also significant social interaction amongst members of the industry. Many cross-industry groups at national and international level meet on a regular basis and explore potential pan-industry coordination as well as share strategies and information on issues involving sustainability, marketing, animal welfare, health and nutrition. For example, the International Meat Secretariat which represents global meat and livestock sector interests has dedicated Working Groups on these topics which meet on a regular basis to develop and share strategies to help the industry and its members respond on such issues[44]. The Global Sustainable Round-Table on Beef, including its national-level counterparts, likewise develops multi-stakeholder approaches to improving sustainability of beef, bringing together industry members along with civil society and retailers. These issues are often viewed as pre-competitive areas, well positioned for pan-industry coordinated action or responses:

> *"It will be pre-competitive; it's about the whole industry and being able to paint a clear and honest picture of sustainable beef production."[45]*

In this sense, collaboration amongst meat producers and processes combined with internal recognition that they share important common interests in broader societal debates related to sustainability, creates a broader institutional system at industry level, whereby common meanings are developed, shared and promulgated. This manifests in a variety of ways, including through cross-industry public position statements[46], funding of research or standards development[47], or through policy-setting and persuasion efforts coalescing around issues related to sustainable meat consumption and production.

Despite significant levels of coordination and cooperation across the industry it is still important to note that there are important differences and competing interests amongst industry members. For example, there has been growing pressure on beef producers and processors with regards the high GHG footprint of beef products. Accordingly, some groups have called for the introduction of consumption-based taxes on red meat (see Denmark Ethics Council, 2016; Chatham House[48]). In contrast, poultry and pork products have relatively low emissions and therefore do not attract the negative criticism to which beef and lamb receive. High publicity over links between increased cancer risk and high consumption of processed

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[44] See International Meat Secretariat (2017). At http://www.meat-ims.org/about-the-ims

[45] Australian beef industry's sustainability steering group (SSG) chair Prue Bondfield, 24 September 2016. In Farm Online National. At http://www.farmonline.com.au/story/4185141/driving-a-sustainable-beef-industry/

[46] See International Meat Secretariat response to the IARC Cancer and Meat Report. At http://www.meat-ims.org/

[47] See development of international guidance to measure environmental impact of livestock production as part of the LEAP Programme. At http://www.fao.org/partnerships/leap/en/

[48] See Wellesley, Happer & Froggatt (2015).

meat and red meat is again a potential market advantage for chicken producers and processors. From an animal welfare perspective, however, there is significant focus on the welfare of chickens and pigs in intensive production systems. Grass-fed free-ranging beef production systems are often promoted as healthier and better for animals (and meat-eaters) versus corn-fed intensive beef production systems. There are also considerably different interests arising across organic, conventional and industrial farming systems. In addition, there are significant tensions between producers and processors.

Internal dynamics within the industry at an organisational field-level are therefore also important to consider in any examination of sensemaking. This is because areas of agreement or conflict offer critical insight into how the industry constructs its identity and they can indicate potential points of power and control, ambiguity and uncertainty, as well as values and priorities within the industry. Weick (1995, p.28) states that clarity on values, helps to clarify what is important in elapsed experience, which in turn helps to explain what that experience might mean.

2.14   Making Sense of Ambiguity and Uncertainty

Ambiguity and uncertainty receive much attention in sensemaking literature with Weick (1995, p.91) explaining that the response to both should differ. Ambiguity prompts people to engage in sensemaking because they are confused about too many interpretations, whereas uncertainty, motivates people to engage because they do not feel aware of, or are ignorant, of any interpretations (Weick, 1995, p.91).

2.14.1 Ambiguity

Ambiguity is highly relevant for this case study as high levels of ambiguity are involved. There are many complexities and paradoxes that exist which result in multiple plausible outcomes. McCaskey (1982) outlines twelve characteristics of ambiguous situations, including multiple and conflicting interpretations, the presence of contradictions, paradoxes and problematical information along with definitional issues with regards the problem itself. Several very important paradoxes appear within the "sustainable meat consumption" problematic and they are extremely important in potentially understanding sensemaking efforts within the meat industry. They also contribute to potential cues or signals that decision-makers are in some way noticing, or not, and which may serve as a point of reference, for sensemaking efforts (Weick, 1995, p. 50). Different levels of paradox also

exist. Industry, for example is faced with demands to increase both growth in profit and meat consumption, at the same time it is faced with demands to reduce meat consumption and production. This presents an inherent conflict between satisfaction of profit maximisation goals versus broader corporate social responsibility objectives. How then does a company/industry reduce demand and supply of their own product/s and still operate legitimately in the marketplace? There is also a serious challenge in harmonising demands for meat reduction with increasing demands to feed a growing global population - a situation in which the meat industry is required to double meat production by 2050 to meet such demand.

In this sense, the paradox that reduction at per capita level must be accompanied by significant increase in total production, sends a variety of mixed and very complex messages to the industry. And there is a paradox at consumer level. Consumers may well demand more sustainable meat, better quality, more information, increased transparency, higher external product attributes around animal welfare and the environment yet may not be prepared to pay more for these additional attributes. For the industry, this inconsistency can be difficult to manage due to the situation that meeting these additional demands can require substantial new investment, over the short and/or long-term. These demands are also most often associated with the need for change and investment by producers at farm-system level, who may have less resources and significantly less power to invest in such change, given their position in the value chain. There is also an increasing interest in 'flexitarianism' in some countries, a behaviour where consumers significantly reduce meat consumption and favour a plant-based diet. However, the per capita consumption remains very high in developed countries and is rapidly increasing in developing country markets. How then does the industry best make sense of these sometimes very complex and ambiguous consumer signals? Sustainability too has an ambiguous quality, for example, if "business firms are expected to improve the general welfare of society" (Schwartz & Carroll, 2008, p.168), then companies must simultaneously address economic, environmental and social concerns which in many cases conflict with each other.

2.14.2 Uncertainty

Uncertainty also features in this case study. There are high levels of uncertainty with regards potential future shifts in consumer meat demand. Will consumers really reduce meat consumption over the long-term? Further, there appears a lack of current and robust information on how consumers are acting at individual level with regards meat-eating

behaviour, in particular amongst the growing group of consumers who may identify themselves as being flexitarians. Better data is needed to more accurately describe how consumers are eating meat, including in what quantity and in what manner. Meat producers and processors normally also sell meat within business-to-business contractual relationships. This element of being one or more steps removed from direct consumer contact poses information difficulties or gaps, as well as host of potentially ambiguous cues.

2.14.3 Ambiguity and uncertainty

Weick (1995, p. 99) counsels that sensemakers need to clearly separate between either the need to resolve ambiguity, or the need to resolve ignorance/uncertainty based on a lack of knowledge. Otherwise, 'sensemaking episodes may be unnecessarily prolonged if the need for more information (ignorance, uncertainty) is mislabelled as a need for different kinds of information (confusion, ambiguity)' and problems can be compounded or intensified (p.99).

> *"To remove ignorance, more information is required. To remove confusion, a different kind of information is needed, namely, the information that is constructed in face-to-face interaction that provides multiple cues"* (Weick, 1995, p.99)

Resolving ambiguous situations require, for example, access to a variety of cues, including subjective opinions that enable debate, clarification, and enactment, rather than huge additional amounts of data (Daft & Lengel, 1986, p.559). However, potentially both situations exist with regards the meat industry and its role in addressing demands around sustainable meat consumption. Perhaps then, the importance is realising that both ambiguity and uncertainty must be purposefully addressed, through different sensemaking efforts, in parallel, but distinct from one another.

2.15   Sensemaking Sustainability

There is a paucity of academic work carried out on the meat industry that seeks to understand how decision-makers within the industry make sense of the sustainability pressures they are facing, especially on issues related to sustainable meat consumption. Yet, as discussed, it is an industry that is facing increasing and significant challenges on its sustainability credentials. Concepts of sustainability have, however, received increasing attention in organisational studies (e.g., Shrivastava, 1995; Lawrence & Morell 1995; Harper, 2001; Hoffman & Bazerman, 2007; Humphreys & Brown, 2008; Basu & Palazzo, 2008; Linnenluecke & Griffiths, 2010). Yet there appears very limited research that investigates how an industry makes sense of legitimacy challenges based on overconsumption concerns.

Golob, Johansen, Nielsen & Podnar (2013) demonstrate sensemaking within a company after it was directly criticised on how its products were produced as well as its role in incentivising overconsumption through aggressive marketing practices. They showed that such criticism triggered a sensemaking process by the company leading to transformation of the business model. It also led to recognition within the company that it needed to proactively cooperate with others to both solve problems and address complexity by recognising interdependence, as well as distribution of responsibility, among suppliers, retailers, NGOs and consumers (p. 373). There was also an important recognition that the company needed to better consider different but essential viewpoints of the same object or problem. Although, this example does not represent an entire industry it has relevance which can help inform sensemaking efforts within the meat industry. In a review of sensemaking and discourse analysis at interorganisational level, Jorgenson, Jordan and Mitterhofer (2012) point to a lack of studies which explore the construction of meaning. They contend this is due to the focus on actions rather than sensemaking, as well as a heavy bias towards positivist studies which lack the ability to build understanding on: inter-organizational identity building; the emergence of consensus and conflict between different actor groups; legitimation and politicization processes; and the social construction of 'success' or 'failure' of a collaboration (p.109). There is a growing body of research related to addressing (inter-)organizational change processes involved in the creation of cross-border mergers, acquisitions and strategic alliances (Jorgenson, Jordan, & Mitterhofer, 2012, p. 109), yet these don't address sensemaking across an industry with regards legitimacy challenges emanating from societal pressures concerning sustainability and health. Therefore, the meat industry offers a valuable opportunity to look at various sensemaking efforts, in relation to societal change, by agents at inter-organisational level whom have much in common, yet also much to compete over.

2.16   Sensegiving

Various studies have explored processes of legitimation and persuasion by industries or organisations. These involve sensegiving processes used to attract attention and influence other actor groups such that they perceive and interpret actions and events in ways that benefit the sensegiving organisation. Examples include efforts to attract favourable media attention with the goal of obtaining greater venture capital investment (Petkova, Rindova, & Gupta, 2013), and public communication efforts (e.g., Demers, Giroux, & Chreim 2003; Leonardi & Jackson, 2004) with the aim of securing agreement and /or supress controversy (Jackson, 2004). While these are of interest, the focus of this paper is the prior process of

sensemaking which leads to sensegiving. It is noted that sensegiving efforts may, however, provide insight on sensemaking. Therefore, where examples of sensegiving emerge in the field, they will be noted as potential clues to the sensemaking process.

2.17   Sensemaking as Communication.

Sensemaking is ''an issue of language, talk, and communication'' (Weick, Sutcliffe & Obstfeld, 2005, p. 409). Therefore, the choice of words, the clichés, the metaphors and the nuances in communication all become important signals of possible sensemaking or underlying values that help drive, or stall sensemaking. Weick (1995) counsels that we often see what we expect to see, and those expectations depend on the words that carry them and that 'vocabularies matter in a world of action where images of actions rather than the actions themselves are passed from person to person' (p. 183). He points to the use of the word 'slaughterhouse' as a word that is both memorable and evocative and which singles out action. Such sage advice around the power of what we say and what we convey seem even more relevant today, given the speed, accessibility and quantity of communication we are confronted with.

The use of frames and narratives often emerge in instances when people are confronted with important sensemaking occasions. Of interest in this study is whether there is some homogeneity across meat industry representatives as to any frames or narratives that are routinely drawn on and which members thus value as 'desirable, proper, and appropriate' and therefore representative of some institutionalized logic of action (Suchman 1995, p.574). Abolafia (2010, p.349) states that the presence of a strong collective narrative or habitual frames routinely drawn on across the industry may represent an effort to embed an internal 'logic of appropriateness' (March & Olsen 1989) in the ongoing interpretation and action of the organization and across the industry (Phillips, Lawrence & Hardy, 2004). Also, sensemaking can prompt re-evaluation of habitual frames or narratives if they are found wanting.

Several authors have addressed sensemaking from a cognitive frames perspective (Hodgkinson & Healey, 2008; Porac & Thomas, 2002; Walsh, 1995). A cognitive frame is described by Walsh (1995, p. 281) as a "mental template that individuals impose on an information environment to give it form and meaning" (Walsh, 1995, p. 281), and may act as a "cognitive filter that admits certain bits of information into the strategizing process while excluding others" (Porac & Thomas, 2002, p.178). Abolafia (2015) also describes the

presence of a dominant perceptual filter that can shape and bias sensemaking, which he calls the operating model. In his research looking at sensemaking by policymakers at the Federal Reserve he suggested that sensemakers can become tightly bound to their operating model which can then constrain sesnemaking efforts. Thus "even when the model was challenged, policy makers attempted to associate events with a situation for which a suitable and consistent narrative exists" (p. 363), which in this case was the logic of action, associated with 'appropriateness'.

2.18   Sensemaking and Change Processes

Sensemaking and change processes are also connected (Weick, 1995; Gioia & Chittipeddi 1991). Eckel and Kezar (2003) in their research investigating transformational change within universities found that substantive changes required people to undergo a meaning construction process and rethink existing understandings. Gioia and Chittipeddi (1991) found that an active 'meaning construction' process follows a pattern of sensemaking and sensegiving stages. Their research showed an initial sensemaking stage (envisioning), followed by sensegiving (signalling), further sensemaking (revisioning) and ending with sensegiving (energizing). If change in the meat industry is signalled as being necessary to cope with challenges associated with achieving sustainable meat consumption, then industry members might identify with one or more of these stages of meaning construction. Conversely, a lack of identification with any stage or delay in any one stage in the process might also indicate problems that might be stalling sensemaking and ultimately, sensegiving.

2.19   Importance of Context

A number of authors call for more studies to investigate the broader environmental conditions to which sensemaking efforts are a subset of (see Jansen, Van den Bosch & Volberda, 2006; Maitlis & Christianson, 2014). Given the important cultural status that meat holds in many societies, it would be expected that the wider social, cultural, economic and political context, that sensemakers operate within, is highly pertinent. Some emotional element to sensemaking could also be expected given that meat represents intrinsic values of masculinity, strength, power and virility and any criticism of meat may therefore represent some challenge to identity, of meat-eaters themselves, and of industry members. A number of studies have also shown that emotions influence sensemaking (e.g. Maitlis & Sonenshein, 2010; Maitlis, Vogus, & Lawrence, 2013; Maitlis & Christianson, 2014). The use of strong emotive words or descriptions, for example, of being wounded, attacked or hurt in some way may signal a

more emotional than objective perspective influencing sensemaking in the meat industry and hence confrontation of underlying values.

2.20   Prospective Sensemaking

'Prospective sensemaking' has received growing attention over the last ten years (Feurer & Chaharbaghi, 2005; Corley & Gioia, 2011; Patvardhan, 2014; Rosness, 2016). It is described as going beyond the seven characteristic set out by Weick (1995) to include an element of forward looking sensemaking that is intended not merely to anticipate, but also to influence the future (Mackay, 2009; Sandberg & Tsoukas, 2014; Patvardhan, 2015; Rosness, 2016). Sandberg and Tsoukas (2015) explain that this neglect of prospective sensemaking is what some researchers see as one of the main limitations of Wieck's seven sensemaking characteristics. It is arguable, in my opinion, whether this is in fact an eight characteristic however. For example, Weick (1995) does not rule out this type of prospective activity. In fact, he draws attention to the usefulness of 'future perfect thinking' in which he describes a way to think about the future in a retrospective manner to better make sense of an ambiguous or uncertain future (see Weick, 1995, p. 29).

Sensemaking is also an ongoing process with no beginning or end. Therefore, the idea of prospective sensemaking as an additional characteristic feels intuitively superfluous, as the future is surely already part of an ongoing process. Also, in prospective sensemaking people draw on retrospective elements, including established and emerging cues at the time of sensemaking as part of the ongoing social process and enactive of the environment they are situated in.

It is true that there is a strong element of future-gazing in discussions centred around sustainability which brings always an additional level of ambiguity and uncertainty to sensemaking efforts. For example, there no agreed definition of sustainable meat consumption currently existing. Also, any consideration of its implementation must consider how the needs of future generations can be met. This is consistent with definitions of sustainability more generally (Bruntland Report, 1987) and definitions of sustainable food systems (HLPE, 2014), all of which emphasise the 'rights of future generations'. There is an element therefore of sense-making into the future in making sense of the role of the meat industry in helping to achieve future sustainable meat consumption. There is also a potential cue that forewarns of a fundamental shift needed in cognitive frames concerning the possible role of meat as part of future healthy and sustainable diets.

Yet, how one looks to the future, is surely still a product of the seven sensemaking characteristics. What is most of interest then, is perhaps the relative importance this prospective element of the problem enjoys in the sensemaking process and how that future-orientation is managed. For example, it would be expected that those who have developed more mature sensemaking efforts, and who draw on multiple and diverse cues, may also have a clearer view of the subjective 'future sense' and where the organisation therefore should direct its efforts over the long-term. This might be indicated at an operational level through a greater trust in plausibility taking precedence over accuracy, and thereby through implemented action. This area of research would be extremely useful to consider further in any future research of sensemaking in the meat industry.

2.21   Making Sense of Power

Fuchs et al. (2016) demonstrate the value of a power lens with regard understanding the drivers of consumption, and the potential for and barriers to, in achieving absolute reductions in consumption. They state that many scholars and activists in sustainable consumption and sustainable development fail to address power in a sufficiently explicit, comprehensive and differentiated manner (p.300). Of direct relevance to this study is that meat consumption and the meat sector is used a case study in their research to demonstrate the value of such an approach. Unsurprisingly, the authors point to the important role that "power", in its different forms (instrumental, discursive and structural) plays in each step of the meat value chain, and the potential ways that such power is utilised by actors to maintain legitimacy. A broad largely critical overview of ways that the meat industry wields such power is provided. These include actions such as: the deliberate hiding of sensitive information from the public; funding of sympathetic research to mobilise structural and discursive support for the industry; agreement to incremental cheap improvements to performance and practice with the aim to stall fundamental change; the use of excuses such as structural market conditions to prevent imposition of change; and the promotion of technological solutions as a response to solving challenges (p.300).

Fuchs et al (2016) point out that together these strategies are used to reinforce and maintain the power of the meat industry and 'meat' within a 'business as usual' approach, designed to maintain the status quo, and which prevent any substantive change to either conventional and/or industrial meat production and/or current high levels of meat consumption. Such explanations and/or examples of power wielded by different meat sector actors are sure to

have some 'grain of truth' in them. They are common responses used by many corporate actors to help gain, maintain or defend legitimacy. Yet the paper also feels largely divorced from a holistic appreciation of how power is operating across the value chain. It remains an outsider's view, an external appreciation based on a lens that appears to be a narrow one-way look at the meat sector and its relationship to, and use of power, with less appreciation for the need to consider 'power' from both a strategic (inside-out) and institutional (outside-in) perspective. There is certainly a need for researchers and decision-makers to consider the role of 'power' in addressing overconsumption. And the role of business in wielding power is critical to understanding the problematic. Yet, a deep understanding of power requires more than a superficial glance. Illuminating sensemaking efforts from with the meat industry, is therefore potentially an important but small contribution to the development of a better understanding on how power, its discursive, structural and institutional forms, might play a role in achieving, or blocking more sustainable meat consumption.

PART C: FRAMING THEORY

2.22   Introduction to Framing

According to Nisbet (2010, p. 44): "framing is an unavoidable reality of the public communication process. The choice as a journalist, expert, or advocate is not whether to employ framing, but rather how to effectively frame a message for your audience." Entman (1993, p.52) suggests that to frame is "to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." Such an approach involves a process not only of selection but also an act of highlighting specific aspects and issues, while at the same time ignoring other facts or aspects. The purpose being "to promote a particular interpretation, evaluation, and/or solution for the events or issues (Entman, 2003, p. 417).

2.23   Signature Elements of Framing

Gamson and Modigliani (1989, p.143) describe a frame as the "central organizing idea for making sense of relevant events, with the frame suggesting what the controversy is about or the essence of the issue". This central organising idea is also supported by framing and reasoning devices, called signature elements. Framing devices "suggest how to think about the issue" and include metaphors, exemplars, catchphrases, depictions, and visual images, whereas reasoning devices are used to "justify what should be done" about an issue (Gamson & Modigliani, 1989, p. 3). Such reasoning devices might include the roots (e.g. causal analysis); consequences (e.g. a particular type of effect), as well as appeals to principle (e.g. a set of moral claims) (Gamson & Modigliani, 1989, p. 3). A useful analogy may be to consider "framing" like a "window frame" which defines the boundaries and directs our attention to what events and texts are relevant for our understanding of an issue or situation, described by Tuchman (1978) as like a "window on the world". This window on the world naturally limits the view to a selected and often more simplified observation of a much larger and complex environment. When accompanied by a compelling narrative embedded in deeper social context it is perhaps not surprising that framing can be a powerful force towards shaping our perspectives on issues. In this paper, the interest is in discovering the specific "windows" that are presented to us by the news media and which invite us to look upon issues related to the role of meat in a sustainable and healthy diet from certain perspectives. What windows are

we led to look out of? What is the view that we are given from each? Gamson and Modigliani's (1987, p. 143) notion of a frame as a "central organizing idea or storyline that provides meaning to an unfolding strip of events" is a useful starting point. Yet, borrowing from the window analogy, there is also interest in the house as a whole, the interactions between view-points, as well as the infrastructure that holds the house and its windows together.

2.24 Social Constructionism Framing Approach

A social constructionist approach to frame analysis looks at the underlying meta-frames as well as the specific framing devices used by media. Social constructionism is concerned with the creation and institutionalization of reality in social interaction (Berger & Luckmann, 1966). Therefore, the essence of framing is in social interaction (Snow & Benford, 1988; Steinberg, 1998). And in this sense, journalists become part of a dynamic process of meaning construction. This social interaction is not limited to the receivers' interaction with the media content once read, but also for example, in the earlier construction of the story through interaction between journalists with their sources and other actors in the public arena, prior communication efforts with readers through online blogs, the influence of influential mentors, as well as within the newsroom itself, and the ideology, attitudes, and professional norms including organisational routines of journalists (Gans, 1979; Shoemaker & Reese, 1996; Scheufele, 1999). Journalists can impose "sense" on stories through the utilisation of frames that connect readily with readers by drawing on organized sets of beliefs, codes, myths, stereotypes, values, and norms (Van Gorp, 2007; Zald, 1996). Social constructionism also emphasizes the role of an active, interpreting, meaning-constructing audience (Wicks, 2005).

2.25 Benefits of Framing

Framing may be unavoidable, but it also plays a highly useful and necessary role in society. It can reduce the complexity of issues, more efficiently convey key messages of information, and form a better connection with the audience through the use of identifiable cognitive schemas that make sense to the audience (Shoemaker & Reese, 1996). Frames are therefore powerful tools used by journalists (and others) to create meaning and present an issue as comprehensible as possible to a diversity of audiences (Entman, 1993). Frames are also devices that facilitate how journalists organize enormous amounts of information and

package them effectively for their audiences (Gitlin, 1980). Media frames being ''persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organise discourse, whether verbal or visual'' (Gitlin, 1980, p. 7). Contextual elements such as time constraints or information sources are also important to the choice of frame. The presence of frame sponsors, for example, political lobbyists, who are concerned with directing the perception and the frame selection of journalists as they report on an event can also be a factor (Pan & Kosicki, 1993). Both issue-specific frames as well as generic frames may be used. For example, Neuman, Just, and Crigler (1992) identified human impact, economics and conflict as common generic frames used by the news media. Many science-related stories draw on generic frames like "social progress", "scientific or technical uncertainty", "conflict/strategy", "morality/ethics" or "runaway science" (see Nisbet, 2010, p. 376). Conflict is a common frame exploited by media (de Vreese, 2004; Mutz & Reeves, 2005), as well as human interest (Price, Tewksbury, & Powers, 1997; Valkenburg, Semetko, & de Vreese, 1999; de Vreese & Semetko, 2001; McManus, 1994; Semetko & Valkenburg, 2000). At the same time issue-specific frames can emerge, such as the human health dimension in climate change discourse (Nisbet, 2010). The use of culturally embedded frames by the news media is also an expeditious tool which allows journalists to quickly assign roles to the principal actors of an issue (e.g., good-bad, advocate-opponent), specify what the problem is and who is responsible, and appeal to ideas the receiver is already familiar with (Gamson & Modigliani 1989; Van Gorp, 2010). This can contribute to the dramatization and the emotional appeal of the news (Van Os, Van Gorp, & Wester, 2008). 'Cultural resonance' also makes the association between a frame and the issue seem transparent and obvious (Benford & Snow, 2000; Schudson, 1989).

2.26   The Functions of Frames

Fully developed frames typically perform four functions: problem definition, causal analysis, moral judgment, and remedy promotion (Entman, 1993, 2004). Such frames can introduce or raise the salience or apparent importance of certain ideas, activating schemas that encourage target audiences to think, feel, and decide in a particular way (see for example discussion by Gross & D'Ambrosio, 2004; Iyengar & Simon, 1993; Kim, Scheufele, & Shanahan, 2002; Price, Tewksbury & Powers, 1997). On issues involving meat, sustainability and diet, we might expect to see generic media frames emerging. Given the range of stakeholders involved, the presence of strong opposing views, the potential economic ramifications then it

would not be surprising to the "conflict frame" emerging. Such a frame focuses attention to antagonism between two or more parties. Conflict often draws audience interest, but it journalists also utilise this frame to be seen to be representing a balanced account of the issue (Galtung & Ruge, 1965; McManus, 1994).

2.27   Framing Analysis: Signature Matrix Approach

A robust framing analysis is not easy. This thesis utilises a signature matrix approach as the basis of framing analysis and as set out by Gamson and colleagues (Gamson & Lasch, 1983; Gamson & Modigliani, 1989), Entman (1993) and Van Gorp (2010) among others. Gamson & Lasch (1993) employ the notion of a framing package which has a signature, a set of elements that suggest its core frame and position in a shorthand fashion. These signature elements are further differentiated into framing (metaphors, exemplars, catch-phrases, depictions, and visual images) and reasoning devices that provide justifications or reasons for a general position such as roots, consequences, and appeals to principle. Other characteristics can also be considered including formatting devices such as the number of words and pictures, the lay-out of a text, the placement of a news article on a page, and the editing of an audio-visual production. It may also be relevant to look at types of actors, actions and settings, sources, quantifications, statistics, charts and graphs, appeals (emotional, logical, and ethical), which might contribute to the narrative and rhetorical structure of a text (see Kitzinger, 2007; Pan & Kosicki, 1993; Tankard, 2001). These can all provide cues about how readers and viewers of news are presented with certain cues that emphasise a certain salience and importance of elements that support a certain framing of an issue. Headlines and leads can be significant signals as they are both utilised to grab reader attention and often summarise the angle of the story in a particular frame (Cotter, 2010). Sources' statements can also offer insight which can, inter alia, serve the function of authenticating the information and making it more "objective" (Cotter, 2010), but which may also serve the news writer's own "mission" (Calsamiglia & López Ferrero, 2003) and mediate a specific value position (White, 2012).

2.28   The Influence of Frames

If a frame is successful in dominating public discourse, then it can be highly influential in steering public perceptions on issues and result in significant benefits or risks to the stakeholders involved. Nelson, Oxley, and Clawson (1997) demonstrated that issue frames

can influence people in how they weigh conflicting considerations. A number of experimental studies support the basis for the "existence" of framing effects (e.g., Berinsky & Kinder, 2006; Druckman, 2001; Nelson, Oxley, & Clawson, 1997; Slothuus, 2008). However, various factors can the level of influence of media framing on individuals such as the receivers' degree of attention, interests, age, beliefs, gender, education, political orientation, experiences, desires (see Gifford & Nilsson, 2014). Frames that are continuously on the agenda are also more likely to exert an impact (Matthes, 2009). In general, those frames with weak arguments and/or which are accompanied by the presence of strong competing frames, will exert weaker effects (Chong & Druckman, 2007). Frames that involve compelling and convincing facts, or where they appeal to emotions, such as fears or anger (Chong & Druckman, 2007) become strong frames. Kahneman & Tversky (1979, 1984) demonstrated how different presentations of essentially the same information can have an impact on people's choices. They found that individuals were inclined to take risks when ''losses'' are highlighted. But when the same information is presented in terms of ''gains,'' individuals shy away from risks. This was also studied by (Druckman, 2001) who compared framing of messages, in which all the factual and stylistic elements were comparable, so that pure influence of the frame could be observed. He demonstrated that accentuating certain considerations in a message could influence individuals to focus on those considerations in the decision-making process (Druckman, 2004, p. 672). A number of authors have found that news frames can decrease or increase the salience of an issue (e.g., de Vreese, 2005; de Vreese, Boomgaarden, & Semetko, 2011; Matthes, 2008). Strong frames also seek to connect a topic to notions that are part of a 'common ground' within a given culture, such as values, archetypes and shared narratives (Van Gorp & Vercruysse, 2012). Consequently, in societies where meat is culturally significant news media may emphasise the absurdity of the notion of reducing meat consumption by referring to its cultural importance, referencing individual examples of people who have "eaten meat all their lives but remain healthy", or downplay risks in line with the dominant cultural value of meat.

2.29   Framing Studies on Sustainability, Health, Food and Environmental Issues

Studies have investigated framing of sustainability, food and environmental and/or health issues from various perspectives. Climate change has received significant attention in the last ten years (Cox, 2010; Hulme, 2008; McDonald, 2009; Nisbet, 2009; Bertolotti & Catellani, 2014). Obesity has also attracted research (Jenkin., Signal & Thomson, 2011; Barry, Brescoll

& Gollust, 2013; Hilton, Patterson & Teyhan, 2012; Jeong, Gilmore, Bleakley & Jordon, 2014; Nixon et al, 2015) and the body of literature is growing fast. Other issues include sustainable food consumption (Belotti & Panzone, 2016), agricultural use of antibiotics (Morris, Helliwell & Raman 2016), Bovine Spongiform Encephalopathy (BSE) (Demko, 1998; Miller, 1999; Washer, 2006; Driedger, Jardine, Boyd & Mistry, 2009; Boyd & Jardine, 2011) and food allergies (Harrington, Elliot & Clarke, 2012). Science-based issues are often framed in such a way as to highlight an element of politicisation, contested science, or dramatization of science (Bubela et al., 2009; Condit, 2007; Nisbet & Mooney, 2007; Nisbet & Scheufele, 2009; Reis, 2008). This can have chilling effects on public awareness and understanding of science-based issues. For instance, Bolson, Druckman & Cook (2014, p. 13) concluded that 'simply mentioning that science is politicized can undermine support for scientific adaptations'.

Gamson & Modigiliani's (2009) study of discourse on nuclear power in television news coverage, newsmagazine accounts, editorial cartoons, and syndicated opinion columns traced the life of different "interpretive packages," or frames, of nuclear power from 1945-1980s. These included important "interpretive packages such as "Progress" whereby the nuclear power issue was framed in terms of society's commitment to technological development and economic growth. Other important interpretive packages included "Pubic Accountability" and "Runaway". The latter referring to a central organising idea or frame emphasising an "out of control element which cannot be contained". In a review of framing studies Nisbert (2007, p.18) identified a typology of eight frames commonly used in public discourse on climate change (but which are also relevant to many other contested science issues in general). These are described as social progress; economic development and competitiveness, morality and ethics; scientific and technical uncertainty; Pandora's box/Frankenstein's monster/runaway science; public accountability and governance; middle way/alternative path; and conflict and strategy (p. 18).

Van Gorp & van der Goot (2012) identify the use of six interpretive frame packages used by principal stakeholders in their public communication about sustainable food and agriculture. These include Responsibility, Undermining of Foundations, Frankenstein, Natural Goodness, Progress and the Good Mother frame. In a study on media framing of biofuels, Delshad & Raymond (2013) used content analysis of media coverage of biofuels in the New York Times and Washington Post to reveal seven major frames. These were divided into frames that

highlighted positive effects such as, Environmental benefits, Economic benefits, National Security, and then frames which largely characterised biofuels in a negative light such as Environmental and Economic costs, and Food versus fuel. Of interest was that the study found that the media framing had become substantially more negative over a period of ten years, with a notable rise of frames suggesting negative economic impacts. This emphasises the dynamic process of media framing as part of ongoing social interaction. There may, therefore, be considerable oscillation between the use of negative and then positive (or vice versa) dimensions of the same frame. In this respect, it could be argued that the frames identified by Delshad & Raymond (2013) are not indeed seven individual meta-frames but in some cases the same frame differentiated by negative or positive dimensions. The changing positive or negative dimensions may represent journalist attempts to tell both sides of the story; represent changing public opinion; increasing knowledge on the subject so that a more considered and nuanced view is appreciated on the issues; or even a way to maintain newsworthiness as the issue becomes more mature.

In general, the results of the Delshad & Raymond (2013) study indicated that public attitudes toward biofuels appeared to be shaped by media frames, especially among those who indicated a high degree of attention to the media, suggesting the relative importance of framing effects on policy attitudes for environmental and energy policies in general (p. 190).

Cordts, Nitzko, & Spillerc (2014) investigated whether media coverage of negative attributes of meat consumption could potentially affect demand for meat in Germany. Survey participants were presented with one of four different fictitious "newspaper articles" describing negative effects of meat consumption (on human health, climate change, animal welfare or on personal image). Animal welfare and health arguments had the strongest effects across participants for reducing meat consumption. There were significant differences between men and women with lower levels of concern and higher levels of mistrust in the given information expressed among men in response to the fictional "newspaper articles". The percentage of respondents willing to reduce meat consumption also increased after reading the articles. The authors provide useful recommendations for future research to better understand responses (both stated and actual) and describe a possible outcome of steady demand in the short-term potentially being eroded over the long term with increasing public awareness of sustainability-related topics leading to changes in consumption even in high meat consuming groups (p.97).

Specific issues might also attract certain framing approaches. For example, studies looking at framing and health show that that individualizing frames are more common in general health reporting. Jeong, Gilmore, Bleakly & Jordon (2014) examined local news media's framing of obesity preceding and surrounding the Philadelphia sugar-sweetened beverage reduction media campaign. They found that the news media employed individual-level framing in many stories discussing obesity, both before and after the campaign launch. Barry, Brescoll & Gollust (2013, p. 327) found that "regardless of how the cause of childhood obesity was framed, when a news report identified an individual obese child, participants were less likely to support prevention policies than when the report described the problem in more general terms". Underlying the individual-level framing are reasoning devices that stress individuals as autonomous decision-makers, congruent with and supported by individual rational choice theories (Balbach, Smith & Malone, 2006).

Risk is a common frame that emerges across many publicly contested science-based issues. and is often linked to the frame "personal responsibility", whereby risk becomes solely a social phenomenon of personal choice rather than a function of both hazard and exposure. For example, Mackenzie, Chapman & Holding (2011) found that media framing of lung cancer showed that smokers were implicitly and occasionally explicitly depicted as responsible for their disease whereas non-smokers were portrayed sympathetically and as tragic victims, implying they were not responsible for their condition, the subtext being that smokers are responsible for theirs. The authors pointed to the outcome that this stigmatization might in turn lead to delay in seeking treatment but also de-emphasise the role of the addictive nature of tobacco smoking and the tobacco industry's own role in vigorously promoting smoking. The impression is that individuals are to blame in some way for their own excesses and health and consumers alone need take responsibility for their personal choices. Therefore, curtailing the rights of others to choose as they wish is not only not warranted, it is unfair and an attack on personal freedom. The implied suggestion is that state interference is bad because it interferes with individual rational and democratic choice and represents involvement of the "nanny state" into personal affairs (Moore, Yeatman & Davey, 2015).

In an assessment of news media framing of New York City's proposed regulation to prohibit the sale of sugar-sweetened beverages greater than 16 ounces (Donaldson et al., 2015) it was found that whilst most stories mentioned obesity as a problem, a larger proportion or articles

used opposing frames (84%) than pro-policy frames (36%). The debate's most prominent frame was the opposing frame that the policy was beyond the government's role (69%) which emphasises again individual responsibility.

2.30   Framing of 'Industry'

An important aspect of this thesis is to shed light as to how the media might frame the meat industry in public discourse. Studies that look at framing of 'industry' in public discourse may therefore hold relevance. Garcia (2011) investigated a 10-year conflict between BP and Greenpeace and found that media predominantly drew on four sets of frames and two attributes in its reporting of the conflict. These included: (1) credibility frame; (2) power frame; (3) causal attribution; (4) social responsibility attribution; (5) hero frame; and a (6) villain frame. His conclusions pointed to BP being predominantly framed in media as an organization with a great deal of power, the primary cause of the environmental crisis (specifically climate change), and the main villain in the narrative and the cause of conflict. In contrast, Greenpeace assumed the role of an organization with some power and was framed the hero.

Darmon, Fitzpatrick, & Bronstein (2008) analysed the message frames used by Kraft Foods in its public response to the obesity crisis, as well as how framing attempts by Kraft Foods were reported on by the media. The research suggested that framing was a useful tool for Kraft Foods to help manage public discourse on obesity-related issues. The authors contend that the proactive framing approach employed by Kraft appeared to enable it to better manage the issue on its own terms, and thus media reporting of KraftFoods management of the issue were largely positive. Both case studies represent useful learnings with which other industries should consider when considering how the news media may frame industry in any reporting on events or issues.

2.31   Equivalence and Emphasis framing

Cacciatore, Scheufele & Iyengar (2016) address the status of framing research where they argue for changes in how communication scholars approach framing as a theoretical construct (p. 8). The authors call for media effects research to "abandon the general term ''framing'' as a catch-all phrase for a number of distinct media effects and replace it with the more precise terminological distinction between equivalence and emphasis framing. (p.15). The call for greater clarity and precision when undertaking framing makes sense. One only needs

to look at the huge diversity and use of framing in current research efforts to see that further precision would be helpful. The rise of social media and its potential power to influence decision-making across all aspects of society also points to a need to better define and differentiate framing studies. Druckman (2001, p. 228) describes equivalency framing effects as the use of different, but logically equivalent, words or phrases (e.g., 97% fat-free or 3% fat) which causes individuals to alter their preferences. The key element being that the objective outcomes and their descriptions remain equivalent, but preferences change due to the alternative framing such as a negative versus positive representation of the same issue (Druckman, 2001, p. 229). Emphasis framing occurs where emphasises on a subset of potentially relevant considerations leads individuals to focus on these considerations when constructing their opinions (Druckman, 2001, p. 230).

In this paper, the aim is to identify the frames being used by media in relation to public discourse on the role of meat in a sustainable and healthy diet. Naturally, this lends itself to a focus on emphasis framing and thus the development of some understanding of what issues the media are emphasising over others, to the public.

CHAPTER 3

METHODOLOGY

Chapter 3 presents a summary of the methodologies used in the thesis. It is split into three parts. Part A discusses the methodology used in the media framing analysis of two highly public events in 2015 that caused considerable public discourse on the role of meat in a sustainable, healthy and ethical diet. Part B outlines the methodology used to identify potential downstream marketplace signals through a case study approach involving examination of publicly available material regarding actions by hamburger restaurants related to sustainable meat consumption demands, as well as an in-depth interview with the Chief of Sustainability of Max Burgers. Part C describes the methodology used to understand how managers in the meat industry might be making sense of the challenges they face in respect to demands for more sustainable meat consumption. Limitations of the methodology for each investigation are also discussed.

PART A: FRAMING METHODOLOGY

3.1 Introduction to Framing Methodology

The two events under investigation in this framing study involve two highly complex processes, each of which produced a final Report or Evaluation which were released publicly and received significant media attention. It is this media attention which is then examined through framing analysis to identify the dominant frames that emerge. The aim is to improve understanding of the social constructs that may be driving debate about the future role of meat in a sustainable and healthy diet and to identify challenges to legitimacy of meat, and the meat sector. Media (news-reporting) has been chosen with which to undertake the framing analysis for several reasons. The media is viewed as a powerful and important stakeholder in the communication of complex issues related to sustainability and diet. In this regard, news-media are viewed as participants in frame construction and thereby actively playing a role in both interpreting and constructing understanding of the future role of meat. At the same time, it may be that journalists themselves, rely on, revert or recycle common socially accepted frames to frame events in a familiar manner to readers. Identification therefore of the underlying reasoning devices supporting specific media frames can provide an appreciation of core values contributing to shared understanding of appropriate action to

achieve sustainable meat consumption. The news media also represent an important legitimation stakeholder for the meat sector, having considerable influence in legitimising (or not) activities carried out by the sector, and the sector itself. Utilising a constructionist framing approach, the objective is to identify the framing devices, such as word choice, metaphors, exemplars, descriptions, arguments, and visual images (Gamson & Lasch, 1983; Pan & Kosicki, 1993); along with reasoning devices, that make up the framing package (cf. Gamson & Lasch, 1983; Gamson & Modigliani, 1989). Together these represent the central organizing theme, or frame. In this respect, the framing analysis conducted is relatively unambitious, in line with a first step of identification of frames only. It does not go beyond in scope to make any quantitative or far-reaching assessment on the actual media effects of any emphasis or equivalence based framing attempts found in the media reporting.

3.2   Background on Events

The background of the two events under examination are provided in sections 3.2.1 and 3.2.2. These two events were chosen because they represent high profile events that both received significant national-level and international-level attention. Both events involved substantial discussion across a broad range of stakeholders, including the meat industry, NGOs, researchers and government representatives, for example the Advisory Report resulted in over 29,000 public comments received in the public consultation process following its release. The IARC Report received international media attention across the world. They also presented examples of events which presented sizeable amount of media articles across selected news media. Further, both events are significant in that they directly question the role of meat within a healthy, ethical and sustainable diet by either directly questioning its future role (Advisory Report) or by drawing attention to ongoing health risks associated with meat overconsumption (IARC Report).

3.2.1   Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report)

Every five years the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) jointly release the Dietary Guidelines for Americans (Dietary Guidelines). The Dietary Guidelines provide guidance with the aim to "help Americans eat a healthier diet"[49]. Their significance is not just being to inform Americans what to eat, but also in informing

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[49] United States Office of Disease Prevention and Health Promotion (2016). At https://health.gov/dietaryguidelines/2015/ (10 November 2016)

"what foods and nutrients" that American's should limit. They can therefore play a normative role in shaping the perceptions of some food and nutrients as better than others. Beyond this advisory role, the Dietary Guidelines are also a powerful policy tool guiding the development of Federal food, nutrition, and health policies and programs, as well as providing the basis for Federal nutrition education materials and the nutrition education components of HHS and USDA food programs[50]. This has enormous financial implications for food producers supplying food to such programmes. For example, in 2012 the National School Lunch Program cost $11.6 billion and fed over more than 31.6 million children each school day[51].

As part of the process to review and renew the US Dietary Guidelines for the years 2015-2020, the HHS and USDA convened an independent Dietary Guidelines Advisory Committee ("Advisory Committee") in 2013. The Advisory Committee was tasked with examining the 2010 Dietary Guidelines for Americans; reviewing current scientific evidence on nutrition and health; and submitting its findings and recommendations to the Secretaries of HHS and USDA. The Advisory Committee presented its Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report)[52] in February 2015 to the Secretaries of the HHS and USDA. Subsequently, the HHS and USDA invited written public comment on the Advisory Report for a period of 45 days (ultimately extended by an additional 30 days) from February 23, 2015 until May 8, 2015. 29,000 public comments on the Advisory Report were received[53]. In comparison, only 1159 written public comments were received on the previous Report submitted in the 2010 Review. This staggering rise in interest can be explained mostly by the new inclusion of "sustainability" as a consideration in the recommendations of the 2015 Advisory Report (2015, p 7), summarised as such in the Executive Summary:

> *"The major findings regarding sustainable diets were that a diet higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, and lower in calories and animal-based foods is more health promoting and is associated with less environmental impact than is the current U.S. diet. …Current evidence shows that the average U.S. diet has a larger environmental impact in terms of increased greenhouse gas emissions, land use, water use, and energy use, compared to the above dietary patterns. This is because the current U.S. population intake of animal-based foods is higher and plant-based foods are lower, than proposed in these three dietary patterns.*

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[50] United States Department of Agriculture (2016). At https://www.cnpp.usda.gov/dietary-guidelines (10 November 2016)

[51] United States Department of Agriculture (2016). At http://www.fns.usda.gov/sites/default/files/NSLPFactSheet.pdf (10 November 2016)

[52] United States Office of Disease Prevention and Health Promotion (2016). At https://health.gov/dietaryguidelines/2015-scientific-report/ (10 November 2016)

[53] Ibid.

The Report (2015, p 6) also explicitly stated that:

> *"The overall body of evidence examined by the 2015 DGAC identifies that a healthy dietary pattern is higher in vegetables, fruits, whole grains, low- or non-fat dairy, seafood, legumes, and nuts; moderate in alcohol (among adults); lower in red and processed meat*; and low in sugar sweetened foods and drinks and refined grains.*

> ** As lean meats were not consistently defined or handled similarly between studies, they were not identified as a common characteristic across the reviews. However, as demonstrated in the food pattern modelling of the Healthy U.S.-style and Healthy Mediterranean-style patterns, lean meats can be a part of a healthy dietary pattern.*

This statement and accompanying footnote (marked *) also received attention for its identification of a healthy diet as consisting of lower red and processed meat consumption. 72% of the written submissions received in the review period were form letters with approximately 21,000 of these, submitted from 33 different sources and predominantly focused on the topic of sustainability (94%)[54]. 47 petitions with a total of about 187,000 signatures were also received with around 55% of these relating to the topic of sustainability[55]. A large majority of both the form letters and signatories on the petitions favoured inclusion of sustainability considerations in the final Dietary Guidelines[56]. In addition, a petition set up by organisations in favour of sustainability considerations in the final Dietary Guidelines and an emphasis on less meat and more plant-based diets gained over 150,000 signatures in support[57]. A campaign by the meat industry in opposition to the recommendations of the Advisory Report "Take your Hand off my Hotdog" was also undertaken by the North American Meat Association[58]. Framing analysis in this paper considers media reporting, related to the Advisory Report published between 1 January 2015 and 1 July 2015.

3.2.2   World Health Organisations' International Agency for Research on Cancer (IARC) Monographs Evaluation of the Carcinogenicity of the Consumption of Red and Processed Meat

The IARC Monographs Programme ("IARC"), the cancer agency of the World Health Organization, identifies and evaluates environmental causes of cancer in humans. To date,

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[54] United States Office of Disease Prevention and Health Promotion (2016). http://health.gov/dietaryguidelines/dga2015/comments/advisory-report-summary.asp (16 November 2016)

[55] Ibid.

[56] Ibid.

[57] Center for Biological Diversity, Press Release 150,000 Americans Call for Less Meat, More Plants in New U.S. Diet Guidelines. At https://www.biologicaldiversity.org/news/press_releases/2015/dietary-guidelines-05-07-2015.html

[58] North American Meat Institute (NAMI), NAMI Launches Online Petition to Inject Common Sense Into Dietary Guidelines, March 16, 2015. At https://www.meatinstitute.org/index.php?ht=display/ArticleDetails/i/111028/pid/206

more than 900 agents have been reviewed[59]. Evaluations are carried out by Working Groups made up of international experts who are tasked with critically reviewing scientific evidence to determine the strength of the available evidence that each agent causes cancer. On the 26 October 2015, IARC released an evaluation of the carcinogenicity of the consumption of red meat and processed meat ("IARC Evaluation") which classified the consumption of red meat as probably carcinogenic to humans (Group 2A), based on limited evidence that the consumption of red meat causes cancer in humans and strong mechanistic evidence supporting a carcinogenic effect[60]. This association was observed mainly for colorectal cancer, but associations were also seen for pancreatic cancer and prostate cancer. In addition, processed meat was classified as carcinogenic to humans (Group 1), based on sufficient evidence in humans that the consumption of processed meat causes colorectal cancer[61]. The Evaluation and accompanying Press Release also referred to a conclusion by experts that each 50gram portion of processed meat eaten daily increases the risk of colorectal cancer by 18%. The accompanying IARC Q & A briefing paper explained the nature of the assessment indicating that classification related to the strength of the evidence that a substance or agent causes cancer, however it does indicate the level of risk associated with exposure. In this respect, the Monographs Programme seeks to identify cancer hazards, meaning the potential for the exposure to cause cancer:

> *The distinction between hazard and risk is important. An agent is considered a cancer hazard if it is capable of causing cancer under some circumstances. Risk measures the probability that cancer will occur, taking into account the level of exposure to the agent. The Monographs Programme may identify cancer hazards even when risks are very low with known patterns of use or exposure Therefore the cancer risk associated with substances or agents assigned the same classification may be very different, depending on factors such as the type and extent of exposure and the strength of the effect of the agent[62].*

In addition, Dr Kurt Straif, Head of the IARC Monographs Programme, commented on the implications for public health, stating: "In view of the large number of people who consume

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[59] IARC. At http://monographs.iarc.fr/
[60] IARC Press Release 26 October 2015: IARC Monographs evaluate consumption of red meat and processed meat. At https://www.iarc.fr/en/media-centre/pr/2015/pdfs/pr240_E.pdf
[61] Ibid.
[62] IARC Q & A (26 October 2015). At http://www.iarc.fr/en/media-centre/iarcnews/pdf/Monographs-Q&A.pdf

processed meat, the global impact on cancer incidence is of public health importance.[63]" Dr Christopher Wild, Director of IARC also concluded that:

> *"These findings further support current public health recommendations to limit intake of meat. At the same time, red meat has nutritional value. Therefore, these results are important in enabling governments and international regulatory agencies to conduct risk assessments, in order to balance the risks and benefits of eating red meat and processed meat and to provide the best possible dietary recommendations".* [64]

The identification by IARC that red meat *as probably carcinogenic to humans (Group 2A)* and processed meat *as carcinogenic to humans (Group 1)* led to significant public attention on the health concerns related to meat consumption as well as broader implications related to the role of meat in sustainable and healthy human diets. This paper analyses media reporting related to the IARC Report published between 1 October 2015 and 1 January 2016.

3.3 Framing Analysis Process

This aim is to determine how challenges to the legitimacy of the role of meat as part of a healthy and sustainable diet are being framed in news media. At the same time, there is also an interest in identifying how the meat industry itself is also being framed with respect to public discourse on this issue. Two specific events in 2015 are investigated. To begin with the process for the collection of data for each event is described, followed by a summary in Table 6 of the sample of media reports investigated. The steps taken to code and categorise the material collected in the process of frame analysis is then described in detail. Table 7 presents the five phases of the framing analysis.

3.3.1 Collection of Data: Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report)

To limit the material under investigation only material published between the 1 January – 1 July 2015 was collected. It was decided to focus on reporting within the following media publications: The New York Times, Washington Post, Wall Street Journal. These were chosen because they have national readership reach, are a daily newspaper, and are among the top 4 in national readership statistics. They are also generally regarded as influential 'policy-setters'. These publications were then supplemented with analysis of reporting from the National Public Radio, TIME Magazine, Los Angeles Times, Associated Press and the Guardian UK. The National Public Radio (NPR) is a non-profit membership multimedia

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[63] IARC Press Release 26 October 2015: IARC Monographs evaluate consumption of red meat and processed meat. At https://www.iarc.fr/en/media-centre/pr/2015/pdfs/pr240_E.pdf
[64] https://www.iarc.fr/en/media-centre/pr/2015/pdfs/pr240_E.pdf

organization that serves as a national syndicator to a network of 900 public radio stations in USA. It has a significant listenership of over 26.6 million people per week for its NPR programming and newscasts[65]. Associated Press (AP) is a not-for-profit cooperative, owned by 1,500 U.S. newspapers, which are both its customers and its members[66]. AP articles were included because AP articles are used extensively across many newspapers to report on news. Given its independence and not-for-profit status there was also interest in understanding any specific framing and reasoning devices utilised that might diverge from other news sources.

Los Angeles Times and TIME Magazine were chosen to expand the number of articles to included views from publications that might appeal to an audience not covered by the other publications. The Los Angeles Times has a significant readership on the West Coast of the United States and is the largest metropolitan daily newspaper in the country[67]. TIME Magazine, is a weekly news magazine and has published several front-page issues focused on food issues, including on the role of meat in the diet (e.g. December 1972/2012, October 2015, March 2007/2009, September 2002/2011). Its readership is around 3 million people weekly and is one of the biggest newsweekly magazines (readership) in the US, with a significant global audience through its international editions. To gain an initial insight into how media outside the US reported on this event, it was decided to include material reported by The Guardian UK. This media source was selected because it has significant coverage of meat and diet issues.

The Factiva search engine was utilised, and initial search terms included: "Diet*" "Dietary Guidelines", "Sustainability", and "Meat". After inspection, all duplicate material was deleted. The search was then narrowed to focus on only those news articles that referred to some aspect of meat consumption or the meat industry which also referenced the Advisory Report. This resulted in a total of 35 items. A further online search using the Google News search engine was also carried out to ensure that all relevant material had been captured in the Factiva search. No other new items were discovered. Opinion editorials were coded alongside all other articles because of their potential capability to influence readers on a topic and potential to indicate media policy preferences. This aligns with the view that, highly

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[65] NPR (2016) Factsheet. At http://www.npr.org/about/press/NPR_Fact_Sheet.pdf. Accessed 10 December 2016.

[66] Associated Press (2016) History. At http://www.ap.org/company/history/ap-history. Accessed 10 December 2016.

[67] Mediamiser (2016) https://www.mediamiser.com/resources/top-media-outlets/top-15-daily-american-newspapers/. Accessed 10 December 2016.

subjective editorial and opinion pages can provide readers with important benchmarks regarding salient issues (Golan, 2010). Letters to the editor on the subject were not included in the sample. All material was then entered into NVIVO 11 for subsequent coding.

3.3.2   Collection of Data: World Health Organisations' International Agency for Research on Cancer (IARC) Monographs Evaluation of the Carcinogenicity of the Consumption of Red and Processed Meat ("IARC Report")

To ensure that media reports associated with the Monographs Evaluation were adequately captured it was decided to search for media reporting from 1 October to 1 January 2015.This was to ensure that any anticipatory reaction from media was captured and to ensure that there was enough "lag time" to capture any post-reporting on the Report. The Factiva search engine was used to collect any news reporting, including newspaper blogs posted on and between the above dates and associated with twelve major news media publications (or radio broadcast) across five countries. The newspapers chosen were The Wall Street Journal, New York Times & Washington Post (USA), The Daily Mail & Guardian (UK), Le Monde & Agence France Presse (France), China Daily Times, South China Morning Post (China) and the Sydney Morning Herald (Australia). It was also decided to include the National Public Radio (NPR) (USA) and the weekly news magazine, TIME Magazine. All newspapers investigated have significant online and print presence and are popular in their respective countries. Time Magazine has a substantial international and US readership. NPR has a sizable weekly radio audience for NPR Programming and Newscasts in the US of around 28.8 million people[68]. It was recognised that the majority of media sources chosen above represent elite type of news publications. It was felt important to include a mainstream conservative tabloid sample, hence the inclusion of the Daily Mail. Tabloid newspapers often have considerable audience size, with readers often having lower levels of education, income and social status (Chan & Goldthorpe, 2007). For example, The Daily Mail/Mail Online is the most read national newspaper in the UK in with a claimed monthly reach across print and online channels in the of more than 29 million[69]. It is also the paper which has the largest share of woman readers in the United Kingdom[70]. Its inclusion therefore was thought to provide an opportunity to analyse any differences in framing and reasoning devices targeting a broader public audience than "elite" news media. This may pertinent in that meat eating is

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[68] NPR (October 2016). At http://www.npr.org/2016/10/18/498390457/npr-sees-large-ratings-increase. Accessed 1 November 2016
[69] http://www.pressgazette.co.uk/nrs-readership-figures-daily-mailmail-online-grows-uk-monthly-audience-to-29m/. Accessed 10 November 2016.
[70]Newsworks (2016) http://www.newsworks.org.uk/Daily-Mail. Accessed 10 November 2016.

higher in certain social-economic groups and because women have significant power over purchasing and cooking choices.

Search terms started broad and included "meat", "health", "cancer", "IARC", "WHO". After inspection, all duplicate material was deleted. The search was then narrowed to focus only on those news articles that referenced meat, directly or indirectly, the IARC Monographs Evaluation. This resulted in a total of 124 items. As above, opinion-based editorials were included in the sample as they represented a specific choice by the newspaper to include and present a particular view to readers which may still impact on reader's awareness of the issues. Letters to the editor on the subject were not included in the sample. Material was then entered into NVIVO 11 for subsequent coding. Table 6 presents the data source and sample number for each media article for both events.

Table 6. Summary of Media Reporting Sample

Event	Time period	Search engine	Data source	Sample Number	Total
Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report)	1 January 2015 to 1 July 2015	Factiva, Google News Search Engine	Washington Post	9	35
			The Wall Street Journal	4	
			The New York Times	6	
			TIME Magazine	1	
			NPR	4	
			The Guardian UK	3	
			Los Angeles Times	1	
			Associated Press	7	
Release of the IARC Meat and Cancer Evaluation	1 October 2015 to 1 January 2016	Factiva, Google News Search Engine, Europresse	China Daily Times	6	124
			South China Morning Post	5	
			Daily Mail (UK)	19	
			The Guardian (UK)	20	
			Australian Sydney Morning Herald	8	
			Le Monde (France)	5	
			Agence France Presse	23	
			NPR (US)	4	
			New York Times (US)	6	
			Washington Post (US)	15	
			WSJ (US)	4	
			TIME Magazine	9	

3.3.3   Development of the Signature Matrix

The development of a signature matrix was conducted systematically in five phases which are outlined in Table 7. A grounded theory approach was used across the process. These involved methods that "consist of systematic, yet flexible guidelines for collecting and analysing

qualitative data to construct theories from the data" (Charmaz, 2014, p. 1). Grounded theory was chosen because the documents under investigation represented a potential rich vein of knowledge as to how the public is being informed by media on a complex social, environmental and economic issue. And the aim was to understand the underlying social themes that emerged from the media reporting and which drive framing choices and devices. In the Discovery of Grounded Theory (1968, p. 167-168), Glaser and Strauss recommend that documents should be treated as informants or interviewees. Prior (2008, p. 822) goes further in recognising that 'that in matters of social research, documents do much more than serve as informants and can, more properly, be considered as actors in their own right.'

3.3.4   Phase 1: Initial Coding

Line-by-line coding was first employed as it prompts looking at the data with a fresh perspective as well as helping to maintain critical and analytical distance from various stakeholder world-views (Charmaz, 2014). It also allows a close-up view of what is happening. Strategies provided by Charmez (2014, p.125) such as breaking data in component parts, comparing data with data and identifying data gaps were used to help in the initial coding process. The technique of coding with gerunds (Glaser, 1978) was used wherever possible, rather than topics and themes or "descriptive coding". The intention here was to approach each document with a fresh mind and let the data speak for itself, rather than superimposing any particular frames. This also fits with guidance not to focus on what a text is about, but on how it is told. This aligns with the view that creating a story is essentially about the making of choices and therefore with "regard to the news, framing is not about the core facts of a news event, but about what selections the journalist has made" (Van Gorp, 2010, p. 15). The headline of every article was also coded as it often represented a significant framing device and can indicate the frame/s that follow in the article. The first and second person quoted in each article were also recorded along with anyone who was quoted in the closing paragraph.

3.3.5   Phase 2: Focused Coding

Focussed coding requires decisions about which initial codes make the most analytic sense to categorise your data incisively and completely (Charmaz, 2014, p. 138). In this phase, the initial codes were compared alongside each other and across articles. Several conceptually related clusters or concepts emerged such that the data could be well categorised. Such concepts or focussed codes are often more conceptual than the initial codes that they

encapsulate (Glasser, 1978). A process of constant comparison (Charmaz, 2014) was used which led to repeated examination of the source material to ensure fit (or not) with emerging categories. This helped in categorising frames that were not immediately obvious when analysing them as individual units of coding. The categories that arose from focussed coding had some differences across the two events under investigation, however, there were significant overlaps. Nine categories emerged in media reporting on the Advisory Report and included *Governance, Powerful and Combatant Industry, and Integrity of Science, Mandate of Panel.* In the case of media reporting on the IARC Evaluation, ten initial categories emerged, and included: *Integrity of Science, Risk; Role of Meat in Society*.

3.3.6   Phase 3: Signature Matrix

The nineteen categories that emerged in step 2 were then given further explanation and checked against a "signature matrix" drawn from the work of Gamson and Lasch (2003) as well as Van Gorp (2010). "Signature elements" help to reveal the core and position of a frame. To fully describe the nineteen categories, a signature matrix outlining the use of metaphors, exemplars, catchphrases, specific words, pictures, depictions, roots, consequences and appeals to principle was employed. A draft signature matrix was completed for each category.

3.3.7   Phase 4: Signature Matrix

After analysis of the draft signature matrix using the initial nineteen identified categories in phase three, it was decided to aggregate the categories into fourteen frames. Aggregation of categories avoided unnecessary overlap and represented certain pairing of categories that emerged in media reporting. For example, health and environment issues were often combined. Moderation of meat consumption, for example, was also discussed in relation to the need for society or individuals to make certain trade-offs between desire and health. In line with the Gorp & Van der Goot (2012, p.132) three criteria were used to assess the identified frames: (a) the completeness of the description of the frame; (b) the degree of abstraction; and (c) the possibility of defining other issues with the aid of this frame.

3.3.8   Phase 5: Signature Matrix

A full signature matrix was then completed for each frame across each event. Data drawn from the media articles was used to demonstrate clearly the various elements of the signature

matrix. Each frame was accompanied by a description of the frame along with an example quote, exemplar (i.e. historical examples from which lessons are drawn), key words, metaphors, catch-phrases, depictions along with the reasoning devices including the root or definition of the problem, consequences and appeals to principle. No part of the signature matrix was allowed to remain empty.

Table 7. Three phases of the analysis and their results (Adapted from Gamson & Lasch: 1993)

Event	First phase	Second phase	Third phase	Fourth phase	Fifth phase
	Initial coding Line-by-line coding	Focused Coding	Completion of draft "signature matrix"	Aggregation of the initial frames into final frames	Completion of detailed "signature matrix" for final frames
Advisory Report	>1060 coding items	9 initial frames: • Integrity of Science • Highlighting Conflict • Environment • Health • Moderating Meat • Trade-offs • Mandate of Panel • Powerful and Combatant industry • Governance	Provisional descriptions for each initial frame with the help of signature elements	6 final frames: • Integrity of Science • Powerful and Combatant industry • Highlighting Conflict • It's about Health and the Environment • Moderating meat • Governance	See Table 11
IARC Evaluation	>2000 coding items	10 initial frames: • Integrity of Science • Risk • Creating Hyperbole • Highlighting Conflict • Moderating meat • Trade-offs • It's about Health • Environment • Role of Meat in Society	Provisional descriptions for each initial frame with the help of signature elements	8 final frames: • Integrity of Science (+) **(-)** • Risk • Creating Hyperbole • Highlighting Conflict • Moderating Meat and Trade-offs • It's about Health • Role of Meat in Society • Combatant industry	See Table 12

3.3.9   Limitations

There are several limitations in the methodology used in this study. Only two case studies have been used, the US Dietary Guidelines Advisory Report and the WHO IARC Evaluation. There are other high-profile examples of public discourse that involve challenges to current meat consumption rates which would warrant investigation. Wider exploration of frames used by media across a broader set of events related to sustainable meat consumption would provide further insight. It would also aid in testing the generalisability of the frames within a broader context. Both case studies involve a limited time-period and small sample of articles with which analysis was conducted. There is a potential that more news articles and more sources might have changed the results. However, it is noted that there was evidence of a very high degree of homogeneity of news reporting. At a certain point, saturation seemed able to be achieved very quickly within western-based news media in which the same information, quotes and phrases often appeared to be heavily recycled.

Additional research should consider collecting a greater number of articles related to sustainable meat consumption events from across different countries, including different languages to better identify any cultural differences, and could consider the analysis of more diverse media sources (a greater range of right and left leaning publications) to better reflect political differences. The time-period or interval of sample collection was also relatively short. Further insight would be achieved by following these two issues and associated events over a longer interval to identify changes over time, as awareness grows or changes.

The methodology did not look at the influence of stakeholders through any investigation of how frames used in stakeholder public press releases or documents, were incorporated in media reporting. Such analysis would bring additional rich insight to how media framing is influenced by stakeholder framing. For example, understanding how and to what degree different stakeholder framing on both events was then reflected and incorporated into media framing would also be helpful in better understanding framing power dynamics between stakeholders.

The evaluation of news articles was largely text based, although some photos and videos accompanying text were also included in the assessment and when analysed showed close correlation to the frames used in the text. Future research could examine news articles in their complete version (text, images, multimedia) to discover if any additional frames emerge through these presentation enhancements. One element worth exploring and not fully considered in the methodology is whether emphasis on specific frames or framing devices changes according to the media type used. This is becoming more important as traditional news print media utilise multimedia approaches to a higher degree through online news reporting sites. For example, videos and recordings embedded in print/text news stories are now common.

Importantly, any results should also be considered exploratory because coding was not reviewed in the coding process. Samples of coding have been provided to demonstrate the coding process. One should also be aware that there is always some level of subjectivity in framing studies, however, that is difficult to escape (for discussion on this aspect see Van Gorp, 2010, p.9). One way of monitoring subjectivity and in ensuring better reliability and validity of results is through a systematic approach that clearly describes the coding and categorisation approach. Therefore, the methodology clearly describes five phases of analysis involving initial coding through to development of a detailed signature matrix. Careful and

detailed documentation of all the elements for each identified frame is also undertaken to help achieve greater transparency and clarity to the framing analysis. All elements of the signature matrix were also addressed with no gaps left. This helped to ensure comprehensive and rich depiction of the frame, with sufficient supporting data. The signature matrix thus allows the reader to understand the coding process and gives textual examples to support coding and categorisation decisions. In this respect, the signature matrix also represents a coding framework.

The inductive Grounded Theory approach to identifying frames also ensures that no frames are defined a priori, so there is a smaller chance that frames are overlooked. It is emphasised that while there may be overlap of frames between both events a signature matrix is conducted for each event and its specific frames. This ensures that the integrity of each signature matrix is maintained until the end. Memos served an analytic and practical function to kept track of conceptual decisions, issues or questions that needed further analysis at a later point, potential data gaps or inconsistencies arising from the coding cycles and as a tool to aid in maintaining reflexivity across the research process.

Lastly, the methodology is also relatively unambitious. It does not seek to appreciate how effective the frames identified in the framing analysis are on influencing actual public opinion towards meat. This is left for future research.

PART B: CASE-STUDY METHODOLOGY

3.4   Introduction to Case Study Methodology

To explore emerging market signals amongst key downstream retailers related to sustainable meat consumption demands, it was decided to utilise a case-study method in which publicly available information was used to gather data on a sample of retailers supported by data obtained from one in-depth semi-structured interview with a key sustainability leader. The aim was to identify whether meat-centric restaurants, that is hamburger restaurants, were responding to demands associated with sustainable meat consumption and if so, how they were responding, including any specific actions being implemented by such entities.

Case study approaches are suited to questions related to a 'how' or 'why' nature regarding a current phenomenon in a real-life context (Yin 1994). Time was also limited, and the aim of this case study was to provide greater insight into how downstream 'gate-keepers' who are immediately in touch with consumers might be interpreting demands around sustainable meat consumptions. This provides greater insight to possible future sensemaking efforts by the meat industry, as well as an indication of possible market signals that may, or may not be picked up by the meat industry.

The data heavily relies on publicly available information obtained from company websites, annual reports, and any other relevant material found online. In this respect, the documents are treated as informants or interviewees (Glaser & Strauss,1968; Prior 2008). It is noted, however, that data collected is used in a descriptive fashion only. Beyond descriptive analysis of the data there is no analysis that goes beyond the data to import any further meaning to individual company intentions. While this is relatively unambitious, a literature research showed very limited research or investigation looking at how meat-focused restaurants were responding to market demands around sustainable meat consumption. Any studies were limited in scope to one company and were more broadly focused on sustainability actions in general, not directly related to sustainable meat consumption activities. Case study research is also "particularly well-suited to new research areas or research areas for which existing theory seems inadequate' (Eisenhardt, 1989, pp. 548-9).

An exploratory case study approach is therefore appropriate. It will provide the opportunity to ascertain research options towards a future more comprehensive study (Ghauri and Grønhaug 2002; Yin 1994). And it will offer valuable information regarding emerging

signals in the marketplace regarding attention to meat consumption relating to health, environment and ethical issues from powerful stakeholders in the meat value chain.

3.4.1   In-depth Interview with Chief Sustainability Officer of Max Burgers

An in-depth interview with the Chief Sustainability Officer of Max Burgers was used to supplement the material and provide further interpretation, from the perspective of that company, of reasons why a hamburger restaurant might actively address sustainability issues associated with meat consumption. This was deemed as being appropriate because Max Burgers was viewed as being somewhat unique in that it has publicly stated that it wishes to address impacts of meat consumption and it has had considerable success with this approach. Such cases of 'outstanding success' (Patton 1990, p. 169) can make particularly worthy in-depth investigations.

The interview is also appropriate because the interview is likely to have significant revelatory power. The interview allows access to observe and study a phenomenon not normally accessible to those outside the company and can provide useful insights for a diversity of stakeholders. Such an approach was used effectively by Ghobadian & O'Regan (2014) who used one in-depth interview with a senior executive at McDonalds, along with publicly available information to highlight development and implementation of organisational strategy.

Additional studies and well as informative material (interviews, media articles, brochures) that describe the actions at Max Burgers focused around sustainable meat consumption were also collected and summarised. It is noted that the aim of the research was not to give a complete picture of Max Burgers or of burger retailers in general but only to analyse emerging signals relating to sustainable meat consumption from across retailers who are innovating in this area and which might usefully inform the meat industry in its own sensemaking. Given the importance of burger retailers in the meat value chain such signals can be important.

3.5   Data Collection Process

3.5.1   Web-based Survey

A web-based survey of actions by fast food burger retailers to identify sustainability actions being undertaken in the industry was carried out. A Google website search (both general web

and news content) was made to obtain material that related to "sustainable", "burger", "restaurant". Restaurants were also required to offer both red and white meat burger options on the menu. Only those restaurants with more than 35 locations were chosen for analysis. This was to ensure that the companies selected held significant power in the value chain due to company size and therefore also held some power with respect to meat-demand. There was also an additional interest to evaluate actions by retailers that had been tested at scale. This resulted in the identification of 15 burger restaurants (Table 8). Once selected all websites were examined visually as well as through the search function, where available, with the terms "meat," "sustain*," "climate", "environmental" and "welfare". This analysis took place between 17 November 2016 and 17 April 2017. Any website content or material changes made after this point were not captured. Annual Reports, where obtainable, were searched for any content related to sustainable meat consumption or production. Research reports, brochures, promotional material was included in the sample material. Material was loaded into NVIVO 11 for further analysis. All references to external meat product attributes or actions related to sustainable meat consumption were recorded.

Table 8. List of Hamburger Restaurants Selected in Initial Search

	Base Country	Year started	Dining Category	No. of Restaurants	Website
Chipotle	USA	1993	Fast-casual	>2010	www.chipotle.com
McDonalds	USA	1940	Quick-service	36,525	www.mcdonalds.com, www.corporate.mcdonalds.com
BurgerKing	USA	1954	Quick Service	15,738	http://www.bk.com/
Burgerville	USA	1961	Fast-casual	42	http://www.burgerville.com
Max Burgers	Sweden	1968	Quick-service	120	www.max.se, www.maxburgers.com
Red Robin Gourmet Burgers	USA	1969	Casual dining	538	www.redrobin.com
MOS Burger	Japan	1972	Quick-service	>1730	www.mos.co.jp/global/
FiveGuys	USA	1986	Fast-casual	1,000	www.fiveguys.com
BurgerFuel	New Zealand	1995	Fast-casual	88	www.burgerfuel.com
Gourmet Burger Kitchen	UK	2001	Fast-Casual	80	www.gbk.co.uk
Shake Shack	USA	2004	Fast-casual	100	www.shakeshack.com
Elevation Burger	USA	2005	Fast-casual	54	www.elevationburger.com
Byron Burger	UK	2007	Fast-casual	69	www.byronhamburgers.com
Smashburger	USA	2007	Fast-casual	370	www.smashburger.com
BareBurger	USA	2009	Fast-casual	44	www.bareburger.com

Seven fast-food restaurants shown in Table 9 were then purposefully selected to demonstrate initiatives across sustainable meat consumption, along with a summary of specific actions being undertaken. These seven fast-food burger restaurants were chosen because they

demonstrated a particular focus on sustainable meat related actions. Chipotle was also included because meat is a key product of its menu, it is often presented as a leader in sustainability action, and it brands itself heavily with regards action on integrity and sustainability. Burger restaurants were also selected to show a range of dining categories, from quick-service (McDonalds, Max Burgers), fast-casual (Elevation Burger, Shake Shack, Bareburger) and casual dining (Red Robin) as well as two distinct generations of restaurants, the pre-1970 examples (McDonalds, Red Robin, Max Burgers) and the decade 2000-generation of Elevation Burger, Shake Shack and Bareburger (new entrants). These seven restaurants were then compared across the following categories: size (number of locations, employees), annual income, domestic and international operations, any publicly stated policy regarding meat including whether the restaurant used organic, free range, wild meats, GMOS, antibiotics in meat, and the number of vegetable burgers, if any. It is emphasised that only base country examples were compared. For example, standards within companies may differ across country locations therefore only data offered on the publicly available website of the country in which the restaurant had its origin base was compared directly. Quick-service restaurants are described as restaurants were have price points of approximately US$5-7 per meal, are quick to serve (minimal waiting time), limited menus and have no table service. Casual-dining restaurants have price points of approximately US$15 per meal, have menus with a wide range of choices, table service and take longer to serve (moderate waiting time). Fast-casual restaurants fall between the two with meal cost from US$8-15[71]. In addition, meat burgers were compared across the 6 hamburger restaurants in the sample to ascertain portion content concerning total calories, sodium, and fat.

Table 9. Categorisation and information on 7 selected hamburger restaurants

	Slogan	Base Country	Year started	Dining Category	No. of Restaurants	Website
Chipotle	"Food with Integrity"	USA	1993	Fast-casual	>2010	www.chipotle.com
McDonalds	"I'm lovin' it"	USA	1940	Quick-service	36,525	www.mcdonalds.com, www.corporate.mcdonalds.com
Red Robin Gourmet Burgers	"Better for Being Here"	USA	1969	Casual dining	538	www.redrobin.com
Max Burgers	-	Sweden	1968	Quick-service	120	www.max.se, www.maxburgers.com
Elevation Burger	"Above and Beyond Good"	USA	2005	Fast-casual	54	www.elevationburger .com
Shake Shack	"We Stand For Something Good"	USA	2004	Fast-casual	100	www.shakeshack.com
BareBurger	-	USA	2009	Fast-casual	44	www.bareburger.com

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[71] It is difficult to find a definition of restaurant types. The following article has been used as a guide. The Balance (4 February 2017) The Basic Restaurant Formats. At https://www.thebalance.com/types-of-restaurant-formats-1326193

3.5.2   Background to Max Burgers

The Swedish fast-food retailer Max Burgers[72] was chosen to investigate in further depth because it has purposively made itself a leader on action to address sustainability of meat consumption. Information was gleaned from Max Burgers Websites. Both Swedish and international webpages were examined. An internet search using Google was also conducted to gather broader information published aver the last 10 years, pertaining to sustainability and meat-related actions at Max Burgers including research documents, interviews, brochures, awards, and news articles.

Max Burgers operates across 100 locations in Sweden, and 20 locations across Norway, Denmark and the United Arab Emirates with plans for further international expansion principally through a franchising strategy. Current revenue is described at around 220 million euros in 2016, with average turnover per restaurant at 2.2 million Euro[73]. Approximately 5 400 people are employed worldwide. According to Max Burgers own promotional material on its website, Max Burgers is the most profitable restaurant chain in Sweden outperforming both McDonald's and Burger King. From a customer satisfaction perspective, Max Burgers point to consumer survey's conducted over the last 13 years in Sweden ranking Max Burgers highest on taste and consumer satisfaction compared to major competitors (ISI Wissing 2015, ISI Wissing 2013, Mediekompaniet and YouGov brand survey 2010)[74].

Max Burgers is 100% family-owned, having started in 1968 with the first burger restaurant opened in Northern Sweden. The founder, Curt Bergfors remains as Chairman of the Board. President and Vice-President of the company are held by his sons Richard Bergfors and Christoffer Bergfors. Max Burgers is a company that is considered as sustainability 'thought leader' in the food retail business having been shortlisted or winning a number of sustainable business awards within Sweden and Europe (e.g. Green Award 2009[75], Sustainable Brand Index Sweden Industry Leader 2016[76] & Greatest Venture Sustainable Branding 2016[77]).

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[72] Hamburgerrestauranger AB (Max Hamburger Restaurants Incorporated)

[73] MAX Burgers Franchise Brochure (2016) At http://www.maxburgers.com/Global/Download%20Files/Max-brochure.pdf. Accessed 20 December 2016.

[74] At http://www.max.se/sv/Maten/Smaktester/ (Accessed 10 January 2017)

[75] Launched in 2006 in the UK, the Green Awards were set up to recognise and reward creative work that communicates the importance of Corporate Social Responsibility, sustainable development and ethical best practice in any sector and across any marketing discipline.

[76] At http://www.sb-index.com/2016-results2/

[77] At http://www.sb-index.com/winners/

The most significant transformation around sustainability started in 2006. The main drivers for this appear to be an internal values-based decision as part of recognising the sustainability challenges that society is facing and the company's own role in addressing those challenges, the belief sustainability action might be a point of competitive differentiation for the business, and the desire for more rapid expansion of restaurants within Sweden and other countries which promoted revaluation of business-as-usual[78]:

> *"As a family company, we aim to be around for many generations. We want to be a sustainable company in a sustainable society and a model for the industry."[79]*

Subsequently, in 2008 a five-year action plan was agreed with the aim "for a completely sustainable organization by 2030" (Human Element, 2016). Efforts were based around three dimensions: ethical leadership, social sustainability and ecological sustainability (Human Element, 2016).

In the development of the strategy, climate change became a key focus area. Working with a not-for-profit consultancy, The Natural Step, Max Burgers undertook an assessment of the carbon footprint of the company, including the food, from farm to guest. The study showed that almost 70% of GHG emissions came from production of meat products on the menu, beef. Meat therefore became a key focus of the ecological sustainability goals of Max Burgers.

> *"When you think about the environment, you think about packaging, waste, transportation. What we found out was that yes, these have an impact, but by far the most important issue is the beef."*
>
> *CEO Richard Bergfors, Max Hamburgers[80]*

As a response to the climate impact of meat, MAX Burgers introduced climate labelling to its menu in 2008, as well as a carbon offsetting policy. Max Burgers describes itself as the 'first quick service restaurant chain in the world to label and compensate for the food's impact on the environment'[81]. Guests are made aware of the carbon footprint of food (see figure 16), as

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[78] See TEDxPresidio - Par Larsens - Sustainable Hamburgers. At https://www.youtube.com/watch?v=TrP6ygt7Pa0. Also, discussion in Human Element (2016) Max Burgers Case Study. At http://thehumanelement.com/wp-content/uploads/2016/03/T918US_Max_CaseStudy_2016_03.pdf

[79] Max Hamburgers Website (2017) At http://www.max.se/sv/Ansvar/vartansvar/

[80] The Globe and Mail (11 September 2011) Burgers, fries, CO2 count share the menu at Max's. At http://www.theglobeandmail.com/report-on-business/international-business/burgers-fries-co2-count-share-the-menu-at-maxs/article617386/. Accessed 1 December 2016.

[81] At http://www.maxburgers.com/Home/Sustainability/Sustainability/

it is displayed on menu boards at point of purchase, and they are made aware that whatever the choice, all emissions are offset with reforestation projects in Africa:

> *"When we go public with how our meals affect the climate, our guests can help us to lower our joint impact."*
>
> *Richard Bergfors, President of Max Hamburger*[82]

Figure 16. Examples of Max Burgers carbon footprints on burger and offsetting scheme (Max Burgers, 2015a, 2015b)

Max Burgers offsets its total climate impact through certified forestry offsetting schemes in Africa, having planted more than 1 million trees since 2008 (Max Burgers Sustainability Report, 2015b, p.11).

The success of the carbon labelling and offset campaign has been described as significant for the business. Within a year of its introduction, Max reported a 15% relative increase in sales of low carbon products such as chicken fingers and veggie chili (The Natural Step, 2015, p.5). Food preference survey showed that Max as the "first choice in fast food" increased from 18 % in 2007 to 21 % in 2008 (which is higher than McDonalds)[83]. A Mindshare survey in 2009, showed an increase in customer loyalty by 27 % for Max between 2007 and 2009 (The Natural Step, 2015, p. 6). This appears to have been maintained with Max Burgers winning best in category in the 2016 Sustainable Brand Index evaluations as well as winning the award for the best venture in Sustainable Branding for its 2016 launch of the "Green Family" of vegetarian burgers[84].

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[82] Ibid.

[83] Green Awards (2009) Climate on the Menu – Max Hamburgarrestauranger AB: Best Green International Campaign. At http://www.greenawards.com/winners/winners_2009/best_green_international_campaign-2. Accessed 1 December 2016.

[84] See Sustainable Brand Index Winners (2016). At http://www.sb-index.com/winners/. Accessed 1 Jan. 2016.

Other efforts, although not solely driven by decarbonisation goals, contribute to helping to lower emissions around meat. For example, meat content in meat patties is around 82% (The Natural Step, 2015). The key reason being that lower meat content performs better in taste tests. For Swedish operations, all land-based meat is grown and processed within Sweden and there is company policy of no Genetically Modified Organisms (GMO), transfat, antibiotics or growth hormones in food (Max Website 2017). In January 2016, the restaurant launched its 'Green Family' products, which involved 5 vegetarian burger options, inclusive of a vegan burger and children's option. The restaurant has also set goals around shifting consumption from meat menu options towards non-meat options.

3.4.3 Interview participant

The interview was conducted with the Chief Sustainability Officer and Chief Risk Officer for Max Burgers, Mr Kaj Török. As a senior management board member, he reports directly to the CEO. Mr Török had recently taken up the position at Max Burgers (October 2016). However, he has been involved in the development of the sustainability strategy since 2006, having worked previously for The Natural Step, a non-profit sustainability consulting organisation which has worked closely with Max Burgers in the development of the sustainability programme. His relationship with Max Burgers therefore spans 10 years. There is potential therefore to gain a deeper understanding of how the company makes sense of challenges associated with meat and sustainability given Mr Török's experience and seniority in the company.

3.4.4 Interview process

Mr Török was interviewed in Stockholm on 20 December 2016 at a place of his choosing. The interview lasted 90 minutes. Mr Török was relaxed and appeared comfortable and enthusiastic in talking about experiences and philosophies of MAX Burgers in relation to sustainable meat consumption issues. A semi-structured approach was taken with respect to the interview. Several introductory questions were drafted before the interview; however, the interview was allowed to proceed as guided by the responses of the participant. An introduction was made at the start of the interview outlining the research interest in understanding motivations and actions around sustainable meat consumption. Open questions were used to draw out information with minimal use of closed questions. The interview was recorded and notes were also taken throughout the interview. A transcript was made of the

interview within the five days following the interview. The transcript was then edited for clarity and brevity. For example, some text not pertinent to the study was deleted. Extraneous words were also deleted from the transcript that were not important to the response. Once completed, the transcript of the interview was provided to Mr Török. The transcript and questions are included in Section 4.11.

3.4.5   Limitations

The aim of this case study was limited to only providing descriptive information as to whether meat-centric restaurants, that is hamburger restaurants, are responding to demands related to sustainable meat consumption and if so, to identify actions as to how they are responding. An additional in-depth interview with the Chief Sustainability Officer of Max Burgers, a leading fast-food restaurant with regards sustainable meat actions also complements the information. The design of the case study and its descriptive aims does not facilitate assessment of any cause and effect relationships. The methodology used does not lead to any conclusions as to the impact any actions by restaurants related to sustainable meat consumption are having on the meat industry. Neither is there any assessment as to the degree of power these restaurants are having on the meat industry and change related to sustainable meat production and consumption in relation to all restaurants combined, noting that only a small sample of restaurants have been selected for analysis. The restaurants selected also reflect restaurants that present information on actions related to sustainable meat consumption on their website and/or where meat related sustainability issues are discussed. In contrast, many burger restaurants initially assessed have no publicly available policy or information related to sustainable meat production or consumption.

Publicly available information on sustainability and meat was also sometimes difficult to locate. Many restaurant companies across the study provide surprising little information on sustainability. Thus, some information is bound to be missing because it was difficult to find or because it was unavailable due to outdated website information for example. Yet, it was also assumed that if the actions were prioritised and deemed to be important by the restaurant entity, as well as communicable to consumers, then information should be, within reason, easily found on the website or reflected in the annual report, if published. It is noted, however, that this introduces a bias to the findings.

There is also no assessment made on how the meat industry is impacted by any demands associated with sustainable meat consumption from these restaurants. This would be a fruitful

area for future research. The small sample of restaurants in the study, although reflecting influential hamburger restaurants due to their size and status, is still small. Therefore, there is little basis for establishing reliability or generalizability of the findings to the wider restaurant industry. It is emphasized that the methodology seeks to make no assessment as to the sustainability performance of any restaurant. Critical examination of this aspect is, however, needed. As an exploratory case study, the findings indicate rich avenues for future research to which robust qualitative and quantitative studies might be launched from.

PART C: SENSEMAKING METHODOLOGY

3.6   Introduction to sensemaking methodology

This paper uses a grounded theory approach, involving in-depth interviews with members of the industry to obtain access to rich data. In-depth interviews were considered an appropriate method to understand sense-making in the meat industry because the topic is one that 1) involves the need to understand a real-life complex business decision-making process in-depth, 2) has not been previously studied within this sector and 3) is a topic of emerging interest in the sector but is not yet accompanied by any clearly articulated common understanding of the issues or potential responses mechanisms within the sector (Yin, 1981). Before interviews commenced, a comprehensive interview protocol document was developed. This set out the methodological process for carrying out interviews, data collection as well as coding and interpretation of interview data. This also addressed issues of confidentiality, data management and ethical considerations. The Protocol was shared with the research supervisor and changes were made accordingly after feedback was received. The Protocol is attached as Appendix 1.

The interview plan employed a semi-structured opened-ended question format with the use of probing questions to elicit further explanatory information from the participant to add significance and depth to the data obtained. A Grounded Theory approach was then used to build up an in-depth understanding of sensemaking within the meat producing and processing sector. Grounded theory is a systematic, inductive approach to developing theory to help understand complex social processes (Glaser 1978). It offers a framework for "systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data itself" (Charmaz, 2014, p. 1). Grounded theory is also useful given the lack of any established theory able to describe the phenomenon of interest (Leedy & Ormrod, 2005; Creswell, Plano & Garrett, 1998), and with an industry which has yet to clearly articulate its response (Wilson & Hutchinson, 1991). Additionally, a Grounded Theory approach is considered well-suited due to the lack of research on this topic which explores perspectives from within the industry itself. There is also a potential inherent conflict in how businesses can manage objectives of achieving sustained business growth and at the same time address unsustainable consumption of their products/services. This creates a complexity not easily made sense of by the meat industry and not easily uncovered through quantitative methods. As well, there exists no clear definition of sustainable meat consumption that can

be easily referred to, or consistently applied across the meat industry. And issues associated with sustainable meat consumption are neither homogenous across the industry. For example, health concerns associated with meat consumption may be a predominant focus in some countries, whereas in other situations public focus may primarily be on animal welfare concerns. Issues can also differ across meat species (e.g. beef versus pork), mode of production (e.g. grass-fed versus corn-fed) and manufacturing (e.g. processed versus fresh). Therefore, qualitative research methods are better suited for this initial evaluation of the topic. Sensemaking has been adopted as the core analytical framework in this paper to develop a deeper understanding of how sustainability managers in the meat and processing sector approach the complex and ambiguous challenges associated with sustainable meat consumption demands. This includes how they make sense of these challenges, frame their responses, as well as what they consider are appropriate future actions for the meat industry. Key themes or categories from the interviews will be allowed to emerge from the data. These themes or categories will then be examined from a sensemaking perspective utilizing the seven characteristic of sensemaking, as outlined by Weick (1995).

3.7   Participants

Managers (at mid-to-senior level) with the meat production, processing and trading sector who hold significant responsibility for sustainability within their organisation were selected to participate by convenience sampling. This included meat advocacy/policy directors within organisations affiliated with, or representative of the meat sector. Participants had on average 15 years of work experience. Three women and 9 men from across 8 countries (France, Ireland, New Zealand, United States, Germany, Belgium, Netherlands, Brazil) were interviewed. Three participants held prominent positions as head of a meat industry organisation and therefore also had broad oversight of international and/or regional-level policy development for the meat industry. A list of coded participants is provided in Appendix 1 at Attachment 1. Junior-level employees were not eligible to participate in the in-depth interviews because they may not possess significant experience or power in the organisation to fully develop, gain approval for, and implement complex sustainability initiatives. Downstream retailers who are not directly involved in producing, processing or trading meat products are also excluded as they are viewed as outside the sample population defined as being in the meat producing and processing industries. Given the high-profile nature of some roles of the participants and the small sample size, it was believed that it would be easy to identify them with even basic descriptions. Hence to ensure participation

and respect sensitivity of participants and the information provided, participants names or organisations are not used in the research. The names of individuals and their organisations were, however, shared with the Supervisor of the research and examiners.

It is noted that the aim of the research was not to give a complete picture of any one organisation or the meat industry at large but only to analyse some views from senior leaders and decision-makers from within the meat industry.

3.8   Sample selection

Purposeful sampling was used to obtain a diversity of views across the industry to help develop a richer understanding of sense-making in the industry and potential future legitimation activities. Also, subjects who have critical experience with sustainability and/or strategy are likely to be well-informed on the issues and may be able to contribute usefully with knowledgeable information in an articulate and reflective manner (Cresswell, 2011). Subjects were also asked to recommend useful potential candidates for study (snowball sample). Purposeful sampling allows the identification and selection of information-rich cases, under time and resource pressure (Patton, 2002). Sustainability and/strategy managers given their direct interest on the issues are also likely to be seized by some interest on the research and therefore both more available and willing to participate. An invitation to participate in a survey was sent out to over 80 people in the meat industry. This included all members of the Sustainable Meat Committee of the International Meat Secretariat. This survey contained a number of questions around sustainable meat consumption. Only 20 responses were received, however, this enabled identification of 8 managers in the meat industry who were willing to participate in the research through in-depth interviews. Participants in interviews were also asked at the end of each interview if they could recommend any person that might be useful to interview as part of the research. These suggestions were followed and represented 4 of the participants involved in the research. This is consistent with the use of theoretical sampling which is described as the process of continually gathering data through the analysis process with the purpose of explaining and validating emerging concepts (Fassinger, 2005). This process usually involves soliciting specific participants or data collection sources that will provide further information on the particular construct being examined and is a hallmark of Grounded Theory approaches according to Fassinger (2005, p. 162). Saturation was achieved largely by the tenth interview, however, an additional two interviews were added to ensure

completeness. Saturation was achieved when no new concepts and categories emerged or diverged from data already collected.

3.9   Interview Process

All interviews were carried out between October 2016 and February 2017. Interviews lasted from 45 to 90 minutes. These are described in the interview log in Appendix 1 at Attachment 1. After a short introduction by the researcher, participants were asked about their role in their organisation. They were then asked general questions about their thoughts on sustainable meat consumption and what that meant for the meat industry. A series of open-ended questions were then asked. The questions included: i) Are there any issues related to sustainable meat consumption facing the meat industry? ii) If so, what are they and how serious are they? iii) How is the industry best able to respond to these issues? iv) how do you see the role of the meat industry in supporting sustainable meat consumption? v) How do you interact with different stakeholders on these issues vi) What do you think the meat industry will look like in 2050? Additional prompting questions emerged as interviews progressed to help draw out participant response and provide further clarity where needed. An interview protocol to guide the interview process is provided in Appendix 1 at Attachment 4. The researcher's responses included active listening and empathic reflection as needed to improve the quality of the discussion. A review was made after each interview to consider ways to improve interview technique and to address any emerging themes that may have arisen in the prior interview. An example is provided in Appendix 1 at Attachment 5. After the first interview, it was decided to include a question around definition of a heathy quantity of meat per person to understand better how the industry might define levels of meat consumption. It was also decided to explore the theme of the industry as a "protein-supplier" or an "animal-protein supplier" to explore level of exploration into future diversified protein strategies. A final question was asked at the end of each interview which invited the participant/s to add any additional information they thought might be of interest to the research and if they wished to ask a question themselves. At the inclusion of the first 4 interviews a summary of progress was discussed with the supervisor as shown in Appendix 1 at Attachment 6.

3.10 Sensemaking Data Management and Process

3.10.1 Data collection guidelines

Advice by Sbaraini et al. (2011) was followed as useful guidelines for data collection including: (i) record interviews digitally, (ii) analysis the interview transcripts as soon as possible, (iii) write memos immediately after every interview session to grasp the initial concepts, (iv) find opportunities to get access to participants to clarify concepts after interviews, and (v) employ phone/internet interviews to have a wider range of participation. Interviews were conducted either in-person at the physical office address of the participant or through Skype or telephone call. A digital recording was made where possible, however, notes were made throughout all interviews. All data was entered into NVivo 11 (QSR International, Cambridge, MA) qualitative data management software for coding and analysis. This enabled ongoing analysis and reflection on the purposes and findings of the research.

3.10.2 Data Management and Coding

Seven phases of coding and categorisation were undertaken. These are described briefly below and in Table 10. Alongside this process, memos were kept, to draw out and justify emerging themes and lines of enquiry through the fieldwork process (Chandler & Reynolds, 2013).

Phase 1 involved coding of the transcripts line-by-line, or by key phrases, sticking close to the data and utilising coding for actions where possible as recommended by Charmaz (2014, p.116). Coding was conducted by reading data, line-by-line, with the aim to identify the underlying meaning or concepts behind statements and by using gerunds. When ideas reappeared in the data, these were coded to the same node.

In Phase 2, as coding developed and themes emerged, nodes were arranged in groups under a parent node labelled with the theme, themes were then collated into broader groups representing concepts. The goal of this coding phase was to generate a list of abstract concepts regarding the perceptions of the participants in making sense of challenges related to sustainable meat consumption (Charmaz, 2014).

Phase 3 involved grouping of concepts into categories. A process of comparing concepts for similarities and differences resulted in a list of 35 categories or theoretical constructs. Each

was then described in brief detail. The aim here was to tease out differences and similarities and to test categories for completeness and depth.

Phase 4 aggregated categories to avoid unnecessary overlap or duplication and identified key categories as they emerged in the data. This phase of analysis began by grouping category notes into main and subcategories helping to reassemble raw data obtained during open coding (Strauss and Corbin, 1998, p 124). Through this process 15 main categories representing sensemaking efforts of the participants emerged.

Phase 5 of the data management process was to describe succinctly each category, along with examples using data from the interviews to illustrate sensemaking efforts.

Phase 6 then focused on comparing the seven characteristics of sensemaking to each of the 15 categories to determine whether any sensemaking characteristic was demonstrated with any specific emphasis over others. This allowed deeper consideration of sensemaking efforts related to the themes that emerged from the interview data.

Across the coding process, the constant comparative method (Glaser & Strauss, 1968) was used to compare coding and emerging theoretical constructs and address incomplete understanding or gaps until saturation of categories was reached (Charmaz, 2014).

Finally, Phase 7 involved the determination of overarching theoretical constructs. Strauss and Corbin (1998) state that "selective coding is the process of integrating and refining categories" (p. 142). The goal of this step of that analysis was to develop an overarching theoretical scheme. This identified a core category that explained participants sensemaking efforts and showed the relationship between certain sub-categories.

First phase	Second phase	Third phase	Fourth phase	Fifth phase	Sixth phase	Seventh phase
Initial coding Line-by-line coding	Focused Coding	Categorisation of emerging themes	Aggregation of the initial concepts into final 15 categories.	Description of final 15 categories with examples	Comparison of categories with 7 sensemaking characteristics	Selection of overarching theoretical categories & comparison to sensemaking characteristics
730 coding items	35 initial parent nodes	Provisional descriptions for each concept with the help of memos	15 final categories	See Table 17	See Table 17	See Table 18

Table 10. Data Management Process for In-depth Interviews with Meat Industry

3.10.3   Limitations

Trustworthiness, or validity of the research findings is always an important concern in research (Creswell, 1998). Various actions were taken to help improve the validity of this research, although several limitations remain. Firstly, a detailed interview protocol was developed before conducting interviews. This was sent for approval and feedback to the supervisor. This protocol addresses data collection and management as well as ethical considerations. It set out a process for constant reflection on data as it was collected and analysed.

Maxwell (1996) states that member checking, or soliciting feedback from participants, is the "single most important way of ruling out the possibility of misinterpretation of the meaning of what they say and the perspective they have on what is going on" (p. 94). Two participants were selected randomly and were sent a copy of the 15 categories that emerged as key sensemaking themes from the interview data. Their feedback was sought as to whether it represented largely, in their view, their own sensemaking efforts as indicated in the interview, and in their opinion, more broadly those of the industry. Both participants indicated their broad agreement with the categories and indicated the need for no or minimal revisions.

Creswell (1998) states that rich, thick description of the research project and findings allows those reading the study to decide if results can be transferred to other populations of interest. Care has been taken to set out clearly the seven phases of data analysis from initial coding, constant comparative analysis and categorisation of themes. A significant limitation is that coding was not reviewed in the coding process. Results should be considered exploratory therefore. To address this issue, it was decided to include a full discussion of the 15 categories identified in phase 5. Direct quotes from the participants are also used to illustrate the categories to also allow the reader to judge category reliability. According to Kassarjian, (1977, p.14) category reliability depends on the analyst's ability to formulate categories and present to competent judge's definition of the categories so they will agree on which terms of a certain population belong in a category and which do not. A definition that depicts each category is also provided. In addition, the selection of overarching theoretical categories is addressed in some detail.

The number of participants in the sample is small. It would be useful to enlarge the sample substantially to include more industry members and a greater diversity of nationalities. It is noted that there is likely to be a strong cultural biased towards western meat industry systems.

This study uses a qualitative Grounded Theory approach to generate a deeper understanding of sensemaking in the meat industry with regards issues related to achieving sustainable meat consumption. As such it provides one 'window" on relevant themes in the sensemaking process that emerge from a small set of interviews. It is not intended therefore to represent every view or be even the definitive view of the industry. It would therefore be extremely valuable to test the categories that arose in the results of this research with a wider sample of the meat industry to determine if these well represent the views of the wider industry and indeed in what situations they are not representative. This research only addresses one industry, from the perspective of meat producers and processors, therefore its generalisability to other industries, and individual organisations outside the industry, is limited.

Interview data also largely reflects a red-meat industry perspective. Therefore, input from the poultry industry would be highly valuable addition to future research. A qualitative method has not been used in this paper. At this early stage of identification of themes or social constructs operating within the industry this is not expected. The emphasis has been in gathering the views of the industry itself, to understand better how the industry makes sense of certain problems or issues it faces. However, a mixed method quantitative and qualitative study that seeks to triangulate some aspects of sensemaking processes would be useful and provide further robustness to results.

CHAPTER 4

FINDINGS

This Chapter presents the findings of the investigations carried out as described in Chapter 3. It is presented in 4 parts. Part A describes the Results of the Framing Analysis of two high profile events that garnered significant media attention. Part B discusses the identification of downstream market signals related to sustainable meat consumption that might provide further insight as to the market environment to which the meat industry operates and potential future sensemaking efforts. Part C presents the key themes that emerge in sensemaking efforts by the industry in relation to sustainable meat consumption demands. Finally, Part D looks at the relationship between the studies and legitimacy theory.

PART A: FRAMING OF MEAT AND THE MEAT INDUSTRY

4.1   Introduction

The framing analysis involved the identification of frames used in news media reporting across news reporting in relation to two high profile events, the release of the Scientific Report of the 2015 Dietary Guidelines Advisory Committee ("Advisory Report") and the World Health Organisations' International Agency for Research on Cancer (IARC) Monographs Evaluation of the Carcinogenicity of the Consumption of Red and Processed Meat ("IARC Report"). Both events resulted in significant public attention on the role of meat in a healthy, ethical and sustainable diet.

4.2   Identification of Frames and Signature Matrix

The identified frames are presented in the form of a complete signature matrix and are presented in Tables 11 and 12. A total of 9 distinct frames emerged from the coding analysis. The Integrity of Science frame is split into positive and negative dimensions. This differentiation (positive/negative) is discussed in more detail in section 4.4.1. Several other emerging frames were also present, but these were not considered as dominant frames as they were either not used consistently, were not prevalent enough to represent a key frame across the items explored and/or were not accompanied by strong signature elements to represent the

utilisation of a full frame. A dominant frame being considered as having the "highest probability of being noticed, processed, and accepted by the most people" (Entman, 1993, p. 56). Five Frames were common across the reporting of both events. These were the *Integrity of Science, Moderating Meat and Trade-offs, It's about Health and the Environment, Highlighting Conflict* and the *Powerful and Combatant Industry Frame.* Three additional Frames emerged in the analysis of reporting on the IARC Evaluation Report. These were labelled the *Creating Hyperbole Frame, Risk Frame*, and the *Role of Meat in Society Frame.* The *Creating Hyperbole Frame* draws attention to a style of media reporting that frames the issues as shocking and/or frightening and uses hyperbolic headings. *The Role of Meat in Society Frame* draws strongly on the cultural and societal values of meat. The *Risk Frame* attempts to explain and give meaning to risk. An additional Frame, *Governance*, was present in the Advisory Report case study and focused on issues of accountability and power. The Frames presented in Tables 11 and 12 provide valuable insight into how public discourse on the role of meat in a sustainable and healthy diet are being presented by the media. They are discussed in more detail in section 4.4.

Table 11. Signature Frame Matrix for framing analysis on Advisory Report (All text is parenthesis represents directly quoted material from media sources identified in Table 6)

Frame	Integrity of Science (-)	Integrity of Science (+)	Highlighting conflict	It's about Health and the Environment	Moderating Meat	Powerful and Combatant Industry	Governance
Description	The negative dimension of the Integrity of Science Frame challenges the integrity of science and scientists. Methodology used is questioned. Scientists are portrayed acting with an agenda. Scientific results or expert recommendations are treated as suspicious or untrustworthy. Robustness of nutritional science may be questioned.	(+) The positive dimension of the Integrity of Science Frame emphasises the role of independent experts/scientists. It includes references to independent studies, facts and evidence supporting science and scientific methodology. It may draw attention to attacks on recommendations which are portrayed as attempts to undermine science.	This frame emphasises disagreement or tension in debate. Draws attention to conflict and opposition as key lead of story.	This frame draws attention to the impacts of the human diet on health and environment. Links between healthy diets and better environmental outcomes may be demonstrated.	This frame highlights the issue of over-consumption and the need to moderate meat consumption levels. Raises problems associated with over-consumption. Refers to current consumption rates. Refers to some need or warning to reduce consumption and move towards more plant-based diets. It does not advocate replacing meat altogether.	This frame depicts industry as combatant, powerful, attacking, aggressive.	This frame questions governance and process, depicts flawed administration and involvement of politics. Refers to the involvement of politicians to make compromises, deals or final decisions. Draws attention to lobbying and manipulation.
Example quote	"Instead of accepting that this evidence was inadequate to give sound advice, strong-willed scientists overstated the significance of their studies"	"The public comment is great, regardless of what side you are on," Nelson says. But, she adds, addressing some of the report's opponents, "Don't attack scientists and deflect what the actual research is saying"	"A nationwide food fight is heating up after the US government accepted final public comments this month on a scientific advisory report recommending Americans reduce their meat consumption for the sake of healthier and more environmentally sustainable diets."	"Regardless, it's clear that nutritionists are increasingly drawing connections between health and the environment."	"There are people in this country eating too much red meat. They should cut back. There are people eating too many carbs. They should cut back on those. There are also people eating too much fat, and the same advice applies to them, too."	"Now the industry is swiftly and aggressively working to discredit a proposal for new dietary guidelines that recommends people eat less red and processed meat."	"Together, the meat processing and livestock industries spent about $7 million on lobbying last year and donated more than $5 million to members of Congress in the last election cycle."
Exemplar (i.e. historical examples from which lessons are drawn)	"You can't blame this current committee for that, because each panel has a unique makeup of experts. But previous panels tracked reigning "wisdom" that was arguably based more on strong personalities than science."	"Several international and government agencies, including the United Nations, have spelled out the meat industry's massive footprint. And now the USDA could be next with new, government-backed dietary guidelines."	"But it's possible that no food has been attacked as widely or as loudly in the past few decades as red meat."	"Meat eaters have been linked to considerably larger carbon footprint than vegetarians. And the livestock industry has been associated with a considerably larger carbon footprint than any other food industry. The combination of those two realities, along with the committee's understanding that diets lower in meat consumption, especially red and processed meat consumption, tend to be more healthy, has forced the committee's hand."	"Americans, though they are eating less meat than they have in the past, are still eating too much."	"This is not the first time the red meat has campaigned against dietary guidelines. In 1977, the first guidelines, issued by a Senate panel, said Americans should "reduce consumption of meat and increase consumption of poultry and fish." Meat groups pushed back, and the Senate panel heard them out. A revised version included new language on meat: "Decrease consumption of animal fat, and choose meats, poultry and fish that will reduce saturated fat intake.""	"Agencies repeatedly ignored evidence that would have led to better advice because Big Food's muscle prevented statements that would have cut consumption — such as "eat less meat," or "don't drink soda.""
Key Words	Overstate, outside, mandate, strong-willed, criticism, integrity, rigor, social agenda, personal opinions, complexity, bias	Scientific, experts, consensus, science, decades of research, controlled, review, evidence	Fight, frothing, attack, food fight, vehemently objects, opposed, challenge, food wars	Environment, health, green, plant-based, sustainable, planet, GHGs, water, biodiversity, footprint	Less, lower, reduce, consumption, decrease, rise, moderate.	Aggressive, fighting back, pushing back, powerful, discredit, lobbies, big, business, profits, discredit	Lobbying, politician, campaign, Administration, process, Congress, political agenda, support, review, government, allies, public
Metaphors To frame a conceptual idea through comparison to something else.	""The advisory committee, with a long leash to consider various aspects of a perfect diet, is like one of his granddaughters who colors outside of the lines. He, on the other hand, was like a younger grandson in preschool. "The little guy, he's in preschool now, he's trying to learn how to color inside the lines," Mr. Vilsack said. "I'm more like my grandson.""	"Overall, the committee's report amounts to a scientific update regarding what is known about healthy eating."	"The Meat Industry Is Seeing Red Over Potential Dietary Recommendations" "Meat industry has a cow over US dietary guidelines" "The footnote, along with some other words, have worked the industry into a lather that's going to be frothing for months."	"U.S. dietary guidelines, the government's benchmark for balanced nutrition, have long advised Americans to eat dark, leafy greens. Now, there is another way the standards could be going green." "You don't want to recommend a diet that is going to poison the planet"	"What you gain is so much more than what you give up."	"It wasn't a hard line against meat, but it was enough to make the industry come out swinging." "The meat industry is fighting back against those who want healthier guidelines, and this battle looks like it could go the distance." INFLUENCE GAME: Meat industry fights new dietary proposal	"GOP pushes back against dietary guidelines that wade into climate debate" "While they are based on dietary science, the guidelines aren't immune to politics. This year, the battles have already started over meat." "For this you can thank lobbying, the revolving-door policy and the traps of campaign financing." "The public will be watching to see if the new guidelines "reflects solid science ... or self-serving pressure from the meat industry.""

Catch-phrases **To frame an object with a catchy phrase to make it more memorable and relate-able.**	"It appears the advisory committee was more interested in addressing what's trendy among foodies than providing science-based advice for the average American's diet"	"Nation's top nutrition panel: the American diet is killing us" "Behind New Dietary Guidelines, Better Science"	"Where's the beef?"	"What's good for you is good for our planet." "Think of Earth, not just your stomach, advises nutrition panel" "When it comes to eating well, we should consider the health of our bodies and the planet." "Healthier for you, healthier for all."	"Eat less meat, but lean meat can be part of a healthy diet." "Too much of something is always bad for health." "How much meat is the right amount to eat? Probably less."	'Hands off my hotdog'	"The stakes are high when it comes to steak." "It's always been a big business issue, but this year it's a political one, too."
Depictions	"The meat industry believes the panel, which has been meeting for well over a year, is pursuing a broader anti-meat agenda."	"Written by a panel of medical, public health and nutrition experts, the 571-page report provides the scientific basis for the government's dietary guidelines for Americans."	"Since Health and Human Services Secretary Sylvia Burwell and Secretary of Agriculture Tom Vilsack released the report for public comment in February, the response has been overwhelming, ranging from intense opposition by meat producers and their allies to widespread support among health advocates and environmental groups. Their starkly contrasting views are reflected in numerous campaigns, dozens of public testimonies and nearly 30,000 comments filed with the government by its 8 May deadline. That compares with only 1,200 comments on the last report in 2010, authored by a separately appointed panel.	"As dieticians increasingly focus on the environment, they're finding that what's better for the earth is usually also better for the body" "Consistent evidence indicates that, in general, a dietary pattern that is higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, and lower in animal-based foods is more health promoting and is associated with lesser environmental impact than is the current average U.S. diet," the report says.	"We're not saying that people need to become vegans," said Miriam Nelson, a professor at Tufts University and one of the committee's members. "But we are saying that people need to eat less meat."	"Michele Simon, a California-based public health lawyer, says the industry's comments sound familiar. In a recent editorial, Simon said meat makers' strategy – "honed by the tobacco industry decades ago" – is to sow doubt in order to maintain the status quo." "In March, the North American Meat Institute launched an online petition that refers to the advisory committee members as "elite academics" and "nutrition despots who seek to impose their personal choices on others."	"The Agriculture and Health and Human Services Departments will take those recommendations into account in writing final 2015 dietary guidelines by the end of the year. The guidelines affect nutritional patterns throughout the country — from federally subsidized school lunches to food package labels to your doctor's advice. Agriculture Secretary Tom Vilsack said "it is by no means over" with the release of the report. The government will take comments on the advice before distilling it — and possibly changing it — into final guidelines for consumers."
Reasoning Devices							
Root or Definition of the Problem	Science and scientists are not always acting independently and may have hidden agendas. Science can be manipulated to support any agenda. Nutritional science is complex and relies on weak data and methodologies.	Science and scientists can act independently and base recommendations on the best available evidence at the time.	Conflict draws our attention to the issue.	Health and environment are linked to diets and what people eat will impact on our future sustainability.	Overconsumption is a normal part of many people's diets and it has multiple negative impacts.	Business has an interest in protecting its own financial stability and returning profits to its shareholders.	Decision-making is driven by self-interests and by people with power.
Consequences	Science and scientists cannot always be trusted to give robust and independent advice. Nutritional science may not be science-based and can lead to poor decision-making.	Science is trustworthy and contributes to robust decision-making based on the best available evidence at the time.	There is a complex issue that cannot be resolved easily. We must take sides in the debate.	Our diets impact on our health and the environment	We may need to change our behaviour and consume less.	Big business looks after itself first	Politics is needed to resolve conflict and is driven by vested-interests. Some stakeholders have more power than others.
Appeals to principle	Fairness, Responsibility	Independence, transparency, trust	Human interest, making judgement	Collective and individual responsibility	Individual responsibility	Capitalism, individualism, competitiveness	Accountability, power

Table 12. Signature Frame Matrix of media reporting on IARC Evaluation (Text in parenthesis represents directly quoted material from media sources identified in Table 6)

Frame	Integrity of Science (-)	Integrity of Science (+)	Risk	Creating Hyperbole	Highlighting Conflict	Moderating Meat and Trade-offs	It's about Health and/or Environment	Role of Meat in Society	Powerful and Combatant Industry
Description	(-) This negative dimension of the Integrity of Science frame challenges the integrity of science and scientists. Methodology used is often questioned. Scientists/experts are portrayed acting with an agenda. Scientific results or expert recommendations treated as suspicious or untrustworthy. Scientists depicted as fighting against each other. The robustness of nutritional science may be questioned.	(+) The positive dimension of the Integrity of Science Frame emphasises the role of independent experts/scientists. Reference to independent studies, facts and evidence supporting science and scientific methodology.	This frame draws attention to risk in some way. It is often accompanied by a good or bad explanation of risk. Statistics are used to demonstrate risk.	This frame is used to shock and draw attention to "shocking" results or conclusions. It can depict threat of cancer as foregone conclusion when eating meat, or deliberately compare meat to well-known dangerous substances or practices such as asbestos, smoking, weed-killer, plutonium. It may misrepresent findings to make them more appear more "alarming" than they are.	This frame emphasises disagreement or tension in debate. Draws attention to conflict and opposition as key lead of story.	This frame highlights over-consumption levels and the reasons to moderate meat consumption. References to problems associated with over-consumption. The idea of trade-offs can also emerge, in that choices need to be made when moderating meat consumption, resulting in both positive and negative impacts. Also, choices between different meats may have to be made. It can also highlight market responses because of consumer concern.	This frame draws attention to the health impacts of eating meat on the human diet. Linkages between diet and health and sometimes environment outcomes are referred to. References nutrition.	This frame depicts the power and contribution of meat in society. The importance of the role of meat in culture is referred to. The idea of challenging meat's role in the human diet may be mocked or ridiculed. Behavioural change is viewed as difficult and sometimes impossible given support for meat as part of the cultural identity of some societies. Reference to meat as part of a life-style or way of living may be made.	This frame portrays industry as combatant, attacking, rejecting, powerful, defensive, at war.
Example	"The conclusions by the agency "defy both common sense and dozens of studies showing no correlation between meat and cancer and other studies showing the many health benefits of balanced diets that include meat"	"The IARC, considered an authority in evaluating evidence on cancer causation cited studies that conclude there is strong evidence to support a link between eating too much meat and the onset of colorectal cancer, the third-most common type world-wide."	"For an individual, the risk of getting cancer from eating processed meat is statistically small, the agency said, but "increases with the amount of meat consumed"."	"Just two rashers of bacon a day raises your risk of cancer: Health chiefs put processed meat at same level as cigarettes."	"The results by the 22-person panel, which consisted of scientists from 10 nations, has already drawn criticism from meat and food industry groups that have been bracing for such decisions for years, in part by funding research on the benefits of eating meat."	"Meat consumption is already well above healthy levels in developed nations and growing fast in other countries, and is linked to rising rates of heart disease and cancer. To get to healthy levels, US citizens would need to cut the meat they eat by two-thirds, those in the UK by a half and those in China by a third."	"Given that red meat is an important source of human nutrition, the results should help governments and regulatory agencies balance the risk and benefits of eating meat, the agency said."	"The NFU has always stated that eating lean red meat has an important role to play in a healthy balanced diet. It's a traditional part of the British lifestyle and is enjoyed by most of the population,"	"The $95 billion U.S. beef industry has been preparing for months to mount a response and some scientists, including some unaffiliated with the meat industry, have questioned whether the evidence is substantial enough to draw the kinds of strong conclusions that the WHO panel did."
Exemplar	"The research into a possible link between eating red meat and cancer - colorectal cancer is a longstanding area of concern - has been the subject of scientific debate for decades. But by concluding that processed meats cause cancer, and that red meats "probably" cause cancer, the WHO findings go well beyond the tentative associations that other groups have reported."	"The WHO findings were drafted by a panel of 22 international experts who reviewed decades of research on the link between red meat, processed meats and cancer."	"Processed meat has previously been blamed for one in 30 deaths and is seen as dangerous because preserving techniques can raise levels of cancer-causing chemicals. It is estimated that if intake was cut to 20g a day - a rasher of bacon a day or an English breakfast once a week - almost 20,000 early deaths would be prevented in the UK each year."	"The Department of Health's scientific advisers recently concluded that red and processed meat 'probably' increase the odds of bowel cancer. But the WHO is expected to go further by saying processed meat causes cancer."	"In recent years, meat consumption has been the target of multi-faceted social criticism, with debates erupting not just over its role on human health, but the impact of feedlots on the environment and on animal welfare. The public debate over the WHO's findings will likely play out political lobbying, and in marketing messages for consumers."	"But the writing has been on the wall for ham, bacon and sausages for several years. The World Cancer Research Fund has long been advising people that processed meat is a cancer hazard. It advises eating products such as ham, bacon and salami as little as possible and having no more than 500g a week of red meat, including beef, pork and lamb."	"According to renowned nutritionist Dr Rosemary Stanton, a survey of Australian men recently found they were eating an average of 700 grams of red meat each week, well above the recommendation of a maximum of 400 grams." "Meat consumption is already well above healthy levels in developed nations and growing fast in other countries, and is linked to rising rates of heart disease and cancer."	"People have been eating this stuff for years, and the world's still here."	"And the meat industry was prepared. You know, they knew this was coming. And even before the study was released, it put up websites, you know, with its own counter claims and counter studies." "The meat industry has battled international and U.S. health authorities on the place of meat in a balanced diet for decades."

Example Words	Rigged, dismiss, credible, bias, undermine, controversial, tortured	Expert body, authority, evidence, strength, studies, research	Risk, death, statistically, raise, likelihood, compare, dangerous	Asbestos, smoking, carcinogen, plutonium, death, lethal, war, shock	Fight, criticism, erupting, biting, challenge	Moderation, less, decrease, overeating, consumption, obesity, advise	Health, nutrition, protein, iron, lean, environment, GHGs, planet, sustainable, obesity, benefits	Culture, importance, daily, love, taste, normal, dinner, table, family, children, lifestyle, menu, chef	Aggressive, attacking, counter, Big, business, profits, Giants
Metaphor	"But the panel's decision was not unanimous, and by raising lethal concerns about a food that anchors countless American meals, it will be controversial." ""They tortured the data to ensure a specific outcome"."	"It seems almost inevitable that every release of a major health report from an expert body unleashes a torrent of comment from those who think they know better than qualified scientists. This week, that expert body is the World Health Organisation."	""IARC says you can enjoy your yoga class, but don't breathe air (Class I carcinogen), sit near a sun-filled window (Class I), drink wine or coffee (Class I and Class 2A,), eat grilled food (Class 2A) or apply aloe vera (Class 2B)"."	"Suddenly meat was murder. Barbecue snags, sausage sizzle, hot dogs and salami were deemed lethal substances."	"Vegans are in full party mode, and the media is in a feeding frenzy. But there is more to this story than meets the (rib)eye." "While the criticism of processed meats gnaws at many sausage fans, it was particularly biting in Frankfurt."	"Nowadays we kill ourselves by overeating…" "Now we come to the real elephant - or more accurately, chicken, pig, or cow - in the room. If you're not a frequent flyer, cutting your meat consumption is probably the single most significant act you could do to help save humanity from itself." "UK shoppers give pork the chop after processed meats linked to cancer. "	"Nation of meat lovers to chew over findings" "The environmental benefits of eliminating or even reducing meat from your diet are compelling, but don't think you have to ditch the bacon for purely altruistic motives – the benefits will quickly kick back to you too."	"Here in the city that gave its name to the famous sausage, the World Health Organization's warning against eating processed meats is hard to swallow." "You will take processed meat from my cold, dead hands." « Une nourriture inscrite dans notre espèce »	"They say the risk to an individual eating these products might be small. But it increases - the risk increases - as you eat more. And that might sound like a mild warning, but to the meat industry, it was like a siren."
Catch-phrase	"Is everything we eat associated with cancer?"	« Une agence souvent ciblée par les industriels »	"A little of what you fancy will do you no harm." "Just two rashers of bacon a day raises your risk of cancer."	"Fresh red meat is also due to join the 'encyclopaedia of carcinogens'." "Last week the World Health Organisation declared war on red and processed meat."	"Hot Dog Haters Are the Wurst." "A disgraceful scare story - so don't bin your bacon sarnies."	« Viande : à Paris, les restaurants parient sur le "moins mais mieux" » "Eat less." "More vegies, less meat. More plant foods, less junk."	"Health Panel Takes Some Sizzle Out of Your Steak." "What is a safe level of meat consumption?"	"'I'd rather die than give it up'" "For my love of meat, there is no cure." "What are eggs without bacon? What's a barbecue without a snag? What's the point of getting out of bed on Sunday morning?"	"Meat industry has a beef with WHO report."
Depictions	"But the meat industry was quick to dismiss the warning, claiming it had been 'rigged' and was not based on proper evidence." "So the industry groups are trying to sort of attack the scientific research behind the WHO's study as well." ""There is no group that could convince the meat industry that the science is definitive on the link to cancer, because the playbook of every industry under attack is to instil doubt in the evidence"."	"On the basis of the large amount of data and the consistent associations of colorectal cancer with consumption of processed meat across studies in different populations, which make chance, bias, and confounding unlikely as explanations, a majority of the Working Group concluded that there is sufficient evidence in human beings for the carcinogenicity of the consumption of processed meat," according to the report, which appears	"In the case of processed meat, for example, the report notes that each 50g portion of processed meat eaten daily increases the risk of colorectal cancer by 18 per cent. It also notes that even though the overall risk of developing colorectal cancer may be small, that's a significant increase and particularly relevant for consideration as meat intake increases throughout the world."	"Bacon, burgers and sausages are as big a cancer threat as cigarettes, global health chiefs warned today. A new World Health Organisation report has classified processed meat as carcinogenic alongside arsenic and asbestos." "Some media reports suffer from cherry-picking as journalists may have neither the time nor the inclination to read the actual expert reports. If they did, they might be less inclined to dramatize and more likely to recognise context."	"Before the World Health Organisation released its findings on the link between meats and cancer, its authors expected a backlash against any perceived criticism of bacon."	"Having a healthy diet is all about moderation." "A mon avis, l'homme va rester carnivore, la question c'est de manger sans excès" "No one should be afraid of eating a bratwurst," he declared, referring to the most ubiquitous sausage. "What counts is quantity," he added. "Too much of something is always bad for health."	"For decades, health experts have warned that red and processed meats are linked to cardiovascular disease, obesity and various forms of cancer. The first two of those dangers have always made sense, and have caused some people to cut down or swear off meat. But the last part of the troika– the cancer part–has been hedged with uncertainty. No more." "The report specifically mentions red and processed meat: "In affluent populations, shifting towards diets based on careful adherence to public health recommendations,	"All the commercials we grew up with touting the iron content and health benefits of lean red meat aren't going to be quite the same if they have to add "and will probably give you cancer" at the end." "Man is an omnivore. Red meat is very much part of my diet, and I eat it four or five times a week. You can't beat a good steak, or a Sunday roast beef, and a bacon butty is usually on the menu at the weekend."	"Monday's report must be one of the very few scientific papers to have been heralded by an angry lobbying group that ridicules the scientists involved by claiming that exposure to air and sunlight also cause cancer. These are contemptible tactics. Is it possible to find a middle way and to think clearly"?" "On the other hand, there are no grounds for sympathy with "Big Calorie", the agribusiness lobby,

	in the Lancet Oncology." "Some of those with a vested interest in marketing meat pour scorn on reports from health experts. It's not unexpected since no one welcomes publicity that might have adverse effects on sales of anything we consume."					including reduced consumption of red and processed meat and/or other animal-sourced foods in favor of healthier plant-based alternatives—has the potential to both reduce GHG emissions and improve population health."	"The hamburger and the hot dog are as much national symbols as they are menu items (when Gemini 3 astronauts went into orbit in 1965, they smuggled up a corned beef sandwich and the nation had a good laugh)."	which would have us eat far more of everything than is good for us, and which profits from animal cruelty on a literally industrial scale."
Reasoning Devices									
Root	Science and scientists are not always acting independently and may have hidden agendas. Science can be manipulated to support any agenda. Nutritional science is complex and relies on weak data and methodologies.	Science and scientists can act independently and base recommendations on the best available evidence at the time.	Understanding and communicating risk is difficult and requires context as well as a good level of science literacy.	News media compete for readership in a fast-moving information world. Sensationalism can heighten interest in an issue. Our underlying values are tested.	Conflict draws our attention to the issue.	Overconsumption is a normal part of many people's diets and it has multiple negative impacts. We must be aware of the trade-offs.	Our health is linked to our diets and what people eat will impact on our future sustainability.	Meat is an integral part of many societies and cultural component. It is difficult to foresee a diet without meat	Business has an interest in protecting its own financial stability and returning profits to its shareholders.
Consequence	Science and scientists cannot always be trusted to give robust and independent advice. Nutritional science may not be science-based and can lead to poor decision-making.	Science is trustworthy and contributes to robust decision-making based on the best available evidence at the time.	Risk can be confusing. Trust can be undermined or strengthened depending on how risk is communicated.	We are attracted to shock. We pay attention. We are forced to re-evaluate our values.	There is a complex issue that cannot be resolved easily. We must take sides in the debate.	We may need to change our behaviour and consume less and in different ways.	Our diets impact on our health and the environment	Meat is a highly-valued component of the human diet.	Big business looks after itself first
Appeals to principle	Fairness, Responsibility	Independence, transparency, trust	Trust, reasoning	Human interest, making judgement, confronting values	Human interest, making judgement	Individual responsibility	Collective and individual responsibility	Culture	Capitalism, individualism, competitiveness

4.3   Framing Devices and Sample Characteristics

Analysis was also undertaken to understand specific framing devices used by media that both aid in presentation of specific Frames and which may also increase salience of certain issues, including:

- Sample characteristics (including word length, publication date);

- Differences between news media where relevant;

- Article headlines as key indicators of frames;

- Identification of first 2 quotes in each article and frame orientation;

- Identification of any closing quote used in the last paragraph and its frame orientation;

- Framing of the meat industry, how industry was described and presented to the public by media articles

4.3.1   Length of article

The average word count of media articles across both events was 852 words for articles on the Advisory Report and 728 words for the IARC Evaluation. This additional 100 words is sizable given that 100 words represents the opportunity for one more paragraph, another perspective, or added quote and that article length/word constraints are often strictly observed in most newsrooms. This may indicate that a domestic-based issue may receive, on average, slightly more word coverage. Standard deviation for article length was 280 words meaning that most articles were of a length that could provide considerable detail of the issues involved. However, the sample was relatively small compared to the IARC Evaluation and therefore the difference in average article length may simply be due to the fact that the IARC Report was extensively reported on, and the sample size is of much bigger range and volume. The standard deviation for article length, for example much higher for articles on the IARC Evaluation at 460 words, indicating considerable variation in article length across the sample. Examples indeed showed sizable range, from brief summaries of around 116 words to a full-length cover article in TIME Magazine consisting of 3044 words (TIME Magazine, 30 October 2015).

4.3.2   Publication time-span

Articles relating to the Advisory Report were published from 7 January 2015 to 25 June 2015. IARC Evaluation articles fell between the 23 October 2015 and 16 December 2015.

Reporting on the Advisory Report showed wider variation in publication dates. Only a third of the articles had been published (34%) within 3 days of the release of the Advisory Report. However, if articles immediately prior to the release of the Report are included, 51% of all articles were published in the time-period including the month prior to, and three days after, publication of the Report. This demonstrates that public discourse was occurring to a high degree before publication but also shows that interest was maintained over a relatively long reporting period as even within the 7 days following the release of the Advisory Report, only 47% of all articles in the sample time-period had been published. This is perhaps reflective of the ongoing nature of the process, the Advisory Report being a contribution to the final US Guidelines and open to public feedback over a period of some months. It also potentially provides a greater time-period for stakeholders to engage with journalists with the aim of better communicating or framing their own interests to the public, through the news media. In contrast, within the 7-day time-period immediately following release of the IARC Evaluation, 75% of all articles within the 10-week sample had been published. Of note, was that reporting over the second and first days represented 46% of all articles, pointing to high intense interest in the subject, with the third day also receiving significant interest at 12%. Thereafter the number of articles fell sharply. In the case of one-off Reports such at the IARC Evaluation the first 3-days appear therefore as critical window of opportunity to contribute to first framing attempts. Stakeholders therefore need to be prepared and ready to communicate if they wish to be represented.

4.3.3   News headlines

The headline of a news article can be an important signal of the overall frame of an article. An assessment was therefore made as to whether the headline itself belonged to one of the 9 identified frames. Headlines which could not be easily categorised as representing a certain Frame were not labelled. 85% of all headlines could be easily categorised into one of the 6 frames identified in the study for articles pertaining to the Advisory Report. The most common headline framing was "Highlighting Conflict", followed closely by headlines using the following Frames: "It's about Health and the Environment, Moderating Meat, and the Governance Frame. Some examples are provided in Table 13.

Table 13. Examples of Headline Frames used in reporting on the Advisory Report

Frame	Heading
Highlighting Conflict	"Why There's A Big Battle Brewing Over The Lean Meat In Your Diet" NPR, March 24, 2015
It's about Health and the Environment	"Think of Earth, not just your stomach, advises nutrition panel" The Washington Post, 20 February 2015
Governance	"Republicans push back against proposed dietary guidelines" Associated Press, 25 June 2015
Moderating Meat	"How much meat is the right amount to eat? Probably less." The Washington Post, 22 April 2015

90% of all headlines reporting on the IARC Evaluation in the sample were categorised as belonging to one of the 9 frames identified in the study. Headlines were most commonly framed within the Risk Frame, closely followed by the *Creating Hyperbole, Highlighting Conflict and Role of Meat in Society Frames*. This appears to align with objectives to create impact and draw attention of the reader by using shock or hyperbole, emphasising inherent conflict and risk and/or by using human interest angle to the headline. The UK-based papers drew heavily on *Risk* and *Creating Hyperbole* in headlines, accounting for over half of all headings. In contrast, Agence France Presse utilised the *Highlighting Conflict Frame* for around half of all article headlines, pointing to a possible difference in style between Anglo-Saxon and French news reporting. The Washington Post utilised the *Role of Meat in Society Frame* headline most often, drawing attention to the potential impact of the IARC Report on meat eating behaviour and underscoring cultural elements of meat consumption. Of interest was that the Daily Mail, the tabloid example in the sample, drew on a greater variety of frames than others, utilising 8 different frames in headlines across articles, with others at an average of 4-5 frames. This may indicate the intention to use a variety of frames to connect with a broader range of readers. Some examples of headline Frames drawn from the Daily Mail are provided below to demonstrate the use of different Frames in headlines. It also draws attention to the potential mixed messages that readers receive over the course of media reporting on the issue.

Table 14. Examples of Headline Frames used in reporting on IARC Evaluation

Frame	Heading
Creating Hyperbole/Risk	"Just two rashers of bacon a day raises your risk of cancer: Health chiefs put processed meat at same level as cigarettes" The Daily Mail, 27 October 2015
Risk	"The new meat rules: As experts warn it increases the chance of cancer, we reveal which types are the riskiest" The Daily Mail, 27 October 2015

It's about health	"WHY RED MEAT CAN BE GOOD FOR YOUR HEALTH" The Daily Mail, 3 November 2015
Highlighting Conflict	"Animal rights charity PETA sparks outrage with controversial new billboard campaign about cancer-causing meats that features a child smoking." The Daily Mail, 30 October 2015
Integrity of Science (-) /Highlighting Conflict	"A disgraceful scare story - so don't bin your bacon sarnies: One nutritionist questions the claims made by the World Health Organisation after it declared war on red and processed meat" The Daily Mail, 31 October 2015
Moderating Meat	"CANCER WARNING SLASHES £3M OFF SAUSAGE AND BACON SALES" The Daily Mail, 23 November 2015
Role of Meat in Society	"'Will I still be eating meat and feeding it to my family? YES': Pete Evans rubbishes WHO report that claims meat causes cancer - and urges paleo followers not to let 'detractors sabotage their efforts'" The Daily Mail, 27 October 2015

4.3.4   Lead of the story

According to the Associated Press Stylebook (2012)[85], the lead, or opening paragraph establishes the voice and direction of an article. It is considered as one of the most important parts of a news story with a good lead able to grab interest and provide readers with the most important information in a clear, concise and interesting manner. It is also often the dominant frame of the article and has the highest probability of being noticed, processed and accepted by the most people (Tankard, 2001) and can result in longer reading times (Zillman, Knobloch, & Callison, 2004). The first paragraph of each article was examined and then compared to the 9 frames. Across both case studies, most leads (around 70%) corresponded to the same frame as that of its headline, however, leads also often contained more than one frame. The example below shows a headline clearly belonging to the *It's about Health and Environment Frame.* But the lead introduces other Frames, all of which suggest together "there is more going on" than only an issue of environment and health. The lead draws on *Governance, Highlighting Conflict* and to a lesser degree the *It's about Health and Environment Frame*, all of which suggest strong politicisation of the issue:

Headline: "Think of Earth, not just your stomach, advises nutrition panel"

Lead: "The nation's top nutritional panel is recommending for the first time that Americans consider the impact on the environment when they are choosing what to eat, a move that

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[85] Goldstein, N. (2015). The Associated Press Stylebook.

defied a warning from Congress and, if enacted, could discourage people from eating red meat.

Members of Congress had sought in December to keep the group from even discussing the issue, asserting that while advising the government on federal dietary guidelines, the committee should steer clear of extraneous issues and stick to nutritional advice."

Washington Post, 20 February 2015

The use of multiple frames in the lead also appears to be used as a device to transition from a creating *Hyperbole Frame* or *Highlighting Conflict Frame* to another frame which is able to provide greater context as to the issues involved. For example, the headline following utilises the *Highlighting Conflict Frame*. The lead, however, while still relying on *Highlighting Conflict,* shows the transition to an article that draws heavily on *the Role of Meat in Society Frame:*

"For Frankfurters, Hot Dog Haters Are the Wurst --- German sausage fans say U.N. is full of baloney; meat warning 'nonsense'"

FRANKFURT -- Here in the city that gave its name to the famous sausage, the World Health Organization's warning against eating processed meats is hard to swallow.

The United Nations body last week said eating frankfurters and their ilk can cause cancer. To Germans, many of whom consider sausage and cured meats comfort food, that idea doesn't go down well.

WSJ, 5 November 2015

On the Advisory Report, the most common Frame referred to in the lead was the *It's about Health and the Environment Frame*, followed by the *Moderating Meat Frame*. There was convergence around the need to improve nutritional health of Americans and moderate food intake, including meat intake. Overconsumption was an issue directly referred to in several articles. However, the popular use of the *Governance or Highlighting Conflict Frames* in both headline and leads also pointed to inherent conflict with regards measures to improve nutrition and health outcomes through diet and by moderation of intake. This is discussed further under the *Moderation Frame* in the Discussion section of this paper. Analysis of the most common lead Frames in reporting on the IARC Report revealed comparatively heavy use of the *Creating Hyperbole Frame* by the Daily Mail and similarly, substantial use of the *Highlighting Conflict Frame* by Agence France Presse. The *Creating Hyperbole Frame* by the Daily Mail may reflect the focus on more sensational stories and headlines by this tabloid. The sample size for Le Monde was too small to ascertain whether this is a preferred frame utilised by French reporters. It may also a reflection of the role of Agence France Press, in reporting on, and providing to other news channels, news on events abroad and in France. This might result in higher use of conflict stories which could be potentially more likely to be

picked up for publication by other newspapers. Other news media in the sample also used the *Highlighting Conflict and Creating Hyperbole Frames* in lead paragraphs but to a lesser degree and drew more on the *Risk, Moderating Meat and Role of Meat in Society Frames*. The Guardian, Le Monde and New York Times utilised the *Role of Meat in Society Frame* to a higher degree than other sources, drawing on a range of cultural elements or values of meat and consumer responses:

> *"JABUGO, Spain -- On a vast farm dotted with oak and cork trees, about 350 pigs are enjoying the final weeks of a short but blissful life. They roam freely, sleep outdoors or shelter in spacious pigsties. Above all, autumn is when they get to feast all day on acorns recently fallen from the trees.*
>
> *"Pigs are known for eating everything, but when it comes to their favorite acorns, they are real connoisseurs and very selective -- and the sweeter the acorn, the better," said Juan Carlos Domínguez Lorenzo, 49, who was born on the farm and has been looking after its pigs since he was a teenager."*
>
> *New York Times, 30 October, 2015*

> *"For bacon lovers everywhere, the decision by the World Health Organization (WHO) to classify bacon as a carcinogen — right up there with smoking and asbestos — has to come as deeply concerning. Ever since the first bacon Internet meme appeared more than a decade ago, there's been one consistent truth embraced by bacon fans — just about any product, service or concept could be made better by adding bacon."*
>
> *The Washington Post, 27 October 2015*

4.3.5   Influence of sources

Individuals and organizations that journalists rely on to provide information for their stories, their news sources, are important agents in a story and thus may help shape the narrative presented to the reader. If a character is deemed important enough to be mentioned it also reflects the fact that he/she may be involved in shaping the public discourse to some degree. Journalists rely on "expert" sources partially to support journalists' claims of legitimacy, and to give an impression that the article might represent some "objective truth" (Steele, 1996). The use of experts can also become part of a reinforcing cycle: the more a given source is cited by the media as an "expert," the more sought out that person is by other media for "expert" opinion (Steele, 1996). The first two sources cited in each article were coded to help ascertain which sources were being used and who may be involved in influencing public opinion on the issue. The choice of the first two sources also relates to the inverted pyramid style of news writing where important sources are often used first in the articles. However, in the process of this analysis, it was soon apparent that some articles ended with a quote in the last paragraph which could be provocative or emphatic. This take-home message was

therefore considered to be potentially influential as it is the last message that the reader is left with. Source statements were coded against the 9 identified frames.

On the Advisory Report, 46% of all expert sources quoted in the first three paragraphs of articles represented stakeholders drawn from the research sector. These expert sources were predominantly pro-Advisory Report. Civil Society Organisation stakeholders who were considered as a very supportive of the Advisory Report represented 20% of quoted experts, with politicians (14%) and industry stakeholders (20%) representing the share of the remaining 34% of stakeholders. As expected, researchers that contributed to the Report were used often to explain or represent the Advisory Report. If we do not account for this aspect, and only look at independent sources, it is apparent that the share is virtually an equal split between CSOs[86], Research, Industry and Politicians. Analysis of closing quotes, used in the last paragraph of the story, also showed a fairly even split between stakeholder groups. The closing quote, however, was more likely to draw on the *Governance and/or Powerful and Combatant Industry Frame.* These either referred to political process or involvement to resolve debate over issues related to the legitimacy of the Advisory Report, or to a situation framing the meat industry as acting as combatant and powerful:

> Examples of closing quotes:
>
> The advisory committee should have made "recommendations based on sound nutritional science and not issues they don't have the authority or expertise to consider," said Missouri Sen. Roy Blunt, the panel's Republican chairman, after it approved the legislation Tuesday.
>
> Associated Press, 25 June 2015 *(Governance Frame)*
>
> Michele Simon, a California-based public health lawyer, says the industry's comments sound familiar. In a recent editorial, Simon said meat makers' strategy – "honed by the tobacco industry decades ago" – is to sow doubt in order to maintain the status quo. "Similar to the tobacco industry, a lot of their tactics, especially early on, tried to discredit scientists, confuse the issues and confuse what we were saying," Nelson said.
>
> The Guardian, 19 May 2015 *(Powerful and Combatant Industry Frame)*

An additional note should be made on the utilisation of sources in articles relating to the Advisory Report. While CSO representatives were quoted in the same proportion as industry and political representatives across the sample, the following news sources, New York Times, Washington Post, Wall Street Journal, and TIME magazine did not utilise sources drawn from civil society organisations.

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[86] CSOs, include any sources that are representative of civil society organizations, policy, or lobby groups not affiliated with any industry.

With respect to the IARC Evaluation, 54% of all sources in leading paragraphs of articles drew on the scientific community, including the research authors for quotes. When the IARC Report authors were excluded, the percentage of independent researchers, was around 46%. 80% of these independent researchers were classed as being supportive of the IARC Evaluation. The second largest group quoted was industry, with around 26% of the share of leading quotes. CSOs and political representatives each shared the remaining 20% equally. Firstly, this points to a higher use of research experts as sources as compared to the Advisory Report. The significantly large share of research experts and industry, making up 80% of all leading quotes also demonstrates underlying emphasis on Highlighting Conflict and Integrity of Science frames which accentuate conflict between business and science.

The number of quotes used in closing paragraphs was small and so no analysis was made with respect to framing used by quoted sources. However, 40% of closing quotes referred to a moderation message, which appeared to underscore general agreement that moderation was needed, desirable or was common sense:

> "Everything should be eaten in moderation" says Alek Kolga, 29. To him, WHO's statements adds weight to what is already common knowledge: too much meat is bad for you. "I really should eat less of it though," says Kolga, as he bought charcuterie from the Parma Ham and Mozzarella Stand.
>
> *TIME Magazine, 26 October 2015*

> "Nutritionists said the report doesn't mean that people should eliminate red or processed meats altogether, but rather they should eat them in moderation. Red meat is a good source of iron, zinc and the vitamin B-12, and many people world-wide suffer from iron and zinc deficiency, said Tom Sanders, professor emeritus of nutrition and dietetics at King's College London. It isn't necessary to eat large amounts of meat in order to get the necessary nutrients, he cautioned."
>
> *WSJ, 27 October 2015*

It was also apparent that a small pool of experts was used as sources, underscoring the importance certain expert sources may have on issues. These experts can therefore have significant power to contribute to framing issues. Sources quoted in the first two days of reporting were often also used extensively, or recycled, throughout the rest of reporting time-period, as well as being re-quoted in other newspapers. For example, key quotes from the North American Meat Association made within the first day of the Release of the IARC Evaluation were used extensively across countries and news media. These quotes often set the tone of the news article and were framed as being representative of the meat industry at

large. Given the importance of early quotes therefore, and their use in subsequent reporting, it is important to think carefully as to their desired impact, and frame messages accordingly.

4.3.6   Framing of industry

Additional analysis was carried out looking at all references to the meat industry across news articles. The aim was to understand how the meat industry was framed in the debate. It supports one of the objectives of the research to better understand how industry is portrayed by media in such discussions. As indicated earlier the *Combatant and Powerful Industry Frame* emerged as a main Frame of the news reporting. Hence this is addressed in-depth in section 4.4.4.

4.3.7   Differences across newspapers

Of interest to this research was the investigation of whether there were any significant differences across different newspapers or whether there was difference between reporting in countries. It is difficult to make meaningful conclusions based on the small number of articles, therefore any conclusions cannot be considered as a robust assessment. In the case of the US Dietary Guidelines there appeared little difference across reporting across the US newspapers. However, it was noted that The Washington Post had the greatest number of articles, which was also true for the IARC Evaluation amongst US-based media in the sample. NPR, the Los Angeles Times, Associated Press and the Guardian UK appeared to be more likely to frame the meat industry as a combatant and powerful stakeholder than other sources. These papers also drew on sources representing Civil Society Organisations and featured them prominently as either a lead or closing source for the article. In comparison, Washington Post, New York Times, Wall Street Journal, and Associated Press utilised only sources who represented scientific institutions, including medical doctors, members of the expert panel, industry or political representatives.

With regards to the IARC Evaluation, significant interest was shown by British-based papers, with comparatively high number of articles, indicating high-levels of interest in the topic amongst British media and readers. The Daily Mail (19 articles), the Guardian UK (20 articles) also reported along a relatively extended timeframe of between 23rd October 2015 to 16th December 2015. Of the American papers, The Washington Post had significantly more reports on the IARC Evaluation (15) than the New York Times (7), WSJ (4), or NPR (4). TIME Magazine also reported extensively on the IARC Evaluation (9), including a 3044-

word cover feature article and informative video, indicating a strong interest in food-related issues. The IARC Evaluation also prompted the inclusion of accompanying short explanatory videos which were a feature of all the newspapers, apart from the two Chinese-based papers. This underscores the potential importance of multimedia news approaches and content. Videos were not analysed in this study, yet this would be a useful aspect to investigate, including how many readers view them in comparison to print/online articles.

Within the IARC sample, several other differences were of note. The Daily Mail drew on more headlines that utilised the *Creating Hyperbole and Risk Frames*. In comparison, Agence France Presse favoured the *Highlighting Conflict Frame*. Across all newspapers, there was considerable homogenisation of reporting, with significant recycling of reports and quotes. Differences appeared to be not so dependent on geographic location but the style and political leaning of the paper, for example liberal versus conservative, tabloid versus elite. Lastly, across news media there was substantial use of the *Risk, Creating Hyperbole, Highlighting Conflict and Role of Meat in Society Frames* in leads, source quotes and concluding paragraphs. The combination of these Frames may point to an underlying social tension inherent in challenging meats role as part of a healthy diet.

4.4 Discussion on the 9 Frames

The 9 Frames identified in the case studies are presented in more detail following. Where relevant, quotes from media articles are used to help illustrate each frame. Some words are underlined to emphasise coding nodes or characteristics of the Frame. Discussion on the significance of certain characteristics is also included.

4.4.1 Integrity of Science Frame

The *Integrity of Science Frame* focuses on the role of science and scientists in public discourse regarding the role of meat in the modern diet. It is particularly relevant in both case studies as both Reports issued were the result of science-based processes involving review of substantial scientific research. The *Integrity of Science Frame* emerges as a key frame having two main dimensions, negative and positive. The positive dimension maintains that scientific method and processes are in general rigorous, robust and trustworthy. Under this dimension, the integrity of science as a source of expert contribution to public discourse is maintained, emphasised and potentially strengthened. In contrast, the negative dimension seeks to undermine the integrity of science by questioning independence, rigour and robustness of

science-based recommendation and/or scientists themselves. Both dimensions might be viewed as competing forces. They may signify the overall social acceptance in society (or not) of the science involved at any one point. For example, as expert opinion and social acceptance converge on the underling science it would be expected that the positive dimension takes precedence over the negative dimension. Conversely, where the science remains socially contested in some way, the negative dimension would hold greater dominance in the debate than normally expected. This means that the *Integrity of Science Frame* is not static but is moving between the dimensions until potentially some tipping point is reached. At that point, it would be expected that the "contested elements" of the science have become either obsolete or replaced by a dominant theory with significant explanatory power widely accepted in society. In this respect, nutrition science appears to be in a heavily contested stage where stakeholders from all sides are depicted 'at war' over the science – scientists are portrayed by industry as being biased and/or using weak science to pursue personal agendas, on the other hand, industry is portrayed as self-interested and undermining and attacking science. It is worth noting that the positive dimension of the *Integrity of Science Frame* is rarely absent from media reports. The difference between articles appears to be the degree to which it is emphasised, its veracity questioned, and whether the negative dimension, if present, dominates. For example, media will regularly refer to factual data or expert input gathered from the scientific research. This can give some "sense" of rigour and independence to a media report. Media therefore routinely draw on statistics from studies to demonstrate some potential "fact" or "evidence" and utilise "expert" sources or representatives who will be described or presented in articles as experts on the topic. Reporters also often stress the expertise of the experts involved in the scientific panels, and refer to diversity of nationality, their level of experience, or by the sheer amount of reviewed material to which inform the recommendations:

> *The WHO findings were drafted by a panel of <u>22 international experts</u> who <u>reviewed decades of research</u> on the link between red meat, processed meats and cancer.*

> *The Washington Post, 27 October 2015*

This gives some sense of a "robust nature" of the Report. This may then be followed up with comment from independent experts, those not directly involved in the Report, who commend the recommendations, along with a generic comment seemingly representative of experts at large:

> *But overall, nutrition experts were satisfied with the guidelines. "Wow. I love it. Really, I am impressed," says Dr. David Katz, director of the Yale University Prevention Research Center. "The emphasis seems to be 'here is what your diet should look like overall and if it looks like this, you can't go very wrong.' The question is how we rally around it and how effectively it survives the political process." (Katz was not on the advisory committee).*
>
> <div align="right">*TIME Inc, Feb 19, 2015*</div>

> *Experts not involved in the report said that the findings should give people more reason to "moderate" their intake of processed meat. But they cautioned that any increased risk of cancer was relatively small.*
>
> <div align="right">*New York Times, 27 October 2015*</div>

There was also reporting that included some description of how evidence was gathered and assessed so that readers had an opportunity to understand how conclusions may have been reached. The Washington Post, for example included an article that highlighted briefly the methodology and findings of five of the key studies cited in the IARC Evaluation. This collection of five key studies which utilises scientific sounding words and methodology helps to provide a strong impression of independent and robust science-based research.

The negative dimension in contrast involves both science, and often the scientists themselves, being challenged as to the legitimacy of their research and their recommendations. Often the methodology may be questioned and issues raised with potential manipulation of the science by vested interests within the scientific community. The underlying reasoning devices used in the negative dimension of this Frame revolve around a root cause that science and scientists are not always acting independently and may have hidden agendas. This can result in scientific processes being manipulated to support a position. Further, nutritional science may be presented as not only highly complex but relying on weak data and methodologies. The consequences are an impression that science and scientists cannot always be trusted to give robust and independent advice and further that current nutritional science will lead to poor decision-making given its inherent weakness as a scientific field. Framing that drew on the negative dimension of *Integrity of Science* was particularly evident in the Advisory Report case study.

Typically, the *Integrity of Science Frame* begins with an acknowledgment of the involvement of "experts" who have been tasked with making recommendations or assessing risks associated with the consumption of meat. These experts (or scientists described as experts in their field) are referenced along with the context of the event, key facts and figures, as well as reference to "scientific" evidence or studies. This draws on the positive dimension of the Frame. For example,

The nation's top nutritional panel is recommending for the first time…

<div align="right">

The Washington Post, 20 February 2015

</div>

Written by a panel of medical, public health and nutrition experts, the 571-page report provides the scientific basis for the government's dietary guidelines for Americans, a highly influential policy document updated every five years…

<div align="right">

The Guardian, 19 May 2015

</div>

The IARC, considered an authority in evaluating evidence on cancer causation cited studies that conclude there is strong evidence to support a link between eating too much meat and the onset of colorectal cancer, the third-most common type world-wide.

<div align="right">

WSJ, 26 October 2015

</div>

This introduction is then often followed by the negative dimension of this Frame which involves some direct challenge to the robustness of the findings or recommendations of the experts through the introduction of an opposing view or placement of a rhetorical device, which places the experts and their "advice" suddenly under doubt or in potential conflict. This could be considered as a journalistic device with the purpose to bring appearance of balance to the article by including an opposing view. As well, it can signal the utilisation of a generic conflict frame that the journalist is using as a device to draw or maintain reader interest. In this research, it is categorised as part of the negative dimension of the Integrity of Science (-) Frame where:

i)   There is absence of any contextual discussion that provides the reader further science-based information and/or independent analysis of the expert advice and any raised failings of the advice.

For example, are the following questions addressed: What is the breadth and depth of the scientific research it relies on? What do other experts in this field say on the recommendations? What do the recommendations mean to different people?

ii)   There is absence of analysis as to the credibility of arguments raised by those that question the legitimacy of the scientific findings or individual scientist.

For example, are the following questions addressed: How credible are the criticisms? Are the criticisms personal? What do other independent experts think about the criticisms that have been raised about the recommendations?

iii)   There is an absence of identification of any conflicts of interests held by opponents.

For example, is the following question addressed: What conflicts of interest might be present?

In the absence of the type of additional information set out above the reader is left with very little knowledge with which he/she can make sense of the conflict. This may leave the reader in a greater sense of uncertainty and confusion than before he/she read the article. The reader may also interpret the unresolved conflict or raised doubts as a representation of science being unreliable or weak, easily manipulated, untrustworthy and/or a source of conflict. If the reader is left with the impression that all is not well with the underlying science, then the integrity of science is undermined.

Resolving competition between the negative and positive dimensions of this Frame is not always easy. Journalists may need to draw on multiple resources and require high levels of personal science literacy. The average article length being approximately 800 words may also be a limiting factor. For example, closer examination of the motives of stakeholders who question science-based recommendations, including robustness of their claims, may simply be beyond the word limit, capability and resources (including time) of the reporter. The complexity of science-based topics can also be difficult to explain in simple terms for a general news readership. It may be too difficult and time consuming to follow up on any doubts raised as to the underlying science or find experts able to explain in simple terms, the methodological approaches and issues. This may also result in the use of simple frames to conceptualise the issues and to connect more easily with readers. For example, the *Highlighting Conflict and Governance Frames* may be more easily accessible for both the journalist to draw on, and readers to digest, compared to in-depth investigations of health and underlying nutritional science issues. The negative dimension may simply be considered more newsworthy due to its inherent element of conflict.

Specific features of the negative dimension of this Frame include reporting which draws attention to some doubt as to the robustness of the science relied on or utilised by experts; the use of quotes from opponents that directly attack the methodology, objectives, conclusions of research and/or the motives of scientists/experts themselves; as well as the use of descriptive words such as poor or weak science. The use of metaphors, catchphrases and exemplars that work to undermine trust in scientific method and the way in which scientists arrive at conclusions and recommendations are also employed. For example, in reporting on the Advisory report the term "weak science" emerges, implying that there is strong science and weak science and that nutritional policy draws heavily on the latter.

"But the <u>primary problem is that nutrition policy has long relied on a very weak kind of science:</u> epidemiological, or "observational," studies in which researchers follow large groups of people over many years."

<div align="right">The New York Times, 21 February 2015</div>

The idea that science can be manipulated to fulfil the needs for all positions or agendas also arises:

"Science, she's a fickle mistress. You don't have to spend much time on PubMed, the repository of journal articles, to figure out that, <u>when it comes to the question of meat-eating and health, there's something for everyone. If you're looking for evidence that meat eaters die earlier, you can find that. If you're looking for evidence that they don't, you can find that, too.</u>"

<div align="right">The Washington Post, 22 April 2015</div>

Reference to experts deliberately distorting the science or going beyond the facts to satisfy their own agendas on reducing meat consumption were also made with little to no challenge:

""...Instead of accepting that this evidence was inadequate to give sound advice, <u>strong-willed scientists overstated the significance of</u> their studies.""

<div align="right">New York Times, 21 April 2015</div>

"The <u>Climate Agenda Behind the Bacon Scare</u>; The widely <u>publicized warning about meat isn't about health. It's about fighting global warming.</u>"

<div align="right">WSJ, 10 November 2015</div>

A common theme in the Advisory Report reporting revolved around industry quotes that inferred that Panel experts were working outside of their mandate, areas of expertise, or relying on personal opinion rather than science-based methodology:

""It appears the <u>advisory committee was more interested in addressing what's trendy</u> among foodies <u>than providing science-based advice</u> for the average American's diet," Howard Hill, outgoing president of the National Pork Producers Council, said last month."

<div align="right">New York Times, 19 February 2015</div>

""Chairman Aderholt is <u>sceptical of the panel's departure from utilizing sound science</u> as the criteria for the guidelines," according to Brian Rell, a spokesman. <u>"Politically motivated issues</u> such as taxes on certain foods and environmental sustainability are <u>outside their purview</u>.""

<div align="right">WSJ, 20 February 2015</div>

""The committee's foray into the murky waters of <u>sustainability is well beyond its scope</u> <u>and</u> <u>expertise,"</u> said Barry Carpenter, president of the North American Meat Institute, which represents beef and poultry producers.""

Washington Post, 20 February 2015

At the same time, when scientists or experts do not venture beyond the terms of their remit, or beyond the evidence, there may be the implication that they are purposefully unhelpful in some manner:

"How much of those is it safe to eat? <u>The group doesn't offer much guidance</u>: "The data available for evaluation did not permit a conclusion about whether a safe level exists." Should we be vegetarians? <u>Again, the group does not hazard an answer.</u>"

Washington Post, 27 October 2015

Making fun or mocking the science also appeared in several reports, with quotes from opponents often included in the reporting:

"An industry group, the North American Meat Institute, called the WHO report "dramatic and alarmist overreach," <u>and it mocked the panel's previous work</u> for approving a substance found in yoga pants and treating coffee, sunlight and wine as potential cancer hazards."

Washington Post, 27 October 2015

"A panel of <u>government nutritionists</u> has <u>spent 5 years</u> and <u>who knows how much</u> money to produce a <u>572-page report</u> that <u>tells us we eat too much</u>."

Washington Post, 20 February 2015

"I always <u>wish that these huge and expensive studies would ask what colour socks the</u> <u>participant is wearing. I bet I could find</u> an association between red-sock-wearing and one type of cancer <u>if I looked hard enough. Would the headline be Red Socks Cause Cancer?</u>"

Daily Mail, 31 October 2015

The use of anecdotes from non-experts, based on unsubstantiated opinions are also used to make light of the scientific process:

"It makes some sense," said Nassrin Farzaneh, a development consultant, carrying a bag out of the store, said of the WHO finding on processed meat. "But they say one thing and then two or three years later they say something that contradicts it. It goes on and on."

Washington Post, 27 October 2015

The negative dimension appeals to principles of fairness and responsibility. Those stakeholders seen to be attacking the science tend to emphasise that scientists are not being accountable to the principles of robust and rigorous scientific methods with sound science

seemingly undermined by agenda-driven scientists or weak methods. The principle of fairness is drawn on, with scientists portrayed as no longer playing within the rules.

> *"The advisory committee, with a long leash to consider various aspects of a perfect diet, is like one of his granddaughters who colors outside of the lines. He, on the other hand, was like a younger grandson in preschool. "The little guy, he's in preschool now, he's trying to learn how to color inside the lines," Mr. Vilsack said. "I'm more like my grandson."*

> *WSJ, March 11 2015*

In contrast, the positive dimension of science appeals to principles of scientific independence, transparency and trust. The reasoning devices emphasise scientists acting independently, with expertise and making recommendations based on the best available evidence at the time.

Lastly, it is noted that the negative dimension of the *Integrity of Science Frame* may well be regarded simply as a *Politicisation Frame*. Bolson and Druckman (2015, p. 746) define politicisation of science as being "when an actor emphasizes the inherent uncertainty of science to cast doubt on the existence of scientific consensus". In this research, the decision has been taken to show two competing dimensions within the same Integrity of Science Frame. It is evident, however, that the presence of other Frames can markedly reinforce particular dimensions of the *Integrity of Science Frame*. Therefore, politicalisation in this paper, is defined more broadly to include the presence of the *Highlighting Conflict Frame, Powerful and Combatant Industry Frame and Governance Frame* along with a strong negative dimension of the *Integrity of Science Frame*. The definition of politicalisation therefore goes beyond that in Bolson and Druckman (2015) to state that while the negative dimension of the Integrity of Science must be present in any politicisation process, other features related to power, governance, and conflict need to be present for science to become politicalised in the minds of readers. Conceptually therefore, the *Politicalisation of Science Frame* could be viewed as an overarching Frame sitting above the sub-frames of *Governance, Highlighting Conflict, Powerful and Combatant Industry and Integrity of Science*. However, by leaving each of these sub-frames as individual Frames it enables greater focus and understanding on their individual components including the underlying reasoning devices that underpin each. Each of the five frames also present quite distinctive signature elements. Although not considered here, the combination of various frames and their interactive ability to reinforce each other and potential super-frames would be an interesting area for future research.

4.4.2   Risk

The *Risk Frame* is closely associated with the *Integrity of Science Frame.* For example, explaining risk in a reasonable and factual way can reinforce the positive dimensions of the Integrity of Science. Reference to risk statistics can also be used to highlight relevancy, or not, of the findings to individuals and populations. It can provide some sense of robust analysis and an image of science as being based on science-driven data. On the other hand, poor explanations of risk or hyperbolic and/or false statements related to risk reinforces the negative dimension of the Integrity of Science Frame, ultimately undermining the integrity of science. The Risk Frame remains as a separate stand-alone-frame, rather than a sub-frame of Integrity of Science, because of its dominance in the media reporting relating to the IARC Evaluation. It was also felt that there were elements of the Risk Frame that stood apart from the Integrity of Science Frame. Risk was presented often quite separately from discussions about the rigor of the underlying science and it was often used in combination with the Creating Hyperbole Frame as a device to attract reader interest. In contrast, the Integrity of Science Frame was more likely to be paired with the Highlighting Conflict Frame emphasising some underlying conflict or disagreement with the science.

Risk was a clear and dominating part of the reporting on the IARC Evaluation. The Risk Frame paired with the Creating Hyperbole Frame was employed to sensationalise and portray a high risk and shocking situation:

> JUST 2 RASHERS OF BACON A DAY <u>RAISES YOUR RISK</u> OF CANCER; HEALTH CHIEFS PUT PROCESSED MEAT <u>AT SAME LEVEL</u> AS CIGARETTES.

> *Daily Mail, 27 October 2015*

Such headlines were clearly misleading. Not only did they misinterpret risk, they also misrepresented the findings of the IARC Evaluation. For example, the IARC classifications evaluate the strength of the scientific evidence about an agent being a cause of cancer, they do not make risk assessments. This was succinctly pointed out in a Sydney Morning Herald article:

> *"... it was "a distortion" to equate red meat and processed meat with cigarettes. For one thing, the categories represent the WHO's degree of certainty that those factors cause cancer, and not the likelihood that they will cause cancer."*

> *Sydney Morning Herald, 28 October 2015*

Yet, such clarification by media was in the extreme minority. It is true, and it was often quoted, that the IARC Evaluation referred to studies, which showed that the risk of cancer generally increased with the amount of meat consumed:

> *In a major announcement, the WHO said processed meat had the same cancer-causing threat level as cigarettes, asbestos and the deadly poison arsenic. It pointed to research showing how eating just 50g of processed meat a day increases the risks of tumours of the bowel by 18 per cent.*

> *Daily Mail, 27 October 2015*

However, this was not accompanied with further explanation to aid the reader to be able to understand the full context of the increased risk. There was also very little explanation as to what this may mean in a practical sense to certain individuals, for example those people who may be more predisposed to certain cancers due to family history of cancer. Only one article discussed measures such as bowel cancer screening programmes for those considered to be "high risk" (e.g. family history of bowel cancer). 15% of articles highlighted how different methods to cook meat could reduce risk. A small number of articles attacked media representation of risk and drew attention to the difficulty of reporting on risk.

> *"Comparing meat to tobacco, as most news organisations who've chosen to report this have done, makes it seem like a bacon sandwich might be just as harmful as a cigarette. This is absolutely not the case. The headlines are referring to the news that the World Health Organisation has classified cured and processed meats (bacon, salami, sausages, ham) as group 1 carcinogens, because there is a causal link between consuming these meats and bowel cancer. This group also includes tobacco, alcohol, arsenic and asbestos, all known to cause certain cancers. But just because all these things cause cancer, doesn't mean they're all as risky as each other. A substance can increase your risk of cancer a small amount, or, like tobacco, a huge amount. Comparing them like for like is just really confusing to anyone trying to work out how to lead a healthy life."*

> *The Guardian, 26 October 2015*

This is particularly interesting as it raises concern within the media of misrepresentation of Risk by media. However, even in some of these newspapers which discussed issues of media reporting on risk there was often huge inconsistency across news stories. For example, the same newspaper would often distort risk one day and then raise concern about media reporting on risk, sometimes the same or next day. Readers are therefore presented with highly contradictory messages from one day to the next, even within the same media source. Headlines can also show how readers are faced with often highly conflicting and often sensational messages about risk:

JUST 2 RASHERS OF BACON A DAY RAISES YOUR RISK OF CANCER; HEALTH CHIEFS PUT PROCESSED MEAT AT SAME LEVEL AS CIGARETTES
The Daily Mail, 27 October 2015 (High Risk)

The new meat rules: As experts warn it increases the chance of cancer, we reveal which types are the riskiest...
The Daily Mail, 27 October 2015 (High Risk)

To use the scientific term… it's cobblers! If you're consuming enough bacon to make it as dangerous as tobacco, then cancer is the least of your worries
The Daily Mail, 31 October 2015 (Minimal Risk)

A disgraceful scare story - so don't bin your bacon sarnies: One nutritionist questions the claims made by the World Health Organisation after it declared war on red and processed meat.
The Daily Mail, 31 October 2015 (No Risk)

New cancer alert over eating just ONE steak a week: Eating just 10oz of red meat can increase chance of bowel cancer by two-fifths
The Daily Mail, 2 November 2015(High Risk)

WHY RED MEAT CAN BE GOOD FOR YOUR HEALTH
The Daily Mail, 3 November 2015 (No Risk)

Frying, grilling or barbecuing meat 'may double the risk of kidney cancer'
The Daily Mail, 9 November 2015 (High Risk)

Farmyard drugs 'make our meat a health risk': Warning antibiotic resistant superbugs will claim more lives than cancer within 30 years
The Daily Mail, 8 December 2015 (Different Risk)

Many articles drew on any statistic that could be used to show risk in some way. In this manner, the one statistic included in the Press Release accompanying the Advisory Report, came to be routinely quoted in media reporting. This reference to an analysis of data from *"10 studies which estimated that every 50-gram portion of processed meat eaten daily increases the risk of colorectal cancer by about 18%"* became commonly used across newspapers and countries. Its inclusion, however, led to confusion over the findings of the Report, making the Report suddenly about "risk" of cancer rather than a hazard identification. In this respect, the Press Release, it's purpose to summarise and draw attention to the IARC Evaluation, may have encouraged focus towards the Risk Frame. Indeed, the attractiveness of the use of statistics by journalists in reporting and in highlighting Risk should be considered carefully by those releasing such scientific reports. It appears very important that any statistical data provided to journalists or any highlighting of human risk is accompanied by a

clear warning about its interpretation, in an easy-to-understand form for non-scientists. And, unless the assessment of risk is the main aim of the Report, it may be helpful to exclude it from the main Press Release.

The Risk Frame draws heavily on reasoning devices that highlight risk as one of the key pieces of information that must be communicated to readers. When meat was portrayed as highly "risky" it was communicated with some urgency and attention, providing a signal to readers that they might benefit from engaging in the article. Hence the use of attention-grabbing and hyperbolic headlines. In this case readers were drawn by headlines that grossly inflated the risks of getting cancer with eating processed and red meat:

> *"'If people can avoid it, they should': Now cancer expert warns Britons to cut out processed meat altogether amid fears bacon and sausages are as dangerous as cigarettes"*

> *Daily Mail, 24 October 2015*

The Frame has significant ramifications for future informed debate on the role of meat in a healthy and sustainable diet. Poor explanation of risk, or deliberate misrepresentation of risk leads to misinformation, confusion and ultimately poor decision-making. Consequently, trust over the long term can also be undermined. This may extend to trust in the news media, if readers feel lied to, or manipulated; trust in science, if science is viewed as being to blame for miscommunication of risk; or trust in products, if products are associated with risk of significant negative health impacts such as cancer. From an industry perspective, sustained high profile misrepresentation of carcinogenicity risk from eating meat is likely to impact in some way, either consciously or subconsciously, in the minds of consumers. In addition, this Frame can also be useful in accentuating other Frames such as those related to Health, Environment or more broadly Ethics and Morality-based Frames.

4.4.3   Highlighting Conflict

This frame emphasised disagreement or tension in public discourse. It drew attention to conflict and opposition as key lead of story and was often evident in the headline, and/ or key bullet points accompanying the heading (if these were used). It appeared most often within the first two paragraphs of the article. This Frame was a dominant frame, used to high degree and across both events analysed in this study. The reader is left in little doubt that the issue is one that is contested by different interest groups. Interests groups with an opposing view are often referenced in the headline with the use of catch-phrases or metaphors. For example:

> *"Meat industry <u>rejects</u> report linking its products to cancer"*
>
> > *The Guardian, 26 October 2015*
>
> *"Meat industry <u>has a beef</u> with WHO report"*
>
> > *The Daily Mail, 27 October 2015*
>
> *"Meat industry <u>has a cow</u> over US dietary guidelines"*
>
> > *The Guardian, 19 May 2015*
>
> *"Why There's A <u>Big Battle Brewing</u> over the Lean Meat In Your Diet"*
>
> > *NPR, 24 March 2015*

Metaphors, words, catchphrases in the main text are used to further emphasise the angle of conflict:

> *"The footnote, along with some other words, have <u>worked the industry into a lather</u> that's going to be <u>frothing</u> for months."*
> > *NPR, 24 March 2015*

> *<u>"Where's the beef?</u> Following the committee's December 15 meeting, meat industry groups <u>expressed outrage</u> over the removal of "lean meats" as a component of healthy diets."*
> > *The Guardian, 5 February 2015*

Conflict Frames are popular because they draw the attention of the reader. They also emphasise a human-interest element to the story because conflict themes involve feelings, emotions, outcomes for specific groups or individuals. For example, active emotive words such as "fight", "rehabilitate", "vehemently objects", "discredit", "biting", "criticism", "attack", "war", "aggressively" were used and predominantly associated with the meat industry:

> *"Meat companies have tried to <u>rehabilitate an image tarnished</u> in recent years by health and environmental concerns. Now the <u>industry is swiftly and aggressively working to discredit a proposal</u> for new dietary guidelines that recommends people eat less red and processed meat."*
> > *Associated Press, 12 March 2015*

Conflict was presented as an inherent feature of the debate on the Advisory Report and along with other Frames (Governance, Integrity of Science) represented a strong politicisation of the issues. Industry and Politicians, were often depicted as antagonists, pitted strongly against the Scientific Community, who were largely presented as protagonists in the conflict and even anti-health and/or anti-environment:

"A nationwide <u>food fight</u> is heating up after the US government accepted final public comments this month on a scientific advisory report recommending Americans reduce their meat consumption <u>for the sake of healthier and more environmentally sustainable diets.</u> The <u>meat industry is fighting back against those who want healthier guidelines,</u> and this <u>battle looks like it could go the distance</u>."

The Guardian, 19 May 2015

Conflict was also a feature of the IARC Evaluation discussions, however, it focused largely on the Integrity of Science, as well as concern over deliberate misinterpretation of the IARC Evaluation. The meat industry was portrayed in the conflict as highly reactive, erupting, angry, defensive and responding to the IARC Report in some instances by mocking, or making fun of IARC. In the Highlighting Conflict Frame, readers are confronted with a situation where they are invited to make some judgement on which side to support (or indeed to actively choose no side). In this case, the important point to note may be that readers may not always differentiate the producer from the product. Therefore, potential legitimacy threats may be an inherent feature of Conflict Frames. This underscores the importance of positive public communication on issues. The Highlighting Conflict Frame could also be considered as a super-frame of the Powerful and Combatant Industry Frame. It is kept separate in this paper due to one of the main objectives of the research being to identify specific framing of the meat industry in the news media.

4.4.4   Powerful and Combatant Industry Frame

This frame depicts the meat industry as combatant, attacking, even at war. For the Advisory Report case study, power was a key part of the framing of industry in media reporting. In the IARC Evaluation, the industry was still portrayed as combatant, but the feature of power was less present. This was likely a reflection of the nature of the discussions. The Advisory Report aimed to inform the final development of federal-level US Dietary Guidelines. It was part of a political process and therefore the power of the industry in influencing the ongoing policy process became a characteristic of certain reports. In this regard, the use of words such as "big", "lobbying" and "influence" are used to describe the meat industry. In contrast, the determination by the IARC that there was enough evidence to rank processed meats and red meats as group 1 and 2A carcinogens respectively, was not part of an ongoing policy development in which meat sector stakeholders could contribute to or help shape the results. The industry was viewed as having little direct influence over IARC and therefore more limited direct power. In this case, the industry was portrayed as being "defensive",

"attacking" and "at war". Never-the-less there remained some references to future threats of power:

> *"The WHO decision is more of a guideline than an absolute rule and comes with the <u>high probability of a counterattack by the powerful red meat lobby</u>..."*

> *The Washington Post, 27 October 2015*

> *"In recent years, meat consumption has been the target of multi-faceted social criticism, with <u>debates erupting</u> not just over its role on human health, but the impact of feedlots on the environment and on animal welfare. The public debate over the WHO's findings will likely <u>play out political lobbying, and in marketing messages for consumers."</u>*

> *Washington Post, 26 October 2015*

In the case of the IARC case study, power was also symbolised indirectly through powerful proxies, such as Ministers for Agriculture who actively questioned the findings and credibility of the IARC Evaluation. In contrast, Ministers of Health more than often remained silent. The use of metaphors and catchphrases were common in this Frame. Words such as "powerful", "combatant", "attacking", "aggressive", "industrial" and "bullying" were used to describe the meat industry. Reference was made not only to their lobbying efforts to influence Government but their cosy relationship with government decision-makers and regulators in the US Advisory Report case study:

> *"The meat industry long has been one of the <u>more powerful lobbies</u> in Washington, <u>enjoying an especially close relationship with the Agriculture Department,</u> which has inspectors in meat processing plants."*

> *Associated Press, 12 March 2015*

The industry was also portrayed as actively working to discredit science or scientists:

> *"Now the industry is <u>swiftly and aggressively working to discredit</u> a proposal for new dietary guidelines that recommends people eat less red and processed meat."*

> *Associated Press, 12 March 2015*

> *"For that reason, several industry players have responded critically to the consideration, both <u>attacking the notion that meat production is environmentally unfriendly and discrediting the idea</u> that environmental concerns should influence the dietary guidelines issued by the government."*

> *The Washington Post, 9 January 2015*

> *"... so the industry groups are <u>trying to sort of attack the scientific research</u> behind the WHO's study as well."*

> *NPR, 27 October 2015*

> *"In March, the North American Meat Institute launched an online petition that <u>refers to the advisory committee members</u> as <u>"elite academics" and "nutrition despots who seek to impose their personal choices on others"</u>."*

<div align="right">

The Guardian, 19 May 2015

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The industry was also portrayed as: "acting only for its own self-interests", "prepared in some way by developing counter-claims in advance of the Report", and compared in a negative light to other powerful industries like tobacco:

> *"And the meat industry <u>was prepared.</u> You know, they <u>knew this was coming</u>. And <u>even before the study</u> was released, <u>it put up websites, you know, with its own counter claims and counter studies</u>."*

<div align="right">

NPR, 27 October 2015

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> *"On the other hand, there are <u>no grounds for sympathy with "Big Calorie", the agribusiness lobby</u>, which would have <u>us eat far more of everything than is good for us, and which profits from animal cruelty on a literally industrial scale</u>."*

<div align="right">

The Guardian, 26 October 2015

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> *"There is no group that could convince the meat industry that the science is definitive on the link to cancer, <u>because the playbook of every industry under attack is to instil doubt in the evidence</u>," said Bonnie Liebman, director of nutrition at the Washington, D.C., Center for Science in the Public Interest, which advises consumers to minimize meat consumption.*

<div align="right">

The Wall Street Journal Online, 26 October 2015

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The reasoning devises of the Powerful and Combatant Industry Frame focus on the definition of the problem being related to business protecting its own profits and interests at the expense of public welfare. In this regard, the Frame emphasises principles of capitalism and individualism taking precedence over the collective wellbeing of the community. This aligns with underlying cultural schema of economic development and competitiveness viewed through neoliberal values associated with capitalism and individualism. In this instance, the depiction of the meat industry within this Frame is, however, distinctly negative. The stress is not on the legitimacy of business to be able to successfully compete in the marketplace and make profit, but that profit is becoming before people. Hence the depiction of the meat industry as aggressive and powerful bully prepared to undermine science to protect its own interests is potentially highly damaging for the industry over the long-term.

> *""I don't think public policy should be driven by <u>the economic interests</u> or the <u>lobbyists,</u>" panel chairman Barbara Millen said in an interview. "<u>It needs to be driven by science, and good science.</u>"*

<div align="right">

Associated Press, 25 June 2015

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""If Secretary Vilsack ignores the sustainability recommendations of the Dietary Guidelines Advisory Committee after their months-long deliberation, he will once again side with <u>the powerful economic interests</u> of the <u>industrial</u> <u>meat companies</u> and not with the health and well-being of all Americans," says Bob Martin of the Johns Hopkins Center for a Livable Future, which also signed the letter."

NPR, 26 February 2015

4.4.5   Creating Hyperbole

The Creating Hyperbole frame quickly draw the attention of the reader to the article through the utilisation of attention-grabbing and shocking hyperbolic statements to attract interest. Creating Hyperbole is mostly achieved through hyperbolic headlines or lead statements that deliberately exaggerate or overplay a conclusion or point. It might involve reporting that depicts the threat of cancer as a foregone conclusion when eating meat, deliberately compares meat to well-known dangerous substances or practices such as asbestos, smoking, weed-killer, or plutonium and can over-dramatize response strategies such as depicting an outcome where people are forced to quite meat-eating altogether. The distinctive feature is that the frame overstates the issue and is designed to raise alarm. The use of exaggerating language and amplification of negative consequences to health, wellbeing and lifestyles is a characteristic. It is normally utilised in the headline or within the first paragraph of the article. It may also be used by stakeholders as a device to mock research or other stakeholders. The Creating Hyperbole Frame was a popular one across the Reporting on the WHO Report. An example a hyperbolic headline that falls within this Frame is:

"Processed meats pose same cancer risk as smoking and asbestos, reports say."

The Guardian, 26 October 2015

Other examples draw on the societal value of meat to create hyperbolic headlines and reporting, stressing drama and cultural shock or reaction to the news. For example, this headline teases the reader with a situation that all Argentinians would rather die than give up meat, which one assumes is far from reality, or equating meat with happiness:

"Argentinians react to report linking meat to cancer: 'I'd rather die than give it up'"

"Everything I like is unhealthy – steak, alcohol, drugs and other things. I'd rather die than give it all up. I don't have the energy to be happy without them."

The Guardian, 26 October 2015

Of interest was that Hyperbolic Framing was more likely to be associated with Risk (and its misinterpretation) and Role of Meat in Society Frames. The overuse of Hyperbolic Framing

could be damaging over the long-term to a range of stakeholders. While it has a place in drawing attention, it might also lead to disengagement on issues by readers who view it as overstepping 'common-sense', because of misinterpretation or misrepresentation. It may even be too confrontational for those readers who have strong cultural beliefs that support meat-eating, which may reinforce cultural beliefs and/or disengage them from future constructive dialogue on the topic. Lastly, hyperbole often has a strong emotional element and therefore negative messages that highlight serious sustained health concerns about a food product, also has the potential to impact on consumer thought processes and behaviour at a more subconscious level. Over time, this may erode strongly-held cognitive-based support for meat.

4.4.6   Governance Frame

The Governance Frame emerged as a key frame in media reporting on the Advisory Report. Governance/accountability has been identified as a common underlying cultural schema present across many science-based policy debates (Gamson and Modliani, 1989; Nisbet, 2009). In this case study, the Governance Frame focused attention to the political nature of the processes and issues and the need for political stakeholders to resolve conflict. The involvement of politicians is often referred to, and quotes were gathered from political representatives who were depicted as holding some significant future role in the debate or capability to influence, through approval or policy, legislation or ultimately government spending policy. Politicians, individually or as a group were portrayed as predominantly negative to the findings of the Report and directly questioned its integrity:

> *"In a letter to Secretaries Burwell and Vilsack, 30 US senators – including 29 Republicans and one Independent – expressed concern over the scientific integrity of the committee's recommendation to "remove 'lean meat' from the statement of a healthy dietary pattern"."*
>
> *The Guardian, 19 May 2015*

Politicians were also depicted as decision-makers who would be ultimately needed to be involved to make necessary compromises, deals or final decisions. Reference to lobbying were also relevant, indicating power and influence by stakeholders over the process and development of final recommendations:

> *"Now, [meat industry] they are pushing the departments of Agriculture and Health and Human Services, which will write final dietary guidelines by year's end. They are meeting with officials and asking them to do what they have done in the past: prominently recommend lean meats as part of a healthy diet. They also are asking their many, mostly*

Republican, allies in Congress to pressure the Obama administration. Congress appears ready to help.”

Associated Press, 12 March 2015

“In the past, federal bureaucrats have come under lobbying pressure from groups that discovered their particular product had been targeted for opprobrium by the Dietary Guidelines.”

The Washington Post, 20 February 2015

“In December, the meat industry and other opponents of the draft recommendations set up a new umbrella group, the Back to Balance Coalition, aimed at combating “public policy efforts occurring at the local, state and national levels to malign and restrict certain foods”. Among its members are the American Association of Meat Processors, American Meat Institute, American Frozen Foods Institute, Canned Food Alliance, Snack Food Association and the Sugar Association.”

The Guardian, 5 February 2015

Reference to process or procedural rules also fall under the Governance Frame. As well as the use of words or phrases such as "defying Congress", "Congress expressing concern", "politics", "political pressure", "lobbying", "future government funding", "political correctness" and references to "law". For example,

“While they are based on dietary science, the <u>guidelines aren't immune to politics.</u> This year, <u>the battles have already started</u> over meat.”

Associated Press, 11 February 2015

“The nation's top nutritional panel is recommending for the first time that Americans consider the impact on the environment when they are choosing what to eat<u>, a move that defied a warning from Congress.”</u>

The Washington Post, 20 February 2015

“A panel of nutrition experts generated controversy last month <u>when it pressed the federal government</u> to consider the environment when issuing new dietary guidelines later this year. Generally speaking, that would mean asking Americans to eat less meat and more plant-based foods. Ever since then, <u>the question has been whether the agencies developing the recommendations – the Departments of Agriculture and Health and Human Services – would take up the suggestion an</u>d weigh the impact of food on air and water quality, among other issues. In an interview Wednesday with The Wall Street Journal, Agriculture Secretary Tom Vilsack suggested that, <u>for him, the answer is no</u> – that so-called sustainability issues fall outside the scope of the dietary guidelines. “I read the actual law,” Mr. Vilsack said. “And what I read ...was that our job ultimately is to formulate dietary and nutrition guidelines. And I emphasize dietary and nutrition because that's what the law says. <u>I think it's my responsibility to follow the law</u>.”

WSJ, 11 March 2015

> *"The move caused a major uproar throughout the food industry, with thousands of commenters arguing that environmental concerns <u>were beyond the scope of the guidelines</u> and that <u>addressing them was an overreach of the USDA's authority.</u>"*

> *The Guardian, 29 June 2015*

In the case of the WHO Report, there were several prominent quotes from high-level government officials from various countries. For example, quotes from the Australian and German Agricultural Ministers were extensively used in media reporting across the world, for example:

> *"Australia, one of the world's top meat exporters, rejected on Tuesday the suggestion that processed meat could be as lethal as cigarettes, referring to the IARC report. "No, it shouldn't be compared to cigarettes, and obviously that makes the whole thing a farce - comparing sausages to cigarettes," Australia's Agriculture Minister Barnaby Joyce said."*

> *China Daily News, 29 October 2015*

The Governance Frame did not, however, emerge as a dominant Frame in reporting on the IARC Evaluation. Across reporting, the organisations, IARC and especially WHO, were positively depicted as science-driven, independent, expert organisations. Some descriptions, portrayed IARC as representing positive societal values of integrity, health and collective responsibility and consequently forced to face attack from "industrials" and self-interested stakeholders:

> *"Une agence souvent ciblée par les industriels. Le CIRC est accoutumé aux attaques sur l'intégrité de son travail…"*
>
> *Le Monde, 27 October 2015*

> *"It seems almost inevitable that every release of a major health report from an expert body unleashes a torrent of comment from those who think they know better than qualified scientists. This week, that expert body is the World Health Organisation… Some of those with a vested interest in marketing meat pour scorn on reports from health experts. It's not unexpected since no one welcomes publicity that might have adverse effects on sales of anything we consume."*
>
> *Sydney Morning Herald, 28 October 2015*

The IARC Report was the final product of an independent organisation, removed from any immediate government control or oversight, the IARC scientific committee ultimately operating under its own terms of engagement. In comparison, the Advisory Report was embedded in a broader political process. Therefore, there was limited reporting on process-based issues lobbying or political nature of IARC and any lobbying was described as a future threat. Public comments from Agricultural Ministers were often categorised within the

Powerful and Combatant Industry Frame. In this respect, Ministers of Agriculture could be viewed as being powerful proxies for the meat industry. In contrast, the relative absence of opinion from Ministers of Health or health officials may indicate unwillingness to politicise the findings of the Evaluation. When they were quoted, their comments emphasized elements of health and/or the need for moderation or balance in diet.

4.4.7   Moderating Meat Frame and Trade-offs

The Moderating Meat Frame and Trade-offs frame highlights the issue of overconsumption and the need to moderate meat consumption levels. It may raise problems associated with overconsumption and current consumption rates. Reference to some need or warning to reduce consumption and move towards more plant-based diets were made. This Frame also included statistics on meat consumption rates as well as reference to some guidance for what might be considered as healthy meat consumption. The notion that trade-offs must be made is often explicitly referred to (discussed below). This Frame does not advocate replacing meat altogether, instead the overall theme is that moderation is needed. Some examples include:

> *"Americans are eating less meat than they have in the past, but they are still eating too much, according to the panel's experts, and all that meat consumption is having detrimental effects on the environment."*
>
> *The Washington Post, 20 February 2015*

> *« Notre analyse publiée dans le livre La viande voit rouge (Fayard, 2012) concluait que ce n'est pas la charcuterie ou la viande rouge qui sont responsables, mais seulement le niveau excessif de leur consommation. »*
>
> *Le Monde, 30 October 2015*

> *"So, is meat good or bad? Nutrient-rich essential or dietary enemy? It's neither, and that's why the "less meat" recommendation makes sense."*
>
> *The Washington Post, 22 April 2015*

> *"But Australians were eating far too much meat - men eating on average 700g a week and women 520g a week, a recent survey found. "We're among the highest in the world," Ms Stanton said. "We also have among the highest incidences of bowel cancer in the world. The average person is eating larger amounts of meat more often, and it's a matter of quantity.""*
>
> *Sydney Morning Herald, 28 October 2015*

> *« « Comme toujours, tout est question de quantité : trop de quoi que ce soit est mauvais pour la santé", a réagi, dans une déclaration écrite, le ministre allemand, prenant l'exemple du soleil. »*
>
> *Agence France Presse, 27 October 2015*

« Red meat cancer warning a reminder of the virtue of moderation »
South China Morning Post, 31 October 2015

In some limited cases, the meat industry when quoted also utilises the Moderating Meat Frame, for example by referring to healthy portion sizes and frequency, as well as the national dietary guidelines:

> *"Meat and Livestock Australia said it supported the national dietary guidelines: "... There is no reason to believe that eating beef and lamb as part of a healthy, balanced diet and lifestyle in 100g to 200g portion sizes (raw weight), three to four times a week as recommended in the Australian Dietary Guidelines, will increase the risk of cancer.""*
> *Sydney Morning Herald, 28 October 2015*

Words such as "less", "behaviour", "overeating", "overconsuming", "moderation", "balance" are commonly used in this Frame. Metaphors and catch-phrases are also popular and often used in clever ways to emphasise a "less is more" message.

> "*UK shoppers give pork the chop after processed meats linked to cancer"*
> *The Guardian, 24 November 2015*

Also, included in the Moderating Meat & Trade-offs Frame were themes that discussed decrease or fall in sales of meat, either historically or as an immediate response to the IARC Evaluation Report. These are included in this Frame because they signal to readers that people are consuming less, and readers are therefore alerted that some people are modifying behaviour. This may or may not trigger a response in readers, yet it would be worth exploring in future research what the effect of such reports are, on consumer sense-making. A number of articles across both case studies referenced changing consumption patterns and highlighted cases and negative impacts of overconsumption and potential issues with increasing meat consumption in the developing world. Conclusions were then drawn on the need to moderate consumption as a response.

> *"Meat consumption is already well above healthy levels in developed nations and growing fast in other countries, and is linked to rising rates of heart disease and cancer. To get to healthy levels, US citizens would need to cut the meat they eat by two-thirds, those in the UK by a half and those in China by a third."*
>
> *The Guardian, 24 November 2015*

An interesting feature was the use of visual images within the Moderating Meat Frame. Visual representations accompanying stories often depicted a lot of meat in the image giving a sense of "too much meat". For example, the two photos and one screenshot of a video below, depicts meat crowding the frame and stresses repetition.

Less is more? (Kiyoshi Ota/Bloomberg News)

Figure 17. Washington Post January 7, 2015: The meat industry's worst nightmare could soon become a reality.

Figure 18. TIME Magazine screenshot of video, 26 October 2015

Figure 19 : Le Monde, France, 27 Octobre 2016

Les régimes riches en viande rouge pourraient être responsables de 50 000 décès par cancer par an. SEBASTIEN RABANY/PHOTONONSTOP

This Frame also includes "trade-offs". Trade-offs may refer to some sort of trade-off between pleasure and better health, different meats (e.g. less processed, more fresh, white meat), meat and vegetables. This could also refer to cost or production methods, such as preferences for more expensive higher quality meats versus lower cost, mass-produced meats which arises in the "less but better" narrative. Trade-offs might be described in terms of price, health, taste, quality and animal welfare. This emerged in a number of articles :

> *« Viande : à Paris, les restaurants parient sur le "moins mais mieux" »*
> *Agence France Presse, 29 October 2015*

> *""My view is this," Mr Pereira said, "my product is much more expensive. But if you sell Frankfurt's for $3 a kilo, what is in [them]? If you buy ham at $7 a kilo, what is in [it]? It is not meat. "The problem is the cheap smallgoods. The cheap mortadella. The cheap ham. Prosciutto has been done for 400 years, but I've never heard about anything."*
> *Sydney Morning Herald, 28 October 2015*

> *"Cheap meat always comes at a price and the price is high for the animal involved."*
> *Sydney Morning Herald, 29 October 2015*

> *"The reason the dietary guideline committee's "less meat" recommendation makes sense is not that meat's so very bad for you. It probably isn't. But you need to make room in your diet for the things that are actively good for you, and something's got to give."*
> *The Washington Post, 22 April 2015*

Trade-offs can also be highlighted whereby meat-eaters acknowledge potential negative health impacts of meat overconsumption but refuse to change their behaviour. In this sense, the trade-off is portrayed as one worth making despite the negative impacts:

> *"As another meme put it: "Vegetarians live up to nine years longer than meat-eaters. Nine horrible, worthless, baconless years.""*
>
> *The Washington Post, 27 October 2015*

4.4.8 It's about Health and the Environment Frame

This frame draws attention to the impacts of meat consumption on health and/or environment. Negative or positive impacts on health or environment might be specifically referred to. Links between healthy diets and better environmental outcomes may also be demonstrated. It was decided to combine both environment and health in one Frame due to the dominating effect that linking the two aspects together had in the framing of the article, and that both drew on values associated with collective and individual responsibility. Linking between

environment and health involved the use of strong and emotive language that drew attention to negative impacts of meat production and consumption. Several articles also sought to provide guidance to the reader as to how they could improve both health and environmental outcomes by reducing meat consumption, thereby potentially further embedding the Frame into subsequent action. The power of multi-issue communication was also discussed by stakeholders:

> ""People care a lot more about their own personal health than they do about the environment or animal welfare," said Michael Jacobson, executive director at the Center for Science in the Public Interest in Washington. "So these groups are hoping to make progress on their issues by linking them to healthier diets.""
>
> *Los Angeles Times, 18 Jan 2015*

> ""It's hard for people to get jazzed up about changing eating habits for a result they'll see 10 years from now," Geagan says. "But framing it as a more immediate payoff or benefit – in terms of weight loss, health, energy, really focusing on the health benefit overlap of these issues, that's where I think health professionals can really add value to the conversation.""
>
> *The Guardian, 29 June 2015*

Several articles focused on only health or only environment. And these were coded as such and then categorised under the broader It's about Health and the Environment Frame. It is important to note that the mention of cancer did not necessarily evoke a Health frame. This might seem intuitively incorrect given that cancer is an illness/health issue. The word "cancer" does indeed represent negative impact on health in some way. However, often the word "cancer" was used for the purposes of framing the reporting within a Creating Hyperbole or Risk Frame with little context as to what it might mean for health per se, either at an individual or population level. The decision taken in this analysis was that some additional explanation or context was needed that described and drew attention towards, the potential health impacts. Without this context, there was often very little information for readers to appreciate how their health would be impacted in their daily lives. Therefore, the underlying narrative of these articles appeared not to be about health per se but about shock, risk, or conflict. The next section provides examples of this Frame. It is specifically looks at linkages, as well as any Environment and Health Frames that were used separately.

Linkages

The It's about Health and the Environment Frame features prominently in reporting on the Advisory Report. This is largely due to the inclusion for the first time in the scientific

recommendation of consideration of "sustainability" and its linkages to diet. The inclusion of this "sustainability" element was highly controversial and drew significant attention to the Advisory Report. Reporting on the linkages between health and the environment therefore emerge strongly in many articles and is a thread that is present in other Frames such as Highlighting Conflict, Integrity of Science, Moderating Meat, Powerful and Combatant Industry and Governance Frames. The relationship between diet, health and environment was explicitly made in media reporting through the use of direct quotations from the Report, further quotations from expert sources, as well as the use of catchphrases and metaphors that bring attention to the relationship between meat consumption, diet and environment or sustainability:

> *"Beef ranks as the least healthful and least environmentally sound food on both charts. Cookies, however, are unhealthful for your body, but not necessarily the planet."*
> *Los Angeles, 18 January 2015*

> *"The advisory panel said in its draft recommendations that there is "compatibility and overlap" between what is good for health and what is good for the environment."*
> *Associated Press, 11 February 2015*

> *"What's good for you is good for our planet."*
> *New York Times, 23 March 2015*

> *"When it comes to eating well, we should consider the health of our bodies and the planet"*
> *NPR, 26 February 2015*

Linkages across environment and health were also made in media reporting on the IARC Evaluation, and in particular later in the reporting timeline. For example,

> *"Taxing meat to simultaneously tackle climate change and improve global health would be far less unpalatable than governments think, according to new research."*
> *The Guardian, 24 November 2015*

> *"But full-bellied veganism isn't the only way to help. Cutting down on the beef you eat is a significant first step – it warms the planet approximately 14 times more than chicken. You could also join up with other people by taking the Meat Free Mondays challenge. There could be hidden advantages, too: recent research showed that processed meat, such as bacon, ham and sausages, may significantly increase your chances of developing cancer."*
> *The Guardian, 27 November 2015*

> *"Granted, there are signs of momentum lately. The U.S. Dietary Guidelines Advisory Committee, for instance, recently made major waves when it included environmental concerns to its assessment of our diets. "Current evidence shows that the average U.S. diet has a larger environmental impact in terms of increased greenhouse gas emissions, land use, water use, and energy use," the report noted, compared with more plant-based*

> *diets. Meanwhile, the World Health Organization's International Agency for Research on Cancer recently declared processed meats a carcinogen."*

> *Washington Post, 18 November 2015*

Environment

There was also a focus on environmental or broader sustainability drivers for reducing meat consumption, without any explicit reference to health outcomes. Environmental concerns were most often depicted as being of a serious nature and urgent with high degree of consensus across the science community that high levels of both relative and total global meat consumption had considerable negative environmental impacts:

> *"The report recognizes that <u>environmental factors should play a role in determining diet.</u> It's unlikely some meat is "bad" for you, but what's clear is that the <u>industrial production of livestock takes way more resources than producing any other food, and that there is simply not enough land, water, chemicals or anything else to produce unlimited meat</u> for everyone who can afford it. Acknowledging that is a big step."*

> *New York Times, 25 February 2015*

> *"It's pretty much <u>a consensus view among global environmental scientists</u> that we would be better off if we ate less meat," said Timothy Searchinger, a research scholar at Princeton University who focuses on agriculture and climate change.*

> *The Washington Post, 20 February 2015*

> *"<u>Meat production produces 15% of all greenhouse gases</u> – more than all cars, trains, planes and ships combined – and <u>halting global warming appears near impossible unless the world's fast growing appetite for meat is addressed."</u>*

> *The Guardian, 24 November 20*

Health

Health was framed in both positive and negative terms. However, the negative dimension was dominant. Naturally this centred on the contribution of processed and red meat consumption to negative health outcomes associated with increased risk of cancer. Other serious illnesses were also referenced, however, including diabetes, obesity, cardiovascular disease, chronic inflammation issues and Alzheimer's disease. Number of deaths associated with over-consumption of meat was also highlighted. Discussion of behaviours to reduce meat consumption, for example Meatless Mondays or tips for cooking without meat, including recipes were given. Adopting a plant-based diet was framed positively as a behaviour that would prevent disease and even improve health:

> *"With regards health, the reporting on US Dietary Guidelines refers to meat and problems of obesity, Animal protein increases IGF-1, an insulin-like growth hormone, and chronic inflammation, an underlying factor in many chronic diseases. Also, red meat is high in Neu5Gc, a tumour-forming sugar that is linked to chronic inflammation and an increased risk of cancer…An optimal diet for preventing disease is a whole-foods, plant-based diet that is naturally low in animal protein…"*

> *New York Times, 23 March 2015*

> *So needless to say the WHO announcement didn't throw my world into chaos. It was affirmation for what I have known for years — processed meat is extremely unhealthy. But for many parents this will be a wakeup call to dietary changes towards a healthier lifestyle. In which case, here are four things I've learned that might help before your next visit to the grocery store.*

> *Washington Post, 12 November 2015*

The health benefits of eating meat did receive attention, and often focused on the contribution of meat as a source of B12 and iron, for example,

> *"Red meat is also a rich source of vitamin B12, needed for brain cells to repair themselves and to replicate the genetic code of cells — our DNA."*

> *Daily Mail, 3 November 2015*

Yet positive contributions were often quickly countered with issues of overconsumption and serious illness:

> *"Meat is a good source of iron, zinc and vitamin B12. But there are concerns that we eat too much meat as a nation – there is a risk of increased heart disease from red meat, too."*

> *The Guardian, 26 October 2015*

This resulted in sometimes mixed messages on the benefits and negative impacts making it very difficult for consumers to understand the best measures to achieve optimum health outcomes. Some health-based arguments relied on heavy use of hyperbolic devices under the Hyperbole Frame and Highlighting Conflict Frame. As discussed earlier, this approach might have the effect of 'disengaging' readers from the issue. It can also be difficult to follow up "extreme" hyperbolic headlines with reasoned, practical and relevant advice to help consumers make positive behaviour changes for better health. Perhaps somewhat disappointing was that health as a Frame received less attention then Conflict, Governance or Hyperbolic Frames. One report out of the 124 articles, drew attention to the following important point:

"Perhaps the single most important measure you can take to protect yourself from colorectal cancer, experts say, is to get a screening between the ages of 50 and 75. But only 58 percent of people in that age range do so.

"There's nothing wrong with the concept of reducing your intake of red and processed meat," said Amy Elmaleh, director of Colon Cancer Canada, an advocacy group. "But there's a better conversation to have about screening, which is a huge opportunity to prevent colon cancer."

If the number of adults who underwent screening rose to 80 percent by 2018, then 280,000 cases of colorectal cancer and 203,000 deaths from the disease could be averted, said Stacey Fedewa, the director of screening and risk factor surveillance for the American Cancer Society.

New York Times, 1 November 2015

Lastly, we note that ongoing public discourse around the wider role of meat in a healthy diet is sometime explicitly referenced to:

The meat industry <u>has battled international and U.S. health authorities on the place of meat in a balanced diet for decades,</u> most recently in the U.S. Department of Agriculture and Health and Human Service's Dietary Guidelines for Americans, which serve as a benchmark for the agencies' nutrition education and food-assistance programs.

WSJ, 26 October 2015

The conclusion in this limited study is that Health was consistently framed in a negative manner and with contradictory messages. Opportunities for raising awareness on ways to reduce risk based on behavioural change, which refers not only to reducing excessive meat consumption but different ways of cooking, as well as screening and health checks were not always clear or emphasised. There was also a lack of discussion regarding the potential positive impacts on diet (and environment) from meat-eating or substitution effects with less meat intake. It is not clear, for example, that health would be improved if people ate less meat because this largely depends on what meat is replaced with, in the diet. Undesirable substituting towards more low quality high carbohydrate diets, for example, would result in potentially poorer health and nutritional outcomes. Simplistic and reactionary public discourse regarding health misses an important opportunity to address dietary inequalities and serious health issues currently observed across many populations.

4.4.9   Role of Meat in Society Frame

This frame is particularly dominant in reporting on the WHO Report. It could be considered as a "Human Interest" frame yet it is argued here that it goes beyond a journalistic framing

device to purposefully exemplify and explore the underlying cultural significance of the role of meat in many societies. The Role of Meat in Society Frame is often connected to the Creating Hyperbole Frame. This may be because questioning belief systems where meat is a highly-regarded part of the diet provokes strong reactions and emotions. The frame also depicts the power and contribution of meat in society. The importance of the role of meat in society is implicitly referred to, and accounts are presented to stress traditions, myths, cuisine, lifestyles associated with meat-eating culture:

> *"Italy's Parma ham connoisseurs defend prosciutto amid processed meat scare."*

> *"Prosciutto di Parma isn't a processed meat or a sausage, but a product that is matured over a long period of time," the Guardian was told by a spokesperson for the Parma Ham Consortium, a 55-year-old organisation of producers who use and safeguard the traditional processing method used in what is a staple of Italian kitchen tables.*
> *The Guardian, 30 October 2015*

> *"Raised on a farm, she says eating meat is a custom. "My family was very carnivorous. If we didn't have meat, we didn't consider it a meal.""*

> *The Guardian, 26 October, 2015*

> *"The way these pigs of Spain's Ibérico breed are fed and raised here is a far cry from how most meats are produced almost anywhere, making the cured ham a delicacy prized for its unique texture and taste, which is enhanced by the sweet and nutty flavor of the acorns the pigs eat. So when the World Health Organization, in a recent report, linked processed meats to colorectal cancer, the news came as an affront to many Spaniards, who have been eating cured hams produced this way for generations."*

> *New York Times, 2 December 2015*

The idea of challenging meat's role in the human diet is sometimes mocked, ridiculed or portrayed as shocking. Statements may be included that underscore that meat will not be sacrificed or given up*:*

> *"I'm not giving up my ham and mustard sandwich."*

> *The Guardian, 26 October 2015*

> *"If what happened to smoking happens to meat, soon all those sexy scenes of people eating large hunks of meat in black and white movies will be edited to give them carrot sticks instead. We will have to eat meat only in special areas cordoned off for people who are knowingly shortening their lives. Everyone else will walk past our glass meeting rooms with looks of disapproval, shielding their children from any potential scraps of second-hand meat. All hamburgers will be sold with skulls and crossbones on the side."*

> *Washington Post, 28 October 2015*

Human interest stories might be used to demonstrate the hardships of vegetarians in meat-eating societies, or impending war between vegetarians and meat-lovers. The narrative is one that questions any challenges to meat-eating as being somewhat impractical, going against instinct, or something to be made fun of:

> *« La dure vie des végétariens en Uruguay, paradis de la viande. »*
>
> *Agence France Presse, 30 October 2015*

> *"#free bacon: Meat lovers unite to defend beloved foods as #smug vegetarians get behind WHO cancer warning"*
>
> *Washington Post, 28 October 2015*

Individual-level behavioural change is viewed as difficult and sometime impossible given the vital role of meat as part of the cultural identity of some societies and as the principle component of the diet:

> *« "Dans toutes les rencontres de Brésiliens, la viande constitue le plat principal, c'est certain", relève Cesar Gabriel, un infirmier de 22 ans qui achète un kebab à un vendeur de rue avant de prendre le bus. "Ce n'est pas facile" de changer ses habitudes", poursuit-il. »*
>
> *Agence France Presse, 27 October 2015*

> *""I'm aware of the health risks, but it's part of our culture," said Bacaloni, who estimates that he eats between a kilogram and 1.5kgs of meat each week."*
>
> *The Guardian, 26 October 2015*

> *"My work is very stressful, I often grab fast food, I do zero exercise. I ride a big motorbike to get to work and I am sort of obese," he wrote. "I will go down with bacon sandwich in hand singing the national anthem."*
>
> *New York Times, 30 October 2015*

Words, catch-phrases, metaphors, symbols are often used in this Frame and focus on beliefs that living without meat is impossible, not worth it or imaginable. The association of meat with energy, culture, and way of life all belong to this Frame. This Frame is especially important in that it connects with people's belief systems and can reinforce existing behaviour and values. However, it can also force re-evaluation of values. This aspect is particularly relevant when the Frame is used with the Moderating Meat Frame. Together, they can draw attention to excessiveness or undesirable elements of meat-eating, such as animal welfare concerns, environmental degradation or behaviour aspects such as closed-mindedness. This element is often fairly recognisable in news-stories that focus on animal

welfare and which draw explicit attention to the excessive role of meat in society causing harm to animals:

> *"Chickens, we conveniently assume, are creatures with a very small brain, so it is fine to eat them without a thought. Our consumption of chicken has more than doubled to 40 kilograms a year over the past 35 years. But if you saw the conditions in which most chickens are kept, to keep costs down, you would be appalled."*
> *Sydney Morning Herald, 29 October 2015*

> *"Look at what our obsession with white meat has done to chickens."*
> *Washington Post, 13 March 2015*

4.5 Implications

The content of both the Advisory Report and IARC Evaluation draws on a vast amount of complex scientific material. The recommendations or evaluation also have important policy ramifications for all stakeholders. Therefore, the ability to translate the overall conclusions including their broader implications necessitates from journalists not only a good understanding of the science but also the political, cultural and social-economic dynamics concerning human diets. Both Reports also address topics not always easily accessible to the public. The aim of the journalist to provide the "consumer/reader" with information that can be easily digested is therefore sometimes a difficult task. This is nothing new. The "meat" of many public issues is complex and rooted in larger societal values and norms. And science involves a measure of uncertainty and risk that is not always easily translatable to a brief editorial or news report. Like all contested issues there are also interested parties which have a valuable stake in what and how the public are being informed. Therefore, investigating how journalists make sense of the role of meat in a sustainable and healthy diet, translating the issues into digestible frame packages to a public audience, may provide valuable information on broader stakeholder sense-making. For instance, how the media frames the "meat industry" – may also reflect and contribute to how consumers view meat and the meat industry. It can also help inform stakeholders such as the meat industry, of potential frames that may pose current or future legitimacy threats.

The significant influence of the media to reflect and potentially shape public discourse means that identification of frames and framing devices used in media reporting can shed light on the broader institutional forces that are driving sense-making or meaning creation across institutions and the public at large. The identification of the frames outlined in Tables 11 & 12 endeavours to gain an appreciation of the "particular problem definitions, causal

interpretations, moral evaluations and/or treatment recommendations[87]" that arise in media representation of two high profile events which directly challenge the role of meat in a sustainable and healthy diet. The goal then is to consider the potential implications these Frames might have on the meat industry. This is aligned with the broader research project, to which this paper contributes, on how the meat sector makes sense of challenges to the legitimacy of meat as a central part of a sustainable and healthy diet.

Firstly, the framing analysis in this paper would suggest that the role of meat in a healthy and sustainable diet is being re-negotiated by powerful and persuasive parts of society. But not only is the role of meat in the human diet being challenged, but the meat industry itself. Together, both challenges represent a legitimacy threat to the meat industry. Broad social acceptance of the important benefits of meat consumption is being tested through multiple negative pressure points, including compelling evidence of serious health and environmental consequences, as well as more cognitive-based challenges based around the need for moderation.

The negative framing of the meat industry as an angry, self-interested bully is potentially highly damaging. But is this really a serious problem? Amongst the press headlines the occasional "so what?" heading also surfaces: *"Food industry greets cancer links with a shrug – it's been here before[88]"*. Indeed, total global meat consumption is increasing. And, in the case of the Advisory Report, the final 2015-2020 Dietary Guidelines for Americans (January 2016) dropped the contentious recommendations from the Advisory Report on sustainability and the emphasis on a plant-based diet and restored the status of lean meat to its previous position in the main text. In this regard, the meat industry could argue that its interests were protected, and that legitimacy is not under any genuine threat. The position in this paper, as mentioned above, is however, that the legitimacy threat is not only real but serious and evolving. It is argued that maintaining legitimacy is a process - it is rarely completely lost due to one event and often involves erosion of social acceptance over time due to multiple events which are cumulatively damaging. However, repairing legitimacy is likewise a slow, resource-intensive process involving a combination of legitimation activities to restore trust and ultimately social acceptance of the legitimate aims of the institution. Both high-profile events studied in this research represent only two of many challenges that the meat industry is confronted with.

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[87] To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described. (Entman, 1993, p.52)

[88] The Guardian (26 October 2015) "Food industry greets cancer links with a shrug – it's been here before".

Animal welfare, food chain transparency issues (e.g. European horsemeat scandal), deforestation, climate change, Mad Cow disease, Swine-flu are threats that also could have equally been chosen as examples of high-profile cases of serious public concern surrounding meat consumption.

The amount of resources now being engaged in investigating and evaluating the impacts of meat production and consumption is also growing. In the near future, it is expected that there will be numerous new studies, policy and programmes which will be highly likely to also recommend moderation of meat consumption. And many of these recommendations will be based on robust scientific research. At the same time, there will be significant growing constraints on the natural resource base to which meat production systems are fundamentally reliant on. Consumer preferences themselves are also rapidly changing with meat consumption likely to become more dynamic amongst the millennial generation. Therefore, the two case studies in this paper do not represent one-off events or random legitimacy threats, they represent an increasing pattern of pressure to address meat overconsumption.

Stakeholders will be increasingly presented with opportunities to reinforce, modify, and/or renegotiate the cognitive, moral and pragmatic claims underlying meat-eating and which form the set of constitutive consumer beliefs that support future meat consumption. The frames used in public debate are also important because they represent a contest of strategic legitimacy. Frames such as *Angry and Combatant Industry, It's about Health and Environment, Moderating Meat, and Integrity of Science* represent strategic resources able to be used, often competitively, by individuals or groups, including journalists, to achieve certain predetermined outcomes (see Reece, in D'Angelo et al, 2010). And they can also be used to mobilise and motivate stakeholders (Snow & Benford, 1998), including meat-eating consumers. Therefore, what do the frames and framing devices tell us at this point of time? Four key points emerge and are discussed in the following sections.

4.5.1   Implication One

Meat remains as a culturally important component of the human diet yet the strong cognitive basis underlying the support for meat eating is being renegotiated.

The cultural importance of meat emerged as a key frame. This was especially strong in the response to the IARC Evaluation and labelled as the Role of Meat in Society Frame. This is somewhat different as seen in many other science-related debates in which the focus has been centred more on new technologies and their acceptance rather than the direct questioning of

an established and well-supported cultural and social artefact such as meat. This Frame therefore is interesting in that it exemplifies and sometimes supports myths around the importance of meat in many diets. At the same time, the Moderating Meat Frame demonstrates an emerging awareness and implicit acceptance that current *and future* meat consumption rates may indeed be unsustainable on several levels.

Institutional legitimacy relies on three supporting pillars of legitimacy which represent the pragmatic, normative and cognitive bases that together help the meat industry remain as a socially, culturally, and politically acceptable provider of nutrition (Suchman 1995). The Frames identified in this research would suggest that these support pillars are being actively re-examined, specifically at normative and cognitive levels. For example, the Role of Meat in Society Frame and Moderating Meat Frame demonstrate changing attitudes to meat and evaluation of the ongoing relevance and importance of meat as a central part of the human diet. Media reporting on the IARC Report drew on different cultural accounts and emphasised the sense of the importance of meat in many communities. Yet, considerable reporting also drew on the need for moderation. This arose in words, metaphors, catchphrases for moderation and emphasized, "less", "reduce", "balance" or statistics which depicted excessive meat consumption in populations and poor health. It also appears in many concluding paragraphs which drew attention to a pithy closing remark or catchphrase around the need for moderation (e.g. *"Less is more."*) and a sensible attitude to meat-eating (e.g. *"Too much of something is always bad for the health."*).

 Even in articles highlighting strong cultural accounts of meat-eating behaviour, extremes were also often presented in a hyperbolic form. The *"I would rather die than live without meat"*[89] headline, the highlighting of *"vegetarians as pariahs"* in countries that heavily consume meat[90] or the unconstrained love for bacon resulting in *"sizzling-bacon incense ($3.95) or "couples' T-shirts that read "Bacon saved our marriage""*[91] can also be viewed as subtle mocking of certain behaviours that are associated with overconsumption. Thus, while the Role of Meat in Society Frame exemplifies the cultural importance of meat, it is a Frame that is often juxtaposed against a Moderating Meat Frame and therefore highlights of elements of behaviour perhaps more closely associated with excessiveness and closed-

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[89] The Guardian (26 October 2015) Argentinians react to report linking meat to cancer: 'I'd rather die than give it up'
[90] Agence France Presse (30 October, 2015) La dure vie des végétariens en Uruguay, paradis de la viande
[91] Washington Post (27 October 2015) A cure that ails you? Bacon fans don't mind.

mindedness. The sometimes-bipolar element of the Role of Meat in Society Frame was highlighted by the view of one father, who was quoted as being not ready to change his own meat consumption over health concerns, as "meat was part of his culture", but concerned enough to add: "I have a three-year-old son. We've been giving him sausage, but I'll stop that."[92]. This indicates that there is potential for change across generations.

The Moderating Meat Frame was also prevalent in reporting across both events. Statistics were routinely drawn on that demonstrated meat overconsumption in specific countries and wider concern around growing global meat consumption. Trade-offs were also discussed, with the potential that some meats were better than others, or that health could be traded off for pleasure, both of which draw attention again to some loss or negative outcome associated with meat eating. The Its about Health and Environment Frame emphasized the negative impacts on environment and health, as well as the explicit negative linkages between health, environment and ethical outcomes from excessive meat consumption. This Frame often challenged meat consumption on grounds of moral legitimacy by attempting to depict meat production and consumption as deviating from accepted societal norms such as humane and/or clean production systems or environmental responsible behaviour.

The use of positive-based representations of the scientific process, research, and recommendations from both the Advisory Report, IARC Evaluation and wider studies, combined with the use of supportive independent expert sources, maintains or enhances higher degree of trust in Integrity of Science. Yet the Integrity of Science Frame in its positive dimension directly challenges the 'taken for granted" feature of meat as being a healthy and essential contribution to the human diet, and the very strong cognitive basis underlying support for meat-eating culture in many societies.

Perhaps the most visible way that we see the underlying institutional legitimacy of meat being challenged, however, is through the Creating Hyperbole Frame. The comparison of meat as a cancer-causing agent on the same level as tobacco, plutonium and weed killer for example, and the exaggeration and misrepresentation of risk was so flagrant that it exemplifies the point that something of cultural value is being seriously questioned. The immediate result, and thus its attraction for journalists, is to that hyperbole can bring immediate attention to the issue of the reader and its "shock" tactic can force one to

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[92] The Guardian (26 October 2015) Argentinians react to report linking meat to cancer: 'I'd rather die than give it up'

(re)consider other truth(s) that a hyperbolic statement might indicate. While it can be argued that hyperbole statements might also have the result of alienating readers, for example it may go beyond what the reader is able to accept as rational or consequential within that reader's worldview, its use still indicates that some important value is being confronted.

4.5.2 Implication Two

The meat industry and scientific community are portrayed as oppositional forces.

The meat industry and scientific community were largely portrayed as being on opposite sides of the debate, with the meat industry framed as a powerful and self-interested stakeholder at war against a scientific community armed with reports, research, recommendations and able to draw on many "independent" experts, and supporters drawn from environmental and health lobby groups. This oppositional positioning results in a polarisation of the debate.

Polarisation invites people to make choice or take sides in a debate. In this case, due to the positioning of science and industry on opposing sides in this conflict-driven story, readers are potentially being asked to choose between science and the meat industry. This might also result, even in a small way, in readers also being confronted with choice between meat and plant-based diets, meat and no meat, or red meat versus white meat. These moments of choice (even if no conscious change is taken) provide opportunities for re-evaluation of the role of meat in the diet. Thus, there are opportunities for both meat reductionists and/or industry to capitalise on this. However, the warning with polarisation and politicalising issues is that they can push consumers to rethink patterns and underlying cultural beliefs in new and unexpected ways.

The emergence of frames that politicised issues was a very strong feature of the reporting on the Advisory Report (e.g. Integrity of Science, Governance, Powerful and Combatant Industry, and Highlighting Conflict Frames). This politicisation is not so unexpected when we look at other contentious debates involving science such as GMOs, climate change, nuclear energy, immunisation or public health concerns (Nisbit, 2014; Jotterand, 2006; Bolsen, Druckman, Cook, 2014; Fowler & Gollust, 2015; Nisbet & Fahy, 2015; Suhay & Druckman, 2015). Politicisation of a common widely supported and consumed food item is however potentially damaging for all stakeholders. The risk may be that consumers disengage and that there is no substantive positive change towards improved health, environment and

nutritional outcomes. The perception that the meat industry is deliberately using power and influence to protect its own interests at the expense of community wellbeing may also be damaging to long-term trust in the meat industry, as well as to trust in its product.

The lack of any constructive outcome that underscores and reflects positive aspects of sustainable meat consumption also leaves an extremely contested, high-profile negative question-mark on meat exposed to multiple future challenges. Lastly, the industry was consistently framed as attacking science and nutritional science. If, however, the conclusion is that nutritional science is a biased and much weaker form of science, then the meat industry runs the risk of undermining its own science-based strategy that emphasises the importance of meat for nutritional health. Therefore, there is inherent fragility in seeking to question science and portray it as being weak, unreliable and biased and at the same time calling for robust sound science-based decision-making which supports meat as a valuable source of nutrition.

4.5.3   Implication Three

Risk is poorly explained and understood

The Explaining Risk Frame emerged strongly in the WHO case study. It was often poorly explained and led to hyperbolic headlines and misleading conclusions. The difficulty with explaining risk in this instance appears to be the result of multiple factors. Firstly, high risk behaviour likely to impact on public health in a serious way (e.g. cancer) is likely to generate high public interest. This is especially so when the behaviour in question is considered a normal, often daily, widely valued part of people's lives, such as eating meat. Fundamentally, it questions strongly held positive cognitive beliefs about meat and thus the temptation to sensationalise the risks involved is increased. This was evidenced in the way risk was communicated focusing mainly on relative risk statistics at population level, and with meats' comparison to well-known high-risk poisonous substances. In contrast, there was a lack of informative discussion on individual risk factors to cancer from meat consumption. For example, only 1 out of 124 articles referred to the potential need for cancer screening for individuals who had high meat intake and a family history of cancer.

Beyond this, however, is the fact that explaining risk, even with the additional explanatory information provided by IARC, appeared difficult and confusing. The way IARC communicated its findings contributed to the emphasis on risk, rather than hazard, the latter

being its main objective[93]. The purpose of the IARC classification is to indicate the weight of the evidence as to whether an agent can cause cancer (technically called "hazard"), but it does not measure the likelihood that cancer will occur (technically called "risk") because of exposure to the agent[94]. Yet, the main Press IARC Release did not make this point explicit. Further, IARC introduced the focus of "risk" near the top of the press release by referencing analysis of data from 10 studies, 'which estimates that every 50-gram portion of processed meat eaten daily increases the risk of colorectal cancer by about 18%.' The inclusion and prominence of this statistic resulted in it being quoted across news articles internationally. It also subtly changed the focus of the Evaluation from one about hazard identification to one about risk. Additional information about the absolute risk, such that relative risk could have immediately been translated in an accessible way or broader context for journalists who were reporting on the issue, was also not provided.

In conclusion, for various reasons, many articles referenced the statistic above, inflated levels of absolute risk, misinterpreted risk and hazard identification, and portrayed meat as a highly risky substance, in some cases on par with tobacco, uranium, plutonium and weed-killers. Interpretation and poor explanation of risk has serious long-term negative impacts on all stakeholders because it inhibits well-informed decision-making. It is also a very difficult to respond to without looking defensive or attacking. The recommendations and work of highly respected scientific organisations help shape public discourse. Therefore, it would seem important that scientific organisations give very careful consideration as to how media, often with little or no scientific training, may interpret communicative material (e.g. Q & As, press release, Expert statements) provided by such organisations on complex scientific investigations or evaluations.

4.5.4   Implication Four

The meat industry is portrayed as angry, combatant, powerful and as big and industrial
Across both events the meat industry was framed consistently in media reports as powerful and combatant, attacking the science and scientists, as well as being a powerful lobbyer using

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[93] The IARC Evaluation is principally tasked with making a hazard assessment, classifying carcinogens in five categories ranging from carcinogenic to humans (Group 1) to probably not carcinogenic to humans (Group 4).
[94] IARC (2016) IARC Monographs Questions and Answers. At
http://monographs.iarc.fr/ENG/News/Q&A_ENG.pdf (20 November 2015)

its influence to override scientific recommendations. Does the meat sector wish to be consistently framed in this manner?

Firstly, there appears a distinctly negative connation with being framed as a powerful, faceless, combatant, attacking industry who undermines and politicises science. Historically, one can look at the tobacco industry as an example of where an industry used considerable power and a strategy of denial and attack to respond to rising concerns about its own products. Whilst eating meat should not be compared to smoking per se, there are potential lessons to be considered in the approaches by an industry under extreme pressure to reduce consumption of its products. Fooks et al (2013) contend that the tobaccos industry heavy reliance on techniques of neutralisation (questioning scientific evidence, raising concerns about unfair treatment compared to other legal products (why just us?), questioning credibility of processes and policy-makers) led to a decline in political authority. Also, subsequent analysis of tobacco industry response demonstrated very strong internal views, that "the industry was 'at fault' for allowing the 'current negative climate to be established', having permitted negative information to 'frame the debate' because of a lack of 'proactivity' (Fooks et al, 2013, p. 288). The perception that one is undermining independent science-based processes, reports and scientists/experts may also lead to a situation where one's own efforts across science-based industry-funded research projects are in-turn undermined, rendering them with little legitimacy in future debates. This may also rebound on to scientists who have been in some way funded by the meat sector who may be suddenly viewed as non-objective, "captured" or "sympathetic" to industry.

4.6   Conclusion

In conclusion, six dominant frames were identified in media reporting on the Advisory Report: *Highlighting Conflict, Integrity of Science, Powerful and Combatant Industry, Governance, Moderating Meat* and the *It's about Health and the Environment Frame*. Eight dominant frames emerged in media reporting on the IARC Report and included: *Highlighting Conflict, Integrity of Science, Powerful and Combatant Industry, Moderating Meat, It's about Health and the Environment, Role of Meat in Society, Creating Hyperbole* and *Risk* Frames.

Analysis across the identified Frames shows a negative narrative predominating in relation to how the meat industry was depicted. The Highlighting Conflict Frame for example, was present across both events and focused readers on an assumed battle between the meat

industry and the scientific community. The meat industry was framed predominantly as "aggressive", "powerful", "undermining science", or as an industry "under threat". In combination, certain frames accentuated the politicization of nutritional science. "Nutritional science" was often represented as confusing, constantly changing, weak and open to being manipulated and captured by interests. Similarly, the negative aspects of meat production and consumption were often emphasised with minimal focus on any benefits. Together, the 9 frames utilised across both case studies yields interesting insight into what social and cultural constructs media is drawing on to make issues, related to the future role of meat in a sustainable, healthy and ethical diet, newsworthy and salient to its audience.

Ultimately, some change in practice is desirable if the frame analysis is to have some impact or usefulness. The industry therefore needs to urgently consider how it wants to be framed in future discussions regarding the role of meat in a healthy and sustainable diet. It then needs to carefully plan how to achieve this through a well thought out strategy that emphasises how meat consumption can, and will be sustainable in the future, along with active demonstration of its many positive attributes. Developing an understanding and authentic response around meat moderation to support and achieve sustainable consumption goals is critical. This will likely require a radical new style of engagement with stakeholders and changes in organisational practice across the sector.

Lastly, discussions centred on sustainable meat consumption may provide a useful perspective on public discourse on issues of overconsumption more generally. Neither of the two trigger events used as case studies in this research suggested that meat should not play some role as part of a sustainable and healthy diet. The findings of both Reports instead focused on the idea of moderating meat consumption. The observation of early attempts by supporters of meat reduction, to create, institutionalize and imbed meat reductionist behaviors and acceptance in society through media and the public debate that ensues, may therefore offer insight into the type of discussions society may have in the future as it wrestles with how to respond to the considerable negative impacts of overconsumption more generally.

PART B: DOWNSTREAM SIGNALS

"Meat consumption is one of today's great climatic challenges, so it is important for us to be able to offer a really good and climate-friendly alternative. We know that it would be good for both the environment and health if people ate less red meat. So, we are taking the next step and quintupling the amount of vegetarian food we offer."

Richard Bergdorf, CEO Max Burgers, February 2016

4.7   Introduction

This section presents the results that emerged in the survey of actions by hamburger restaurants related to market demands associated with sustainable meat consumption. The aim of the research was to identify whether meat-centric restaurants, that is hamburger restaurants, were responding to demands associated with sustainable meat consumption and if so, how they were responding, including any specific actions being implemented by such entities. The research is complemented by an in-depth interview with a leader in sustainability.

4.8   Actions by Fast-Food Burger Restaurants

A review of specific actions undertaken by 15 burger restaurants associated with sustainable meat attributes was undertaken. It is emphasised that no judgement was made as to the quality of the action or whether it met its intended aim or purpose. Based on the data collected, it was decided to identified actions within a framework that helped to illustrate the different approaches as shown in Figure 20. The actions are presented in Table 15.

Figure 20. Framework to describe example actions taken by Fast-Food restaurants associated with meat products
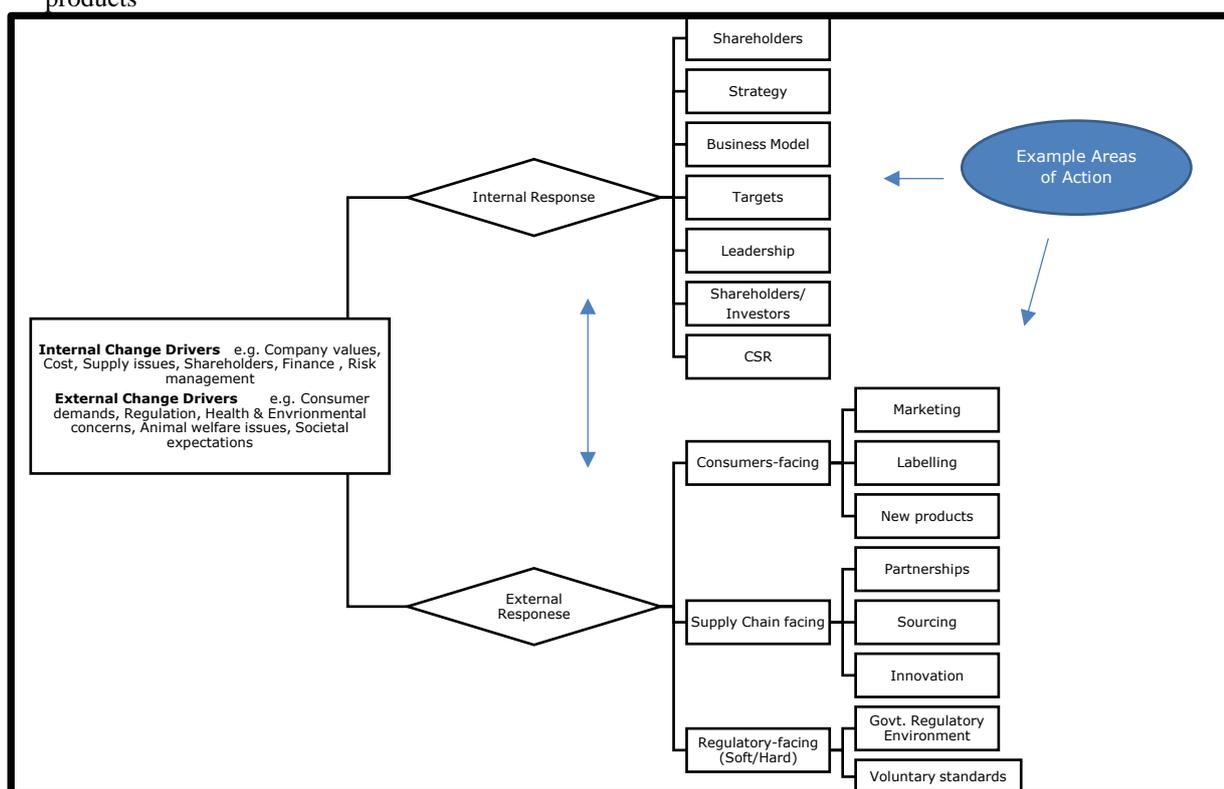
Figure 20 shows that various change drivers are prompting actions by fast-food retailers targeted at improved meat sustainability. These drivers are described as either external (e.g. consumer demand) or internal (e.g. cost demands, internal company values). These drivers of change are then broadly differentiated based on whether they provoke primarily an external response (e.g. marketing of free-range meat burgers, climate-labelling), or internal response (e.g. change in business model, shift in company values) from the company. Internal responses might include change in company values incorporating a stronger ethical belief in 'doing good' for society and the environment, deciding to offset carbon emissions, or shareholder proposals to change internal business rules. External responses depend on the main stakeholder/s that the response is principally aimed at. In this paper, they are divided into actions that are consumer-facing (climate labelling, marketing), supply-chain facing (farmer partnerships, sustainable supply change management), or regulatory-facing (e.g. soft and hard forms of standard-setting, lobbying)[95]. It is noted that in the 'real world' both external and internal responses are inter-related and do not exist in isolation from each other.

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[95] Regulators are defined broadly to not only include government regulation and standard setting but to encapsulate stakeholders which can exert considerable pressure for regulating action in some way both. This may result in both voluntary standard setting, as well as traditional forms of government regulation.

4.8.1   Externally-focused actions

The majority of externally-focused efforts focus on sustainability aspects concerned with production of meat, that is, improving or highlighting quality aspects associated with how the meat has been produced. In this respect, some fast-food retailers, and new entrants in particular, are utilising strong marketing campaigns which clearly differentiate their customer offer in part based around sustainability values of certain meats, or of their non-meat alternatives. This may be through a focus on a clear customer offer around organic, free-range, grass-fed, non-antibiotic, non-GMO meats (Elevation Burger, Bareburger). And is evident in specific language that emphasises these traits:

> *"Our chicken is the real deal - we never use fillers and it must be ethically raised. That's why we serve only 100% free range natural chicken breast, for ultimate flavour - and say no to processing, hormones, additives, antibiotics and GMO's"*
>
> Burgerfuel New Zealand[96]

There is also increasing differentiation of meat between grass-fed beef animals over grain-fed beef animals. The drivers for selecting grass-fed meat over intensive corn-fed animal production systems appear to be taste, health, ethical and sustainability concerns, as well as point of marketing differentiation:

> *"Grain-fed cattle eat a diet consisting primarily of corn. This results in beef that is higher in calories and saturated fat. Beef from grass-fed cattle contains fewer calories, has higher levels of healthy Omega 3s and tastes much better than conventionally raised beef."*
>
> Elevation Burger[97]

Large-scale globally established fast-food retailers are also increasingly attracted to such attributes, as they become increasingly important to consumers. However, there can be difficulty in obtaining enough supply of these type of meat when demands are sizable. Therefore, even with the best intentions, if there is not enough supply to meet demand, retailers are sometimes forced to decide to compromise on values. For example, several fast-food retailers sought supply from abroad despite the presence of stated intentions to support locally-made products, or they indicated the use of phase-in timetables to allow future supply to meet demand. In May 2014, Chipotle CEO Steve Ells announced that the restaurant chain would start sourcing grass-fed beef from Australia because they were unable to meet their

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[96] Burgerfuel. At https://www.burgerfuel.com/nz/our-food/burgers/gourmet-chicken
[97] Elevation Burger. At http://elevationburger.com/philosophy/

supply needs for "Responsibly Raised" beef from producers in the United States[98]. In March 2015, McDonalds USA announced their decision to source chicken raised 'without antibiotics that are important to human medicine'[99]. To ensure adequate supply, a 2-year phase-in period was set, although this was achieved by August 2016[100]. McDonalds often uses phase-out periods to achieve its meat-related goals and targets and these often differ between countries or regions depending on supply constraints or customer demand. For example, in Canada, McDonalds has committed to source chicken that is raised without antibiotics important to human medicine by the end of 2018, and in Europe, 'the policy is to ban the use of the "highest priority critically important" antibiotics for human medicine (as designated by WHO) in our chicken supply chain by 2018'[101].

Fast-food retailers who present themselves as being sustainable and committed to delivering on external product quality attributes are judged harshly if they are seen to be falling short of commitments. Again, Chipotle who is regarded as one of the leading sustainability-focused fast-food retailers in the US came under heavy criticism after it was announced in April 2015 that it was "the first national restaurant company to use only non-GMO ingredients"[102]. Chipotle was however, unable to guarantee that their meat, dairy or soda drinks products had been produced without the use of GMO crops[103]. This was viewed by some as "marketing hype", "hypocritical", and "insincere" given that corn syrup for soda drinks is predominantly from GMO crops in the US, with the same case for animal feeds used in many US meat production systems[104]. Concerns over antibiotic use in animal production systems has also garnered significant attention. A coalition of civil society organisations now annually rates the top 25 US fast-food and fast casual restaurant chains on their progress in eliminating the

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[98] Ells, Steve (28 May 2014) Conventional vs. Grass-fed Beef. At http://www.huffingtonpost.com/steve-ells/conventional-vs-grassfed-_b_5405894.html (2 January 2017)

[99] *McDonalds* (4 March 2015) McDonald's USA Announces New Antibiotics Policy and Menu Sourcing Initiatives http://news.mcdonalds.com/US/news-stories/McDonald-s-USA-Announces-New-Antibiotics-Policy-an

[100] *McDonalds* (2016) McDonald's USA Announces Big Changes to its Food. At http://news.mcdonalds.com/US/news-stories/2016/McDonald-s-USA-Announces-Big-Changes-to-its-Food

[101] *McDonalds.* At http://corporate.mcdonalds.com/content/mcd/sustainability/sourcing/animal-health-and-welfare/issues-we-re-focusing-on/vision-for-antimicrobial-stewardship-for-food-animals.html

[102] *New York Times* (26 April 2015) Chipotle-to-stop-serving-genetically-altered-food. At https://www.nytimes.com/2015/04/27/business/chipotle-to-stop-serving-genetically-altered-food.html?_r=0

[103] See *NPR* (30 April 2015) Why We Can't Take Chipotle's GMO Announcement All That Seriously. At http://www.npr.org/sections/thesalt/2015/04/30/403249551/why-we-cant-take-chipotles-gmo-announcement-all-that-seriously

[104] Ibid.

routine use of antibiotics in meat. The second report (September 2016) received wide public attention, with only two fast-food restaurants gaining an A-rating[105].

Efforts at changing consumer behaviour focus heavily on providing more information to consumers to enable informed choice. Examples of such activities include carbon footprint labelling on burgers (Max Burgers) and marketing of different meat options, for example the benefits of organic or grass-fed meat to consumer's health, animal welfare and taste (Bareburger, Elevation Burger).

> *"Animals who are raised commercially are bred to stand and eat grain their whole lives. That means no exercise, and no vegetables, which means a much higher fat-percentage. Organic, grass-fed meats are tougher and leaner because there is less fat marbling and more muscle. As a consumer of grass-fed, pasture-raised meats, you are putting less fat, more minerals & nutrients and zero unnatural substances into your bodies. Happier animals, happier people."*

> *Bareburger, 2017[106]*

Bareburger also promotes the benefits of speciality meats such as elk, wild boar and bison, all free-range and with nutritional and taste benefits compared to conventional meat:

> *In regards to nutrition, bison, elk and wild boar are leaner than beef and contain more protein and minerals. Bison is more red in color because a lack of fat marbling. Elk contains a great source of iron, phosphorous and zinc. Both bison and elk taste a little sweeter than beef, elk being a bit more mild. Wild boar has a unique flavor profile-- sort of nutty and rich.*

> *Bareburger Website, 2017[107]*

Buying 'local meat', where possible, appears highly relevant to company purchase choices. Most companies highlighted their relationships with meat producers at some level. New entrants in particular, (Bareburger, ShakeShack, Elevation Burger, Chipotle) emphasized their relationships with 'family-owned or run' meat producers, or processors (e.g. speciality 'family-owned' butchers). This often meant also listing the name of family-farms or supply groups, providing links to the websites of producers or suppliers, and even presenting videos of farming operations.

> *"Organically raised beef is better for you than conventionally raised beef. That's why we partner with <u>family-owned farms</u> that raise free-range, grass-fed cattle without the use of antibiotics, on land kept free of pesticides and chemicals."*

> *Elevation Burger*

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[105] CHAIN REACTION II: How Top Restaurants Rate on Reducing Use of Antibiotics in Their Meat Supply (September 2016). At https://consumermediallc.files.wordpress.com/2016/09/chainreaction2-report-2016-final.pdf

[106] Bareburger Website (2017). At https://bareburger.com/eats/.

[107] Ibid.

> *"The SmokeShack® is topped with 100% gluten-free, MSG-free, nitrite-free bacon, made using old world charcuterie techniques by Niman Ranch's <u>independent family farmers</u>, who raise livestock humanely and sustainably."*
>
> <div align="right">*ShakeShack*</div>

Max Burgers also highlights its sourcing policy in Sweden of using 100% Swedish meat, labelled with the Swedish origin-label[108] and therefore produced, processed and packaged in Sweden with animal management practices adhering to strict Swedish animal welfare laws and practices. They also claim that Swedish beef is 2.5 times lower in GHG emissions compared to the global average[109]. Animal welfare actions include the development of company-wide policies (e.g. the ShakeShack US Animal Welfare Policy) to stating adherence to national animal welfare guidelines and regulations (e.g. Max Burgers). There is also an emphasises on a 'farms, not factories' approach from many retailers:

> *"We source from farms rather than factories". There are minimum space requirements for the animals producing the meat and dairy products that end up in our restaurants. We work with our suppliers to ensure the highest possible animal welfare standards, and are always setting the bar higher. If, due to supply shortages, we have to serve conventionally raised meat, we clearly post signs in the affected restaurants."*
>
> <div align="right">*Chipotle Website*</div>

Chipotle is an example of a company that heavily brands itself around it partnerships with pork producers and high animal welfare expectations. In 2015, it proved that it was willing to stop working with suppliers when they fall short of expectations on animal welfare. As a result of the suspension of a pork supplier over violation of Chipotle's core animal welfare standards, one-third of Chipotle restaurants were unable to serve carnitas due to a pork shortage for some 10 months, causing a large financial impact for the business[110]:

> *"Unfortunately, finding a new supply to replace the pork from the suspended supplier was not easy. There are very few farmers who raise animals in a way that meets our requirements— this is especially true when it comes to pigs. In the United States, around 95% of pigs are raised "conventionally." Raising pigs in this conventional system can be particularly brutal for the animals. They are raised indoors, in densely crowded conditions with little or no bedding. Most live on slatted metal floors that allow their waste to collect beneath them in liquefied pools. Mother pigs are often kept for months at a time in metal crates so tiny that they cannot turn around. When faced with a choice between serving conventional pork in some of our restaurants or nothing at all, we chose to not serve carnitas at all."*
>
> <div align="right">*Chipotle, 2015[111]*</div>

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108 More information on Swedish origin label and conditions at https://fransverige.se/market-fran-sverige-smal/market-kott-fran-sverige/

109 See http://www.max.se/sv/Maten/var-mat/

110 At https://chipotle.com/pork-details. See also Fortune Magazine (27 October 2015)   At http://fortune.com/2015/10/27/chipotle-pork/

111 At https://chipotle.com/pork-details

Partnerships or relationships with meat producers and/or buyers is often referenced as part of the sustainability programme or directly, as a shared value of the company:

> *LAND STEWARDSHIP*
> *We work with ranch and farm partners who view land conservation as second nature. After all, their livelihoods depend on fertile soil and clean water and air to grow and raise the foods you love.*
>
> *Burgerville, 2017[112]*
>
> *We want humanely raised beef coming from people who are doing the right thing for their farms, their land and their animals. The farmers feel great about where their beef is going when we let them know how passionate we are about having the best product.*
>
> *Shakeshack, 2015[113]*

Fast-food retailers may also act to transform the business model away from a reliance on meat as the key menu item. This may involve a shift towards more vegetarian options, less meat items on the menu and/or less prominence of meat on the menu. This may be implemented for a range of reasons, most notably to meet consumer demand, better realise internal company values, or as a diversification and risk management strategy. Max Burgers, for example, set an initial goal when launching the Green Family in January 2016 that by 2020, every fifth burger order, should be non-red meat. Due to the success of the Green family launch that target has been raised to every third meal being white, blue or green flesh by 2020. (Max Burgers, 2016). The growth of vegetarian burger options in traditional burger restaurants over the last five years is also notable. All new entrants in the study had vegetarian burger options, including vegan.

Innovative new options may be introduced to test, extend and/or capitalise on consumer demand for plant-based foods. One example is the vegetarian burger that "looks, tastes, and bleeds like real meat", marketed as the Impossible Burger[114]. Bareburger now offers the Impossible Burger on the menu at its flagship restaurant in New York[115] and soon across its other US locations. Other innovations include leaner meat cuts with less saturated fat content and less salt.

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[112] Burgerville Website (2017). At http://www.burgerville.com/about/
[113] Greenbiz (2015) Shake Shack's supply chain guru on sourcing better burgers. At https://www.greenbiz.com/article/shake-shacks-supply-chain-guru-sourcing-better-burgers
[114] CBS (9 August 2016) Veggie burgers that look, taste, and bleed like real meat. At http://www.cbsnews.com/news/food-trend-veggie-burgers-that-look-bleed-taste-like-real-meat/
[115]

Table 15. Examples of Actions taken by Fast-Food Hamburger Restaurants

Response	Areas of actions	Examples of Actions
External	Consumer-facing	• Climate labelling of burgers, offsetting • Non-hormone, non-GMO, non-antibiotic use meat • Promotion of other extrinsic meat attributes: grass-fed beef, fresh, fresh never frozen, 100% natural meat, organic, locally-sourced meat • Increased range of non-meat burgers (vegetarian, vegan burger) • Promotion of meat-alternative burgers • Choice architecture through positioning and/or different promotion of non-meat hamburger menu options to customers • Promotion of speciality meats as sustainable and healthy (Elk, wild boar)
	Supply-chain facing	• Long-term partnerships with selected farmers • Supply chain management programmes • Developing supplier agreements/standards with partners • Organic meat certification • Animal welfare certification • Soil and land management programmes/policies • Grass-fed versus grain-fed sourcing programmes • Phase-out schemes for antibiotic use • Supplier improvement grants/loans
	Regulatory-facing	• Lobbying government (e.g. development of nutritional labelling, national dietary guidelines) • Working with NGOs/Civil Society • Co-opting independent experts/NGO representatives on Boards or as expert advisors • Developing supplier agreements/standards/voluntary guidance within multi-stakeholder groups (e.g. GRSB)
Internal	Values	• Setting and embedding core values in company around sustainable meat production and consumption • Offsetting emissions • Global policy-setting
	Business-model	• Sustainable meat production and consumption features as key part of the core business-model of company, as well as support for non-meat alternatives
	Targets	• Targets set to increase vegetarian burger consumption • Targets set to increase organic/non-GMO, non-antibiotic meat
	Innovation	• Development of new meat-alternative products • Introduction of speciality meats, e.g. bison, elk, wild boar. • Leaner, Lower fat, lower salt meat-burger options
	Leadership	• CEO support for action is well known internally and provides clear vision for action • Leaders within company talk about actions, progress, support • Strong sustainability leader accessible and active
	Shareholder/investors	• Shareholders/investors involved in driving progress on sustainable meat consumption and production e.g. shareholder proposals • Green investment portfolios/funds • Advocacy for sustainable meat production and consumption
	CSR	• Transparent reporting on sustainability action regarding meat actions • CSR goals, actions, values are published on website in clear manner • Independent verification of claims provided • Sustainable meat practices across the value chain considered as a key sustainability issue for the business

4.8.2   Internally-focused actions

Investments in sustainability initiatives across meat supply chain operations to improve environmental performance from 'farm to fork' are also being taken by fast-food retailers. This may be related to a desire to invest in the creation of long-term relationships with suppliers, to secure and safeguard quality supply. In this manner, there are examples of restaurants reaching out to pilot, develop, and support improved environmental performance across the supply chain. McDonalds completed a pilot project in mid-2016 that involved working with over 183 suppliers (farmers, processors) to implement the Global Roundtable for Sustainable Beef (GRSB) Principles and Criteria for sustainable beef. This was part of a global commitment by McDonald's to begin sourcing a portion of beef from verified sustainable sources by 2016[116]. The project is noteworthy in its scope and power to create change in a meaningful way across the supply chain and in its aim for creating a verified product[117]. McDonalds France is also implementing an agroecological strategy for the beef supply chain, as part of a wider European effort, developing best practice amongst beef producers to improve environmental and animal welfare performance (McDonalds France, 2015, p. 14). This involves working closely with farmers to improve on-farm practice. The Global Roundtable for Sustainable Beef (and it national-level bodies) represents increasing interest by larger companies involved in the beef meat industry to develop multi-stakeholder approaches to enhancing sustainable meat production.

There is a range of examples of actions that are being implemented internally within companies, directly related to sustainable meat consumption and production. Max Burgers is an example of how a company has embedded sustainability across its operations and taken on an explicit goal to tackle sustainability issues associated with meat. It has also chosen to offset emissions as a policy to be climate-neutral. McDonalds has a clear, well-resourced and publicised global sustainability programme and has been increasingly trying to compete on many of the external sustainability and quality product attributes that newer entrants are branding themselves on. For example, McDonalds USA recently announced it would move to serving fresh beef, prepared when ordered, in all Quarter Pounder burgers across the majority

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[116] See http://corporate.mcdonalds.com/mcd/sustainability/signature_programs/beef-sustainability/sustainable-beef-starts-at-the-farm.html
[117] McDonalds Sustainability webpage (2017). At http://corporate.mcdonalds.com/content/mcd/sustainability/sourcing.html. Accessed 10 January 2017.

of its US restaurants by mid-2018[118]. McDonalds also launched in addition to a number of existing projects, two new sustainable beef pilot programs in early 2017. One will attempt to measure beef sustainability through the entire supply chain, in a research initiative conducted by the Noble Foundation. The other is a $4.5 million matching grant program run by a group of researchers to test grazing practices that can lead to a negative carbon impact[119].

Internal responses are also now being driven by investors and shareholders. Several initiatives by investors have started to call for more focus on meat-related sustainability actions. Some investment funds have no-investment rules based on aspects such as animal welfare concerns. For example, UK-based investment fund EdenTree offers an ethical investment fund that excludes intensive farming companies and supports external benchmarking assessments such as the Business Benchmark on Farm Animal Welfare (BBFAW) which assesses companies, including fast-food restaurants on their animal welfare policies[120]. There have been several shareholder proposals concerning sustainability practice in general, animal welfare as well as on the use of antibiotics. For example, some investors have made shareholder proposals requesting quick phase-out programmes of harmful antibiotic use in meat production systems across several fast-food brands, including Yum Brands (KFC), Wendy's, BurgerKing[121] and McDonalds[122]. A shareholder proposal was made to the 2016 Annual General Meeting of Chipotle calling for Chipotle to publish an annual Sustainability report (Chipotle Annual Report, 2016, p. 32), along with another shareholder proposal to link executive compensation to sustainability performance (p. 35). Some civil society groups are also investing in shares in companies to have potentially greater opportunities to demand change. For example, People for the Ethical Treatment of Animals (PETA), a well-known animal welfare NGO, has bought shares in McDonalds as well as BurgerKing to be able to attend annual meetings and propose shareholder resolutions with the aim to bring change to animal welfare practices[123]

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[118] McDonalds Corporation (30 March 2017) McDonald's USA Unveils Next Big Change: Fresh Beef Quarter Pounders - Latest Step in Building a Better McDonald's Will Bring Fresh Beef, Made-to-Order Quarter Pounder burgers by mid-2018. At http://news.mcdonalds.com/press-releases/mcdonald-s-usa-unveils-next-big-change-fresh-beef-quarter-pounders-nyse-mcd-1302937

[119] McDonalds Corporation (27 February 2017) McDonald's Is Exploring a New Menu Item: Sustainable Beef.

[120] See https://www.edentreeim.com/insight-news/insight-news-list/news-detail/2016/02/08/why-farm-animal-welfare-should-matter-to-investors

[121] Fortune (9 August 2016) Shareholders Want Yum Brands to Stop Routine Antibiotic Use in Its Meat. At http://fortune.com/2016/08/09/yum-brands-shareholders-antibiotics/

[122] 2016 Proxy Memo McDonalds. At http://www.iccr.org/sites/default/files/resources_attachments/mcdonalds_proxy_memo_2016.pdf

[123] See http://www.peta.org/blog/peta-gal-walks-mcdonald-s-meeting/

4.9   Comparison of key actions across 7 burger restaurants

Various efforts amongst fast-food burger retailers have been made to address health, environment, and ethical concerns of meat and to capitalise on new opportunities associated with alternatives to meat, and the rise of flexitarian consumers. Table 17 demonstrates a variety of actions based around meat that emphasise sustainability attributes across all companies, regardless of size or restaurant category.

4.9.1   Business model

Elevation Burger and Bareburger provide examples of new entrant hamburger restaurants that heavily incorporate external meat product quality attributes as a key part of the business model, offering meat that is organic, free-ranging, non-GMO, antibiotic and hormone free and specifically uses and markets meat products from cattle that are grass-fed.

4.9.2   Vegetarian burgers

Regarding alternatives to non-meat burgers, Max Burgers showed a clear focus on this aspect, with its "Green Family range", featuring 5 vegetarian burgers inclusive of 1 vegan burger and a children's burger. This appears quite notable for a quick-serve hamburger restaurant. McDonalds in comparison does not present any vegetarian burger options at all on its US standard menu. At least one vegetarian hamburger option was included as a menu choice across all other restaurants examined in the sample.

4.9.3   "Natural and fresh" burgers

Antibiotic-free, hormone-free, GMO-free along with "fresh, never frozen" meat could be regarded as emerging basic standards for leading sustainability-focused restaurants. Smaller-size emerging companies may be at an advantage in this respect with greater flexibility to source adequate supply. McDonalds, for example often needs long phase-out periods to ensure demand can be fulfilled. It is noted that McDonalds USA recently announced it would move to serving fresh beef, prepared when ordered, in all Quarter Pounder burgers across the majority of its US restaurants by mid-2018[124].

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[124] McDonalds Corporation (30 March 2017) McDonald's USA Unveils Next Big Change: Fresh Beef Quarter Pounders - Latest Step in Building a Better McDonald's Will Bring Fresh Beef, Made-to-Order Quarter Pounder burgers by mid-2018. At http://news.mcdonalds.com/press-releases/mcdonald-s-usa-unveils-next-big-change-fresh-beef-quarter-pounders-nyse-mcd-1302937

4.9.4 Market power

It is also clear that the substantial market power of McDonalds creates opportunities for large transformations across supply chains. For example, McDonalds is the largest purchaser of Irish beef by volume every year, 40,000 tonnes, which is then exported to other European markets, meaning that every year one in five hamburgers sold in McDonald's in Europe is of Irish origin[125]. McDonalds has committed substantial resource in addressing sustainability issues in the meat value chain through pilot projects across countries, farmer-partnerships, development of global policy and guidelines, as well as target-setting. As part of aspirational goals around sustainable beef, McDonalds has also been instrumental in developing international multi-stakeholder partnerships that focus on improving the environmental performance of beef products, the Global Roundtable on Sustainable Beef [126], which was the one example of an international multi-stakeholder approach.

4.9.5 Consistency and transparency

Of interest amongst the new generation burger restaurants, as well as Max Burgers, is their expansion into the Middle East which represented significant first overseas investment. For example, amongst Elevation Burgers' 22 oversees-based restaurants, 21 were in this region. Similarly, for Shakeshack, 61% of overseas-located restaurants were situated in the Middle East. This is raised only because it is obviously a region that is currently highly attractive for international expansion. According to a Ministry of Foreign Trade report, consumers in the United Arab Emirates ate 18 times more meat per capita than the global average in 2010[127]. By 2019, per capita meat consumption is expected to be amongst the top 10 countries of the world[128]. Harsh climate, limited water resources and poor soil, however, present serious challenges to domestic meat production and subsequently nearly 90 percent of food and feed needs are required to be imported into the Gulf States (UAE, Kuwait, Oman, Qatar) (GAIN, 2014, p. 2). Yet, across all of our sample companies, it was not clear where meat was sourced from, for use in its operations based in these countries. Nor was it obvious whether the same

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[125] McDonalds. Irish Beef. At
http://www.mcdonalds.ie/iehome/food/food_quality/about_our_food/our_beef.html. Accessed 20 April 2017.
[126] See Global Roundtable on Sustainable Beef. At http://www.grsbeef.org/ and
[127] The National (23 May 2010) UAE meat consumption above global average. At
http://www.thenational.ae/business/economy/uae-meat-consumption-above-global-average
[128] UAE 24/7 (25 February 2016) UAE per capita meat consumption to rise to 79kg. At
http://www.emirates247.com/business/economy-finance/uae-per-capita-meat-consumption-to-rise-to-79kg-2016-02-25-1.622319

corporate sustainability values apply to meat, as in the company's origin country. In comparing home websites with those of operations in the Middle East, it was observed that there were significant differences, or absence of, information around sustainability actions and values. Given the need for high meat imports, there is no ready domestic supply of grass-fed beef for example, it is of interest to see how companies approach such issues. In the UAE webpage version of Max Burgers (accessed 15 February 2017) for example, there is no sustainability information provided at all, and only one vegetable burger is presented on the menu some 12 months after the launch of the successful Green Family range in Sweden. The issue of consistency and application of company values across countries is an issue that could be better addressed to ensure improved transparency of company values.

With respect to animal welfare policies, all examples mentioned support for high animal welfare practices. Yet actual information on standards or verification of practices was sometimes impossible to obtain through the company website. In this sample, only 3 restaurants provided enough information that was publicly accessible to be able to verify at a superficial level, what the policy was and how it was implemented. It is noted, however, that the use of antibiotics in animal production systems was mentioned by all restaurants and there is clearly some demand for information on the company's position on the use of antibiotics. Some restaurants had clear no antibiotic-use policies and/or used certified organic meat (which requires no antibiotic use) and promoted this policy to consumers. However, it was often difficult to ascertain whether the policy applied to all meat products for some restaurants. McDonalds was an example of a company that still clearly sources meat from production systems using antibiotics, however, it provides extensive information on its policies and sets out its current work towards a global phasing out of the use of antibiotics critically important to human medicine in the McDonald supply chain[129].

4.9.6 Bigger meat portion sizes

It was difficult to determine the weight of the meat patty as this was not provided. However, comparing more traditional meat burgers (e.g. Big Mac, Max Burger) with their increasingly popular 'deluxe' counterparts now on the menu showed a huge increase in calories, fat and salt content. This was evident across the sample of 6 hamburger restaurants in Table 16. For example, comparing the deluxe BBQ Bacon Cheddar Burger with the Elevation Burger

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[129] See http://corporate.mcdonalds.com/content/mcd/sustainability/sourcing/animal-health-and-welfare/issues-we-re-focusing-on/vision-for-antimicrobial-stewardship-for-food-animals.html

demonstrates a virtual doubling of saturated fat content. The level of saturated fat in this burger is over the recommended daily intake (118%) of an average adult, as well as containing 47% of the recommended daily dietary intake of sodium. One should bear in mind that this does not include any side of fries or accompanying drinks. It is also noted that the traditional burgers are already much larger than burgers served in the 1960s, and sometimes already also high in saturated fat and calories. Young and Nestle (2007, p.244) point to 500% portion increase difference between burgers in 1955, where a McDonalds hamburger meat weighed around 45gm; to the largest portion in 2007, weighing 227g. The trend towards increasing portion size therefore sends a highly ambiguous signal around meat and commitment to sustainable meat consumption. This aspect would benefit from further examination.

Table 16: Comparison of Traditional and Deluxe Burgers Calorie, Fat, Sodium Content at 4 Fast-Food Burger Restaurants as of 2 January 2017.

Restaurant	Burger name	Total Calories	Total Fat (g) Saturated Fat (g)	RDI Fat 65g 20g	Sodium (mg) RDI: 2,400 mg
McDonalds (US)*	Big Mac	540	28g Sat Fat: 10g	43% 50%	950 (40%RDI)
McDonalds (US)	Bacon & Cheese Sirloin Third Pound Burger	810	40g Sat Fat: 17g	62% 85%	2030 (85%RDI)
Max Burgers***	Maxburgar	224	12g Sat Fat: Not given	18.4%	Not given
Max Burgers	Grand Deluxe Cheese 'n' Bacon	866	58.5 Sat Fat: Not given	90%	Not given
Red Robin Gourmet Burgers (US)	Keep it Simple	620	32g 11g	49% 55%	1040 (43%)
Red Robin Gourmet Burgers (US)	Bacon Cheeseburger	950	62g 18g	95% 90%	1370 (57%)
Elevation Burger (US)+	Elevation	510	26g Sat Fat: 12g	40% 60%	710 (30%)
Elevation Burger (US)	BBQ Bacon Cheddar Burger	766	46g Sat Fat: 23.6g	71% 118%	1135 (47%)
Bareburger (US)	County Fair	860	48g 17g	74% 85%	1170mg (49%)
Bareburger (US)	Burger Supreme (Bacon)	1190	63g (97% RDI) 17g (85% RDI)	97% 85%	2110mg (88%)

**Recommended Daily Intake (RDI) is based on 2013 FDA Guidance data using 2000 calorie diet at
http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064928.htm

Nutritional data from McDonalds accessed from https://www.mcdonalds.com/us/en-us/full-menu/burgers.html
Nutritional data from Max Burgers Sweden accessed from http://www.max.se/sv/Maten/Meny/
Nutritional data from BurgerKing accessed from https://www.bk.com/menu
Nutritional data from Elevation Burger accessed from http://elevationburger.com/wp-content/uploads/2016/01/Nutritional_Booklet-V10.pdf
Nutritional data from Bareburger accessed from http://dev-bareburger.com/?q=menus
Nutritional data from Red Robin Gourmet Burgers accessed from http://www.redrobin.com/nutrition-customizer.html

4.9.7   Carbon footprinting

Max Burgers was the only example that provided carbon footprint information on burgers to clearly show difference between GHG-intensity of products. They were also the only example which committed to offset GHG emissions. Of further interest is that Max Burgers were the only fast-food retailer that was setting targets around increasing the proportion of orders of green (vegetarian), white (chicken) and blue (fish) meat as a way to help reduce environmental impact.

Table 17. Comparison of Sustainability and Meat Actions Across Burger Fast-Food Retailers

	Chipotle	McDonalds	Red Robin Gourmet Burgers	Max Burgers	Elevation Burger	Shake Shack	BareBurger
Slogan	"Food with Integrity"	"I'm lovin' it"	"Better for Being Here"	-	"Above and Beyond Good™"	"We Stand For Something Good"	-
Base Country	USA	USA	USA	Sweden	USA	USA	USA
Year started	1993	1940	1969	1968	2005	2004	2009
Revenue (2015)	US$4.5 billion (2015)	US$25.4bn (2015)	US1.3billion (2015)	US$233 million	?	US$190.6 million	?
Employees	>45000	420,000	27,543	5400	?		
No. of Stores (total)	>2010	36,525	538	120		100	36
No. of stores outside base country	23	21000	2	20	22	41	4
Meat alternative burgers: These must be specifically advertised on main base-country website. Self-selected ingredients options (i.e. choose your own ingredients to make a vegetarian burger are not counted as they do not represent a specific campaign burger around non-meat alternatives)							
Vegetarian/ Vegan Burger Options	Both	No	1 vegetarian	3 vegetarian 1 vegan burger	1 vegetarian 1 vegan	1 vegetarian	2 vegan/vegetarian.
Meat-based actions: Information is sourced from the corporate company website. Where information is not clear, then actions are judged to be nil, with the presumption that clear described actions easily found on the website indicate specific focus action.							
Fresh, not frozen	Yes	No	Yes	Yes	Yes	Yes	Yes
Organic Meat	No	No	No	No	Yes (Beef)	No	Yes
Free-ranging animals	Yes	No. Commitment to only source cage-free eggs by 2025 in the US and Canada	No	No	Yes (Beef). No information on other animals	No for beef. Cage free chicken. Free-walking pig	Yes
Hormone frees	Yes.	No	Poultry	Yes	Yes (Beef)	Yes	Yes
GMO-free	Yes	No	Yes	Yes	Yes (Beef)	No	Yes
Antibiotic-free	Yes	No. No. of policies at country-level to work towards phasing out use of antibiotics important to human medicine. (Phased out in US)	Yes (Beef) No information for chicken/pork	Yes	Yes (Beef)	Yes	Yes
Grass-fed Beef	Yes	No.	No	No	Yes. Strong part of business model.	No	Yes. Strong part of business model.
Speciality meats	No	No	No	No	No	No	Yes. Elk, wild boar, bison
Animal-welfare	Commitment to sourcing from farmers and ranchers who follow animal welfare practices that far exceed industry standards. Corporate-level Animal Welfare Policy mentioned but not accessible.	We require our suppliers to comply with industry standards and regulations related to humane treatment of farm animals, and to participate in third-party audits to ensure their compliance. Comprehensive animal welfare policy developed for McDonalds.	We require our suppliers to comply with industry standards and regulations related to humane treatment of farm animals, and to participate in third-party audits to ensure their compliance. Corporate-level Animal Welfare Policy mentioned but not accessible.	Follow strict Swedish guidelines for comprehensive animal welfare. Link to Swedish policy is provided.	No information given	Publish a US animal welfare policy. Follows UK Farm Animal Welfare Council guidelines	Humanely-raised. No further information given.
Local Meat Sourcing	Yes No for some grass-fed beef	No	Yes	Yes	Yes	Yes	Yes
Farmer Partnerships	Yes	No. Pilot partnerships developed to source sustainable beef supply. Other projects to improve on-farm practices.	For poultry	No	Yes	Yes	Yes, meat farm suppliers are listed. Videos show farms.
Multi-stakeholder Partnerships	No	Global Roundtable on Sustainable Beef	No	No	No	No	No
Carbon footprint labelling/ offsetting	No	No	No	Yes	No	No	No
Targets for Consumption of Non-Meat Alternatives	No	No	No	Yes. Max has set targets to increase consumption of non-meat burgers	No	No	No

4.10 Max Burgers

Background to Max Burgers was provided in section 3.5.2. In the analysis of publicly available material obtained on Max Burgers sustainability transformation, a number of important characteristics were observed. Firstly, there was strong leadership and support for the transformation from the owners and senior managers of the company. Secondly, the organisation undertook an assessment of it sustainability footprint to understand it's impact. Thirdly, the transformation used a form of future-perfect-thinking to help back-cast actions from a future aspirational goal and considered training needs to support those actions. Fourthly, the company sets ambitious goals and targets.

4.10.1 "Part of the solution, not the problem"

Part of the driving force behind the sustainability focus was a desire by the owners of Max Burgers, for the company to be committed to addressing environmental problems, as "part of the solution, not the problem" and emerges as an aspect of self-realisation that has help to drive considerable change in business strategy[130]:

> *"From me and my family's perspective it has partly been about self-realisation. For us it felt quite important to not just be part of the climate problem, but also the solution. It was also an important part of achieving our vision to become the world's best fast food chain. Of course we, and not least our steering committee, also looked at it quite sternly from a business perspective, and finally came to the conclusion that in this specific case we could accept a somewhat longer payback time than normal."*
>
> *Richard Bergfors, President of Max Hamburger[131]*

4.10.2 Understanding the problem

One of the difficulties for any fast-food retailer is to decide what actions should be undertaken or prioritised over others. The diversity and complexity of sustainability issues can often create issues with defining strategy (Hahn, 2013). This is pertinent for concerns relating to the core product of a business (i.e. hamburgers for a fast-food hamburger restaurant). One of the first actions undertaken by Max Burgers was an assessment of their carbon footprint. In doing so, they discovered that beef production alone accounted for around 70 per cent of the firm's total emissions (Max Burgers, 2010). Interviews, around that

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[130] See Max Burgers Website. At http://www.maxburgers.com/Home/Sustainability/Sustainability/
[131] The Natural Step (2010) "A Natural Step Case Study: Max Hamburgers and The Natural Step"; p.6. At http://thenaturalstep.nl/wordpress/wp-content/uploads/2015/01/Max-TNS-CaseStudy-FINAL.pdf

time show that Max Burgers were well aware of the trade-offs inherent in tackling climate change:

> *"The easiest thing would be to take away the beef, then we would be automatically more sustainable but then we wouldn't have the customer either."*
>
> *Par Lashams, Chief Sustainability Officers, January 2010 – June 2015, Max Burgers [132]*

However, several actions were identified that were both feasible and considered advantageous to long-term business objectives as well as being consistent with a more radical sustainability agenda. This included implementing carbon labelling on burgers, as well a carbon offsetting scheme.

4.10.3 Back-casting

A retrospective element in strategy development was crucial in both setting targets, as well as solidifying company commitment. As a starting point for conceiving potential strategy, Max Burgers used a systems-type strategy, involving "back-casting" or envisioning a future where all the principles of sustainability are met, and then creating strategies that will then lead to fulfilment of that desired state (Holmberg & Robèrt, 2000, p.244). This was carried out with the help of an independent sustainability consultant, The Natural Step, with one of the main questions posed as being: "Is a sustainable hamburger chain possible?" ((The Natural Step, 2010, p.2). This is perhaps similar to the broad concept of future perfect thinking set out by Weick (1979) and touched upon by others (Mintzberg, 1978; Boland, 1984; Weick, 1995). It allows sensemaking to be extended beyond the present, helping to make decisions become more meaningful in a larger context as both the past and the present can be brought to bear on them (Weick, 1995, p.29). It also helps in a purely pragmatic sense in that it may be easier to make sense of events when they are placed in the past, even if the events themselves have not yet occurred (Boland, 1984; Weick, 1995). As part of the ongoing process, Max Burgers also identified skill gaps and training needs. Programmes were then implemented as core training modules within the company to help create a culture of sustainability (The Natural Step, 2010, p.3). The sustainability programme and in particular their carbon labelling and offsetting initiative has been described by Max Burgers as one of their most profitable initiatives and has unlocked significant business value to the company:

> *"Our sustainability related activities have turned out to be one of our most profitable initiatives ever. Actually, it has been more profitable than opening up a new restaurant is. And then I haven't even factored in the benefits of attracting and retaining talent, increased*

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[132] Interview with Naomi Powell for The Globe and Mail (Sep. 15, 2011) Burgers, fries, CO2 count share the menu at Max's. At http://www.theglobeandmail.com/report-on-business/international-business/burgers-fries-co2-count-share-the-menu-at-maxs/article617386/

employee pride and engagement, lowered energy costs and that we are part of changing the rules of the game for the whole fast food industry or the fact that it has become easier to build great relations with business leaders, authorities and politicians now."

<div align="right">

Richard Bergfors, President of Max Hamburger[133]

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4.10.4 Targets and goal setting

Targets and often ambitious goal setting is used throughout the organisation although these are not always publicised as they appear to be considered for use primarily as internal motivation (see interview).

> "When we launched the Green-family, our goal was that by 2020, one in five orders would be from non-red meat. Now we have revised this goal to one in three instead."

<div align="right">

Christoffer Bergfors, Head of Swedish operations, 2017[134].

</div>

Early in the sustainability transformation, Max Burgers set goals related to 4 key sustainability principles which help to define sustainability for the organisation. These were based on The Natural Step Framework and involved goals to improve sustainability awareness within the organisation, including dedicated training on sustainability (The Natural Step, 2010).

4.11 Interview with Kai Tojak, Sustainability Director at Max Burgers, in Stockholm, Sweden on 20 December 2016.

The in-depth interview with Max Burgers is valuable in providing a frame by which one company has started a process to make better sense of its role with regards sustainable meat consumption. Sense-making, as discussed in Chapter 2 of this thesis, is an ongoing social process that is grounded in identity construction, is retrospective, enactive of sensible environments, focused on and by extracted cues, and driven by plausibility rather than accuracy (Weick, 1995, p.17). All of these elements are demonstrated in the interview material that follows.

Tell me about Max Burgers and where it is positioned today?

KT: Max Burgers started off in 1968, in the northern part of Sweden, in really remote part of Sweden. They became Sweden's first hamburger chain and were already here before McDonalds came in. Now, 48 years later, we're growing at a pace, where we double our turnover every fourth or fifth

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[133] *The Natural Step* (2010) "A Natural Step Case Study: Max Hamburgers and The Natural Step"; p.6. At http://thenaturalstep.nl/wordpress/wp-content/uploads/2015/01/Max-TNS-CaseStudy-FINAL.pdf

[134] *Business Insider Nordic* (19 January 2017). "This Swedish McDonald's-challenger announced a push for green burgers a year ago – and it's already insanely successful." At http://nordic.businessinsider.com/this-swedish-mcdonalds-enemy-announced-a-green-burger-last-year---and-its-already-beat-its-target-for-2020-2017-1

year. We've done that for fifteen years now. Business is going extremely well. And, we are now expanding to other countries as well. So, Denmark, Finland, Norway, Poland, Dubai, Qatar. We have about 120 stores today, and I think by December next year, we might have 130 or more. So, we're growing. And growing by something like 20% every year. This year, we had a dent in the curve, but not downwards, upwards. And it was largely because we launched the "Green Family", where we increased the amount of vegetarian or vegan products by 500% on our menu. It has been the most successful product launch in Max's whole history.

Were vegetarian and vegan products something new for Max?

KT: Max have been having vegetarian alternatives for a long time. And when I'm saying vegetarian, I'm using the very wide definition of it and it includes lacto-ovo-vegetarian and vegan options. When we developed the Green Family options, we put a lot of energy into finding the right ingredients so that they taste great. For the vegan burger, our chef had to create a new mayonnaise, as we couldn't find a good one on the market. So, we have our own chef creating new products. And I think that this type of all-round effort is one of the reasons why it has been so successful now.

When people come into the store, what do people normally buy? How many people select the hamburger versus the vegetarian options and what type of hamburger are they choosing?

KT: We have set ourselves a target for consumers buying meals not based on red meat. We usually don't set targets, like typical Swedish companies like IKEA and H&M often do. We don't like to talk too much about 'what we are going to do'. Instead, we are more about saying 'we've done this'. But in this case, we believe its credible because we're doing it now. So, we started off saying that 1/5 of our product that is bought by consumers should be food other than red meat. It could be blue meat - fish, or white meat – chicken, or green meat - which is vegan or vegetarian. But after we launched our new Green Family Menu in January 2016, we realised very early on that we would need to set a new target because we're way above that.

We are now saying, that by 2020 we are aiming for 1/3 of our meals sold, to be meals other than red meat. So, that's where we are going and I think we're going to reach that. And why is this important? From a sustainability-related perspective, it's very important. Of course, it's climate change but also other reasons, including health. But, meat has been our core product. So, we are really transforming our business model. And that was the question when we started this transformation back in 2006 when they first contacted me. I was then outside Max, working at the Natural Step. Max came to us there and were asking us "What can we do?".

What was driving Max at that time to re-think how they were doing business?

KT: Because of two reasons, I think. One of them was that McDonald's had been really good at doing sustainability stuff in Sweden, but they had slowed down a little in this area and didn't seem to be doing the right stuff anymore. So, I think there was some opportunity to decide to do something more interesting than the competitor. The other and main reason was more emotional. Al Gore's climate change movie had come out the year before, and the owners of the company watched it many times. They realized that they were part of the problem, and with the culture they have, they said that 'if we're part of the problem, we need to be part of the solution'. A lot of the motivation came from those internal values. When we talked to them, they really wanted to do something about climate change. We said, 'okay but let's do a climate analysis first to understand the problem'. So, we undertook a life-cycle assessment, all the way from the farmer's land to the guest's hand to better understand the climate impact of the business.

When you measured the GHGs from farm-to-fork, do you include all emissions?

KT: Absolutely. From the cradle to the guests' hand. We haven't included the emissions from when it leaves our door, however. And my guess would be that maybe 1/3 of the climate impact will be that part, for example the transport of the guest to and from the restaurant. But, that cradle-to-hand analysis had huge consequences for the action we took. For example, at the time many people were talking about food miles, how much the food had travelled, or double-side printing of paper in the office. But that doesn't give you a good understanding of your footprint, nor does it drive big change. And what we found out through our analysis was that most of the carbon footprint was outside Max, before the restaurant. Symbolic issues like packaging which you really experience when you eat, came down to only maybe 2% of the carbon impact. It was relevant to work with it as a symbol, but not as a major way to contribute to reducing our impact. So, at that time, 70% of our total carbon footprint was from red meat, from beef. Today it's about 66%.

As a result of this work, you became the first fast-food burger restaurant to carbon footprint your food and show that carbon footprint to consumers on the menu? Did you see a change in consumer behaviour?

KT: After the launch of the sustainability programme in 2008, we didn't see big changes in how people choose food in the restaurant. And I think that had more reasons than one. Maybe the major reason is that customer has already chosen to buy a burger when they choose to go to a burger restaurant, otherwise they might go to a salad restaurant, and have a salad! So, the choice has been made before you go in the restaurant. But what it did, was that it attracted more people to Max, so the choice to go to Max increased, and Max became more popular. So, it drove brand value. We did have a 15% behaviour change towards food options with lower GHG footprints, but this was a shift from very low levels. Another reason why you might not see substantive changes in consumer behaviour immediately is that we also have carbon offsetting. Therefore, the customer might be thinking: "If I should eat a meat burger anywhere, it should be here, because with their emission off-setting it makes eating beef a more sustainable alternative than at other places."

Thinking in absolute-terms, how have the beef emissions decreased or increased over the last ten years?

KT: They have increased in absolute terms and decreased per kilo of beef. Right now, we are looking across the last ten years and taking into account things like the changes that have been made to how GWP is calculated etc, so we can better see the change over the whole period. By April 2017, we will have calculated an index for our whole year, to see what has happened and how that offsets to our turnover because we want to decouple. And I think we've actually achieved that this year. But another point is that the size of the beef patty has gone up on average, because people want to eat bigger burgers all the time.

How much change has there been in the size of the beef patty?

KT: We have the kid burger, which contains a 45gram beef patty and the normal adult burger is 90 grams. Then it's the grand deluxe burger which is 160 grams. And the grand deluxe burger is becoming more and more popular. So, people want to eat bigger burgers.

With more demand for bigger meat portions, that is, bigger burgers, how do you balance the sustainability and health impacts of that consumption? Do you see yourself as having a role in contributing to discussions around healthy and sustainable portion sizes?

KT: Yes, absolutely. For example, there is lot of stuff we could still do around choice architecture.

But our main approach is we want everyone to find something, so there is some caution around choice architecture. However, in January 2017, we are going to try something different by making the first ordering choice seen by our customers, a vegetarian burger with Halloumi cheese. So, when customers order off the interactive screen, the first thing they will be presented with will be the Halloumi burger. Customers will need to make an active choice to order beef instead or another option. That's going to be really interesting to see what happens with the sales figures around that - how many people are going to change to another option, to a chicken burger or beef burger for example. So maybe, choice architecture will be something to investigate further after we see how that goes.

I think many dietary guidelines recommend around 50-70 gm of meat consumption daily. Your 160gm meat patty, represents double that quantity. Is that consistent with an active role around health and sustainability?

KT: The information I have seen is around how much you should eat every week. And I think this approach is more interesting. People may choose to eat more meat on one day and then much less meat, or vegetarian options the next. I think the studies I have seen around health issues show stronger relationship around cancers for example, when red and processed meat consumption is over 1000gm per week. And I would say most people in Sweden are far below that. I'm not sure about the latest figures in Sweden, but on average I believe we consume around 40 kilos per year. But that's for meat in total, so that's not for red meat. I will need to check that out.

Also, do you really get cancer from red meat? It's hard to see because the studies can be confusing. For example, often it's due to additional stuff you put into the meat, so it's not just about the meat. It's about the smoke essence, or stuff like that, that we already know is not good for health. I haven't seen a study where it's obvious that it's enough to be red meat. So maybe it is this processed side of meat that is causing negative health impacts or certain cooking methods. This would make sense because we've eaten red meat for a long time as a species so we should be well adapted to that. However, for nitrites and other stuff we add into the meat – that may be a different story. But we're also following what health experts say and they are saying that there should be lower meat consumption. And that aligns with our wider approach, that it's not just climate change but about a range of issues, including health. For example, we don't use any trans-fats in our food and we've been working to lower the salt in the food as well.

Your meat patties are not 100% beef. Why?

KT: We have 82% beef in our patties right now. The rest is egg, potato and milk. It's like a typical Swedish grandma would have made a beef patty, because it makes it more moist and you can add more layers of flavour to it.

And does it make cost sense as well? Meat is also the most expensive part of the burger, isn't it?

KT:. Yes, it is the most expensive part, but it's about taste. With these ingredients, it doesn't dry out as easy and has more flavour. Swedish consumers are saying that the taste winner is Max. Of course, our competition is saying: "We're 100% beef". We don't challenge that, because 100% sounds so good. But 100% meat tastes a bit dry. I see a potentially very interesting future where you would say, how can you have 100% beef when it doesn't taste that good, and it's much worse for the environment and your health? We haven't taken that approach - to question the assumption around 100% being "better" in some way, but it could be that in the future 100% is seen as being 'less than better'.

Is there potential to go even lower than 82% meat content in the patty?

KT: We tried lower but it didn't work well. We have a good tasting product now so it is not likely

there will be any major changes in the future. And the big sustainability potential we have is to sell more vegetarian alternatives anyway. Either you reduce or you change, and I think the change pattern here is much more interesting. This change aspect was a big part of sustainability actions when we launched our programme in 2008 and we became the first restaurant to put climate on the menu. We put the carbon footprint of our products on the menu item and we chose to offset our emissions. I think Max didn't have a lot of credibility and sustainability among opinion leaders, green opinion leaders before we started this initiative. Investing in a credible change programme has been critical.

The Green Product launch in January 2016 was very successful. Why do you think this is so? Were there not enough vegetarian and vegan options out there for people already, or do you think there is more demand?

KT : I would say that we have had a 10% increase in turnover this year as a result of the vegetarian/vegan launch. A 10% increase in turnover is awesome. We think that there are more people who consider themselves as flexitarians now. For example, we launched the falafel burger, about 6-8 years ago. It wasn't a success then, but it wasn't a success for more than one reason. It was a really good taste, however, it was hard to handle for operations, so the process to get it to our guests was a little difficult. But also, the way we presented it was aimed for vegans and vegetarians. At that time, flexitarianism wasn't as big. So, what we did this time was different. We made the launch bigger, we had more products (5), and we communicated it directly to flexitarians, not to vegans and vegetarians.

Do you think the growth in flexitarian behaviour will continue? Will this remain an opportunity for the business over the coming years?

KT: Absolutely. From my personal perspective, and this is not the company's position, I would say that Swedes need to reduce red meat consumption by 80-90% to go to sustainable levels. That will of course not happen overnight, but the flexitarian drive right now is really big and you can see across other retailers. For example, the sales of vegetarian alternatives across food chains and in supermarkets have increased as well, so it's not just at Max Burgers.

One interesting aspect of it is probably also the influence of key consumers. The purchasing decision surveys show us an incomplete picture. However, I think we probably have a bigger change than what the surveys might indicate. For example, when you have a group of 5 people and one of them is vegan or a vegetarian, that person has a bigger influence on where they go and buy than the average of the other ones. So, they will say, "Let's go to Max", instead of our competitors because, "I love the burgers over there". Then that person becomes very important. What the figures are telling us right now is that around 1 out 10 Swedes now say that they are vegetarian or vegan. If people are taking decisions in groups of 5, one out of every two groups of people, will on average include a vegan/vegetarian. Then this person will play a key role of choosing where to go. It can then add up to quite big figures. What we've seen also, is that we have attracted new groups of people coming to Max, people saying "I usually don't go to fast food restaurants but I love going to Max". Or, "if I go to a fast-food restaurant, then it will be to Max."

We can also look at it from a different perspective, from the potential of the LOHAS customers. In Sweden, we have about 40% LOHAS and what we've seen is that this group has increased faster at Max restaurants than the average customer. And these groups have left competitors at the same time as they have increased in our place. LOHAS customers are a fantastic guest because not only can they pay more and have higher influence than people in general, but also in fast food chains they are under-represented. It's really a potential growth opportunity. When we find the things that fit this group, it will be perfect, because they eat at restaurants more than other people on average, and they

currently eat less at fast food restaurants. I can see a future where fast food restaurants are not mainly seen as junk food places but as high quality quick service restaurants. And when we start to experience it like that, then sustainability will also drive changes within the industry, and how the industry is seen by consumers.

Do you think that fast food burger restaurant, will need vegetarian and a vegan options in the future to remain competitive?

I don't have a crystal ball. What I would say is that everything seems to go in that direction.

Do you a future -- say in 2050, where a menu at Max burgers for example, has very few meat options?

2050 is a hard date. Not sure. But I'll say that I think we're going to reach our target of selling 1/3 of our meals as non-red-meat options by 2020. I think by 2030, 50% of our meals sold will be non-red meat.

But maybe it's also going to be people saying, "If you're going to have meat, why don't you go to Max?". Or, "Max has the best meat and the best meat-alternatives, so let's go to Max." Therefore, we may have a lot of different customers. But I think the development from here might go extremely fast. And there are new burgers coming out all the time and we're always trying to look for the best vegan and vegetarian burgers. I think there is so much potential for vegan burgers, and I would say vegan more than vegetarian because the sustainability impact is much lower but also more people can eat it. So, if you have allergies, like from milk which quite a few people have, then it meets those requirements also.

You have a big expansion strategy in other countries. Does this create difficulties in implementing the sustainability programme?

KT: More than 90% our restaurants are here in Sweden. That's where we've been working on sustainability the most. Right now, we're trying to see what kind of policies we should have in different countries, including on meat sourcing and what kind of extra standards will put on the meat.

Talking about meat, again? What is your policy on the provenance of meat?

KT: In Sweden, we're the only national hamburger chain that has only Swedish meat. We use 100% Swedish meat. First of all, it was just how they started. It was for taste and heritage reasons. After events like the Mad Cow Disease scares in the 90's, we started to understand that it was an advantage. We then wanted to keep having control over it so that the guests could feel safe around what was in their burger. It's a nice feeling of course to support local farmers as well. It's not just beef, though. It's the bacon and chicken. Even the pepperoni and sausage is Swedish.

You mentioned control, do you have full transparency across the supply chain? Do you know where it comes from? Do you have direct relationships with farmers?

KT: No, we don't have direct relationships with farmers. But with the Swedish meat system, it's traceable down to the farm. It is a modern system and has been for a long time. It means that we also have to pay more, as it is more expensive. We pay something like 5 million more euros per year for buying Swedish meat instead of meat sourced elsewhere in the EU. But the upside of it, apart from feeling safe about where it comes from and having traceability, is that we have a quality product that we know how to work with. And it also leads to a smaller climate impact.

Why does Swedish meat have a lower carbon footprint?

KT: Yes. It is linked to the modern way of production, but also about how much fossil fuels are used in producing it. Our beef also comes from dairy cows, not beef cows. We don't have an "Angus Burger" for example, where all the meat for the patty comes from an animal grown for meat. We have a lot of dairy products in Sweden, and when you allocate GHG emissions to the different products of the cow, more emissions go to the dairy products because that's what drives the production of the cow, not the beef products. This also means that the GHG footprint is lower.

What about other issues such as use of antibiotics, animal welfare, hormones, water, biodiversity?

KT: In Sweden, the use of antibiotics is the lowest in the EU. Sweden also has one of strongest animal welfare laws in the world. The use of hormones is not allowed. With regards water, that isn't an issue in Sweden as we have a lot of water here. So, that's also a thing that works for us. I'm sure that it would be an issue for some other countries, however. Biodiversity wise, it's also okay. In Sweden, the animals go outside part of the year, so they help create open landscapes which is good for local biodiversity. It's also connected to the culture we've had over the last 300 years around agricultural landscapes. For feed that comes from other parts of the world, soy for example, it's in very small amounts. Otherwise we wouldn't end up with this low carbon footprint for Swedish meat.

I've noticed a growing trend in the United States with some burger restaurants championing the use of meat from organic or grass-based farming systems. Is that something you have thought about also?

KT: There will be a segment in Sweden who would like to eat grass fed meat. It's still quite small still. But that could eventually be something. But I do think the difference in the United States between the quality of average meat and this more 'specialised' meat will be much bigger, compared to the meat in Sweden. I think that if we wanted to go for the same kind of difference, we would have to choose organic meat. We've been thinking about that many times. But the thing is that with the volumes we sell, it would be hard to get the right amount of meat. Today, it's already hard to get enough Swedish meat. So, if was Swedish *and* organic, then that might be impossible to get enough supply. Over the long term, however, I would say we're probably going to have to define the meat in some new way to incorporate these values of sustainable responsible meat, in some sort of standard that we haven't seen yet. I don't know what that would be, or look like, but that's over the long term.

What do you mean by standard? Do you mean that when a customer walks into Max – that they know that they're getting the same standard of meat in every store?

KT: I mean you have different standards in different countries, and I think if Max is going to grow into a global brand, which is the intention, then a consistent understanding of the kind of meat we eat, and associated values with that meat, is needed. It might not be exactly the same standardised format, but rather some kind of promise around what they can expect. Maybe there is different tastes around it, but the customer knows that the meat in Max Burgers is a premium meat, not just when it comes to the taste, but also when it comes to making the world a better place.

Quality meat – what does that mean?

We think a lot about taste and the passion for food that's related to quality, which are not necessarily the same. With regards quality, it's an area where we lump a lot of stuff together I guess. But I mean, the most basic of it is of course that it's a quality that stays. It's repeatable - we know what it is from one day to the next. And it's making sure that is the right quality. Then you can talk about is it high quality or low quality, and when you're doing that, you introduce a lot of different factors. When we

buy meat, we have a lot of different standards for it. In Sweden, it's actually easy because we have what we believe is the golden standard with Swedish meat.

But in Dubai, for example, you were saying that you were using Australian meat. So how do you set quality in other countries?

Well right now we're defining our quality standard for what kind of Polish meat we wish to use in our operations there. We don't have enough Swedish meat to be using in other countries, and what's more the people in Poland wouldn't appreciate it. Because in every country, people think they have the best meat in the world. It doesn't matter where you go. In Brazil, it's Brazilian meat. In New Zealand, it's of course meat from New Zealand, it's pure. That is the approach, and I think the local, or the national farmer's associations try to imprint that in people over many decades. But I think that beyond that, in the future we may have to find some kind of global standard. That would be interesting.

When you say global standards, do you think that that is something for Max to define as the Max global standard? Or do you see that there is an opportunity to develop a global quality standard with other retailers or supply chain partners?

I think we're going to probably going to have to consider both options. Ask ourselves what we can do and how we can develop a coherent purchasing policy around meat that is not just case-to-case, but is consistent and meets out needs and makes sense. We're going to have to do that ourselves. But if we can find a global standard that is strong, and can help us, we would probably be very happy with using that. And now I'm thinking at least 5 years down the line. It's not happening now. But such conversations across stakeholders are important.

Max had an interesting initiative in Sweden a couple of years ago, called The Future of Beef, where we brought together different scientists and the industry and we looked at beef from a sustainability perspective, a 360 degrees-type exercise. We were looking at everything from worker's rights, to what if you use centrifuge insemination technology. We wanted to consider everything to get an idea of what the future for beef could look like. And I think the big message I got from that work was that there is a big challenge for sustainable beef in the future, mostly around land use and climate impact. The distribution of, and accessibility of protein, to some populations in the future could also be a big challenge.

Do you use future scenario planning around meat in deciding your strategies today?

I think in one way that's where we started off in 2006, by realizing that were some future problems with meat consumption. The core product, meat, was a part of the climate crisis. We asked ourselves then…if one day we should have a sustainable society, what would that mean to our core product? There were two ways to look at it. Make sure our meat was the most sustainable it could be. And, reduce the amount of meat that we sell. In practice, both are needed as part of more sustainable business model. I see a huge amount of challenges if we're going to be truly sustainable. But I think going in this direction solves a lot of the most difficult questions.

Is farming a sustainable business? What happens if people reduce their meat significantly?

KT: I think more and more farmers are finding a better business model for them. It difficult though, in particular for dairy farmers with the competition in dairy products from other countries. There may be potential in the future for more extensive farming in Sweden, to use land which doesn't grow food crops anyway. If meat consumption drops, then we can easily meet that demand in Sweden. But we might have an interesting situation, in which we need to work out what to with all the agricultural land that grows animal feed. Because 80% of the land used in agriculture in Sweden today is used for creating animal fodder. We won't need all of that, if meat production falls. Then we would need to diversify into different crops.

What about artificial meat or "test-tube" meat? Would you consider that on the menu?

KT: It's going to be interesting to see where that goes. We've definitely considered it. But right now it's not close to interesting from a short time perspective. We would need to know more things about taste, sustainable performance and price. We are extremely interested in what is happening with regards the "impossible meat" burger. Have you seen that one? It's a totally vegan burger that tastes like meat. It actually bleeds as well. They've created a kind of a process where they extract haem from pulses.

This is interesting because many meat advocates point to the necessity of meat in the diet because it offers a good source of readily available iron. At the same time, some people say that it is the blood aspect of meat, the bleeding which represents dying or death that they don't like, and why they don't like to eat meat.

KT: Yes, certainly. This could be a good way to obtain adequate amounts of iron from a meat alternative. I can totally also get the second point. But I think people would think this is extremely cool because it's something different. And I think those kinds of mental connections and connotations, they are easy to change. But not the other ones about animal welfare and stuff like that. Those are much tougher.

Imagine you were invited to talk at a meeting of meat industry executives, what would you be saying to them?

KT: Meat is a part of the problem, so if you are going to invest in meat for the future, you should invest in sustainable meat. That's the way to go. If people should eat meat they should choose your meat because it's the most sustainable. How can they create a meat that meets much stronger sustainability and health demands on meat? And can they be a little bit ahead of the curve. Then, if it comes to a meat tax or stronger regulations or lower demand from consumers and other stuff, they're still in the right place.

Are there any initiatives by competitors, your competitors, that you think is quite a good idea, or they've done something innovative that you've seen?

KT: There could be one interesting restaurant in some suburb somewhere doing something interesting, but on a bigger scale, we really haven't seen that kind of competition in Sweden yet.

If you were to tell me what makes the big difference between you and your competitors, what would you say?

KT: Looking at the bigger picture, I would say taste. That's where we're winning. Taste is number one. We've always been winning there. We are so far ahead of our main competitors there. I think our main competitors might be stronger is when it comes to availability and speed. They are in more places. But they also use pre-cooked meat, which they then heat up before serving. So, when you go in there, you can get it faster, but then it doesn't taste as well. Therefore, what we are seeing right now is that McDonald's is looking at "made-to-order" burgers, using fresh meat. They're actually going the Max way, because that's how we've done it all the time. But we think that we're going to be quite far ahead of them for a long time because they're in a change process. Sustainability is also a competitive advantage for us.

How important do you think the ownership structure is to sustainability initiatives? Max Burgers is a family-owned business, is the important?

KT: Extremely important. I mean the family has taken all the decisions, made all the investment, and since they've been here for a long time, they want to stay here for a long time. They can do stuff that 3-month maximum profit companies can't do. So, if they consider an investment around sustainability the really believe in, and you say we'll probably make a good return on investment here in 10 years, it wouldn't be a problem for them, they could do that. This family is talking not about maximizing profit, but optimizing profit. So, they're actually making a point out of it. Optimizing profit, that's for the long haul, and when you're thinking like that you're investing in other stuff.

And how important is leadership? Is everyone at the management board table agreed on the sustainability focus?

KT: Not from the beginning. The success of the Green Family launch for example, has been very important for some individuals. But the owners have committed themselves to action around sustainability so everyone is clear around the goal. It's still hard initially for some people to see the potential profitability of these initiatives. But when actions like the Green Family launch leads to this kind of 'fantasy brand value', then perceptions change. For example, the changes we've done over the last 12 months should have taken us at least 5 years, maybe 10 years. So, leadership and commitment is very strong.

What do you think the next big leap in sustainability will be?

KT: It depends on what you think a big leap is. I think the best thing we're going to do in a short to mid-term is to increase vegetarian and vegan products to make them kickass products, so people will just love them. We want to increase the range and the popularity of it. But we need a balance. A burger chain doesn't want too many things on the menu, it might hamper the business model. If we take new products in we're going to have to take other products out, otherwise we can't make it work. But you will see more non-red meat products on the menu in the future. And then we're working on nudging consumers into new thinking, where they see Max Burgers not necessarily as a red meat burger restaurant, but a burger restaurant. What we're seeing now is we're going from hamburger restaurant to a burger restaurant, and a burger can now be anything. The burger may become more about 'anything between two breads - that tastes good'. Also, I would think that maybe it's also something else that we sell. What that is, is hard to know, but it's about feelings. And so maybe we'll come up with other products that is not between two breads eventually.

Do you think that it is necessary for companies to have a dedicated sustainability director at board level or in senior management?

If you're in a change process, you need it... if you want your project leader to change stuff. That is what we want at the moment. We're going to have to up our game all the time. The February Green Family P launch was so successful that we want to push it further.

In general, however, I think there are many ways to organize sustainability leadership in the organisation. Irrespective of what change you're going through, when you want to make a big push of it, you need people doing it. It could be in the ordinary structure or you could have someone coordinating it. I think it is more relevant to look where sustainability responsibility is situated in a company, because if you have it in some kind of manager on floor 3 and the top management is on level 7 and they never meet, it's that kind of sustainability work. But if it's in top management and it goes into the core business of the company, then it's doing sustainability in a different way.

Therefore, I see 3 types of incorporating sustainability in the business. There is the type of approaches that are incorporated in business as usual and which include one-off programmes such as public good

contributions to people in need or meeting minimum environmental compliance requirements. It's nice but it's not systematic. Another approach to sustainability is about minimizing risks. This involves avoiding reputational risks, trying to integrate sustainability into the operations, having a management system around it, making sure that you have the correct supply chains for the future. The third approach is sustainability as innovation. Now that's about changing who we are, transforming the experience for our guests, etc. And you need a diversity of different strategies for that. I often use these three approaches to understand what companies are doing, and I would say that that Max is on the third, having that 'sustainability is innovation' perspective. Things also change more interestingly when you have this approach.

Do you think the 'sustainability as innovation' attitude attracts employees to work at Max?

Definitely. We see it all the time with talents of every calibre. And it's hard to calculate how much that's worth, but the way it can strengthen the business is enormous. And, you want people that have some kind of education, as well as being a little bit above survival mode on Maslow's hierarchy of needs. These types of people are going to start asking themselves first, 'why would this job be meaningful?'. You can have one group which is all about making a career, and they would come anyway if the money's right. But with this innovation attitude, you can attract more of the people saying, 'why would this job be a good use of my life?', 'Why would I take time from my kids to go to work?', 'How can I be the change I want to see in the world?'. And if we're talking about LOHAS and they're 40% of the people, they ask themselves that all the time, and they're better educated than the average, and committed to being a part of change. So, it's really about talent.

4.12 Conclusion

The objectives of this case study were threefold. Firstly, it shines a light on different approaches by fast-food retailers on issues related to sustainable meat consumption, which can in turn inform upstream meat producers and processors of potential trends and demands around sustainable meat consumption. Secondly, it contributes to the literature on sustainable consumption by elaborating on how companies are responding to concerns over sustainable meat consumption. Thirdly, it can indicate potential business model innovations, which in-turn can inform the meat industry of downstream strategies to address impacts of meat consumption. The inclusion of the transcript of the interview is somewhat novel. Yet this information can provoke important sensemaking efforts by practitioners in the meat industry. In this sense, the reader is able to profit from hearing, the experience of Max Burgers from the perspective of a senior change manager, as expressed in his own words.

Meat holds a prominent place in the menu of many fast-food retailers where it is often the centerpiece of the customer offer. But with growing pressures in society to reduce meat consumption due to wide-raging concerns around the health, environment, and ethical impacts of meat consumption and production, fast-food retailers are potentially faced with re-evaluating their reliance on meat. Understanding how fast-food retailers are responding to the challenges of sustainable meat consumption can therefore provide valuable insight to help inform future actions within the sector.

Actions by fast-food retailers would imply that companies themselves believe they have some role to play in addressing negative impacts of meat production and consumption and that these efforts go beyond merely meeting their responsibility to shareholders. These range from normative-type of guiding company statements around 'food integrity', 'making the world a better place with every bite', and 'burger with a social conscience' type slogans to strategic actions such as marketing meat products based on external product attributes like 100% natural, GMO-free, grass-fed, and free-ranging animals (and meat). Max Burgers explicitly acknowledges a role as "part of the problem, part of the solution".

It is noted that there is an inherent tension between the health, social and environmental role that a fast-food restaurant can take while at the same time providing and encouraging increased food consumption at mass scale which, in general, is unhealthy. Further, there appears a trend towards larger meat portion sizes which raises questions around commitment to sustainable meat consumption.

The interview in section 4.11 with the Chief Sustainability Officer for Max Burgers offers rich insight into drivers and actions associated with the ongoing social process within (and external) to the company to improve sustainability, with particular attention towards action around sustainable meat consumption. It also captures developments in 2016 with the launch of the Green Family products, which further pushes their sustainability agenda into a range of innovative areas around choice-marketing and target-setting of meat alternative consumption. Other sensemaking properties associated with the extractions of cues, and plausibility rather than accuracy of actions, emerge in the interview material. In this respect, the interview enhances our awareness of how organisations, through the eyes of the Director of Sustainability, is making sense of the challenges and opportunities of working towards more sustainable meat consumption.

There are very few case studies, if any, that provide information on how a fast-food retailer is making sense of complex challenges around the sustainability of meat. Given that fast-food retailers hold substantial power in the meat value chain, their views and strategies can have extensive ramifications for the meat industry. It is also noted that the proactive approach by Max Burgers seeks to transform the business model towards a more diversified business model, less reliant on meat products as the main product or service of the business. This may therefore represent a case where legitimacy extension is being sought.

PART C: SENSEMAKING BY MANAGERS IN THE MEAT SECTOR

4.13   Introduction

The aim of the sensemaking study was to identify how managers in the meat sector make sense of the challenges and threats to legitimacy associated with demands for more sustainable meat consumption. 12 interviews were conducted which resulted in a large amount of rich data collected. After a process of continuous examination and categorisation of the data using grounded theory approach, the data was organised into thematic categories which kept re-appearing across the interviews. These might be considered as sensemaking themes or frames that help describe how participants make sense of issues concerning sustainable meat consumption. Sections 4.14 to 4.15 discuss the 15 themes in detail. This level of detail in the results is important to show transparently how categorisation has been conducted and to demonstrate how coding and categorisation has been built up. It also provides a more detailed picture of perspectives as voiced by industry participants. Section 4.16 then looks at six overarching themes to which further categorisation can be made. Specific characteristics of sensemaking that emerge important in the results are then examined.

4.14   Identification of Sensemaking Themes

Fifteen sensemaking themes that emerged across the interviews are presented in Table 18. The characterisation of each theme represented in column two of Table 18 builds on the focus of thinking about actions and processes which arise through the emphasises of using gerunds in early coding stages. Where relevant, a key sensemaking characteristic/s that emerges as particularly relevant to each frame/category is identified for each frame. This does not imply that this characteristic is exclusive to the identified frame but rather that the frame reflects strongly that specific sensemaking characteristic. For example, it is noted that the ongoing nature of sensemaking in the industry, in response to challenges associated with sustainable meat consumption, is a characteristic across all identified categories. However, this 'ongoing' characteristic was strongly reflected in descriptions by industry members using words or phrases such as "continuous", "ever-present", "always being scrutinised".

Table 18. Emerging Sensemaking Categories

Frame/Category	Characterisation	Key Sensemaking Characteristic
The way we do business is <u>always</u> <u>scrutinised</u>	We are continually being scrutinised and facing challenges to how we do business.	Ongoing
We need to <u>defend</u> <u>ourselves</u>	We often feel unfairly attacked by opponents to meat consumption and we need to "defend" meat and meat industry	Identity, Enactive of Sensible Environments
<u>Staying together</u> is important	There are different interests in the meat sector but the sector is stronger acting together to sustain and defend legitimacy values of meat in general	Enactive of Sensible Environments, Social
<u>There is a lack of co-ordination & resources are often weak</u>	Coordination is difficult because of mixed and sometimes competing interests as well as lack of resources. We find it difficult to communicate with one voice. It takes a crisis to get us truly motivated.	Retrospective
<u>Stakeholder interaction is difficult</u>	Stakeholders can largely be categorised as supportive or opponents. It's difficult to find common ground.	Social, Enactive of Sensible Environments
<u>Meat is important</u> to society	Meat is important to society and has many positive benefits for health, environment, culture and economies. There is no substitute for meat.	Identity
<u>Society is changing</u>	Society is changing, and meat is losing some of its legitimacy as the key component of some diets. Meat's values are being questioned.	Identity, Focused on and by Extracted Cues
Sustainable meat <u>consumption is complex</u>	Sustainable consumption is confusing and complex with mixed signals. The consumer needs to take responsibility based on fair and accurate information.	Focused on and by Extracted Cues
Sustainability is <u>multi-dimensional</u>	Sustainability consists of multiple elements including ethics, health and animal welfare. There are trade-offs that must be managed but these can be difficult to understand and decide on. There are many contradictions.	Focused on and by Extracted Cues
An <u>uncertain future</u> but more meat	There are many challenges to the meat sector today, yet the global population is growing and thus the overall demand for meat is also increasing. There are many contradictions.	Plausibility, Focused on and by Extracted Cues
<u>Science-based</u> <u>approaches</u> are critical	Science-based approaches are important in providing a fair 'level playing-field' and in defending the values and importance of meat to human diet and sustainability	Enactive of Sensible Environments
We have <u>actions</u> to improve sustainable production	There are many actions now being implemented to improve sustainable production of meat. Many farmers desire to manage for long-term benefits. We want to do the right thing, but it needs to be profitable.	Driven by plausibility rather than accuracy
Moderation is sensible, but <u>consumers decide</u>	Moderation of consumption is sensible, but it is the role of the consumer to decide what that means.	Social, Identity
<u>Communication is a mine-field</u>	Communication is difficult and presents significant risks to the industry. We are not sure how to communicate in the best manner, who to communicate to, or whether it's desirable to do so.	Social, Identity, Retrospective, Enactive of Sensible Environments
<u>We need to do things differently</u>	Times have changed, and the industry has been slow to adapt to new and sustained challenges. We need to be less 'reactive' and more proactive.	Retrospective

4.15   Sensemaking Themes

The following discussion focuses on the themes or categories that emerged in the interview process and which feature in the sensemaking process.

4.15.1   The way we do business is always scrutinised

This theme was dominant and emerged in all interviews. Sustainability, ethical and health issues facing the industry are described as "ongoing" and "continuous". Industry representatives clearly viewed the challenges as an ongoing problem that "would not disappear". However, there was some hesitation as to whether attention on negative aspects of meat consumption and production was increasing or stable over the last 10 years. Some mentioned that new communication channels such as various forms of social media were increasing the duration and/severity of negative public attention, even though many of these issues had been debated for some time. A rising interest in plant-based diets was also suggested as a factor in driving a more critical focus on meat's role in the diet. Therefore, for many participants interviewed, it felt like attention was increasing, whether it was or not.

> *"We are attacked more than any other product. Health, climate change, animal welfare, biodiversity, rainforest destruction, BSE, transparency… It feels never-ending and unfair."*

> *"Meat seems to get the big headlines and they are almost all negative."*

> *"It's difficult to respond positively when all the attention is negative."*

> *"One bad example is used to portray everyone in the meat industry as bad. It's a cycle of bad news."*

> *"It feels like the bad news is increasing, especially with the rise of social media."*

> *"Why is meat so scrutinised, why not air travel? I mean people can also cut down on GHG-emissions by not taking all these low-cost flights. But we seem to be constantly attacked and disproportionately too."*

> *"Why does meat get so much attention? A few years ago, an E. coli outbreak in sprouts in Germany killed 50 or so people, and thousands got seriously ill. This prompted around 40 questions on the issue to the European Parliament. In contrast, the horsemeat scandal, where not one person died or was ill, received over 50 questions. There is some sort of attraction to attacking meat."*

4.15.2   We need to defend ourselves

The use of the word "defend" was common across all the interviews. The industry was sometimes described as being "under siege", and/or having a "siege-type" mentality. There

was a strong feeling shared that the industry was "under attack". The strength of this element of defensiveness was so intense that it emerges as a key element of identity of the industry.

> "The industry needs to defend itself better."

> "We need to defend meat from those that attack it."

> "We have to defend ourselves."

> "It's hard not to be defensive when opponents are saying the industry: "murders animals, murders the planet, and kills people.""

> "We are an industry under-siege."

> "The industry feels a siege-mentality."

> "They keep demonizing meat."

Advocates campaigning for less meat consumption were often described as 'ideologically-driven', interested in "undermining' meat at every opportunity with the goal to eliminate meat or greatly reduce its consumption largely based on ethical values. They were also presented as organised and well-funded with growing power to influence key decision-makers such as politicians and regulators. In contrast, the industry was sometimes described as being in a weaker position, less powerful, and attacked.

> "It's simple. These people just don't want meat to be eaten at all."

> "Livestock production is attacked under the veil of sustainability. Some of these people want to just destroy the industry because they are ideologically opposed to meat consumption for various reasons, but especially because of their ethical objections to killing animals."

> "They campaign hard and get support from politicians who then use many ways to put more and more pressure on the industry. It gets harder to make a living for many producers and meet all the expectations that are being demand. Even if you want to change, they make the rules so difficult that it's impossible to do. At some point, producers just go out of business."

> "Some activists purposefully pick the worst cases or take things out of context by taking photos and/or highlighting practices that might look bad but are not always so. Journalists are quick to report on these. The good things don't get any attention. Good farmers care about their animals."

> "These groups calling for meat reduction are well-funded. In many cases, they are much better resourced than many of the meat producers and they run these high-profile campaigns that highlight how meat and meat production is bad. They have sophisticated communication channels though social media etc. that reach out to a lot of people and become high-profile. They have more power than many of us do."

> "It's a full-time job for some people and organisations to attack meat. It's really easy for special interest groups to drive constant criticism of meat. It's an industry in itself! With the aim to put as much of the meat industry as possible out of business. And they are motivated and well-funded."

"The media is really negative. They just want a high-profile story. Facts and science get forgotten or marginalised."

"Some of the activists are very aggressive. It's demoralising for the industry and highly damaging to all of us when secret videos are take and shown of one bad example. Good producers don't do those things, yet everyone gets implicated when these things go public."

4.15.3   Staying together is important

Industry members emphasised there were many diverse interests within the meat industry. Yet, there was a very strong conviction that the meat industry needed to "stick together" in its response to criticisms and challenges associated with achieving sustainable meat consumption. This included recognition of a need to avoid any response or strategy that might undermine any particular interest group in the industry.

"We need to stay together. The industry has nothing to gain by infighting over which meat is better than another. Consumers will just hear the negative."

"Global cooperation across the meat industry is important. Meat production systems are so complex, with different systems and interests that we have to allow for diversity of opinions and approaches, but we should not throw 'mudballs' at each other."

"By working together, we can develop a better understanding on how to improve and shape our arguments to support meat."

"Consumers won't see the difference. They will just see meat generally in a negative light if we fight amongst each other. And it will be easier for opponents to attack us."

All meat industries have a role in a sustainable integrated agricultural food system. They need to support each other. If each plays off against one another it will just be divisive and lose-lose."

"Working together needs to involve everyone in the value chain. Retailers also have a role to play in sustainable meat and can bring valuable insight into how to achieve that."

"These issues must be seen by the industry as pre-competitive issues that can be worked on better together."

"We need a joint approach to these issues but tailored to each meat or issue."

4.15.4   There is a lack of co-ordination and resource

Despite the common understanding that "staying together" and collaboration on these issues was vital, there was also a very strong view that there was a lack of coordination and resource by the industry on responding to such issues. This appeared to cause some frustration. The industry was sometimes described as 'its own worst enemy', being too slow to coordinate, slow to respond, and not willing to fund pan-industry coordination at the level required to

become proactive on issues. Several forums were identified that could act in a more robust coordination role, or were already doing so, these were also sometimes described as 'slow-acting', 'under-resourced' or 'conflicted by different internal interest groups'. Contributing more resources was viewed as difficult because significant funding was not easy to justify for international coordination activities. Such resources usually went to national-led efforts, or to activities within specific meat groups which were viewed as having more value due to a clearer perceived link between resources spent and outcomes achieved for the contributing funder/s. Further, the industry was described as highly competitive and existing on low margins. Access to funding then for pan-industry efforts was viewed as very difficult to obtain. The question was posed as to whether pan-industry coordination was either achievable or optimum given lack of resources and various competing interests. Some participants pointed to a potential future outcome of a diversification of strategies based on benefits of some meats or production systems over others. However, this was viewed as being dependent on how external product attributes such as sustainability and health were valued in the future marketplace. That is, if future competitiveness become more directly linked to external product performance or process attributes (based on ethical, health and/or sustainability demands) then this in turn might drive more diversified and competitive strategies and result in less commitment to pan-industry coordination. Support would instead coalesce more around specific interest groups. This already happens to a weak degree, however, members were currently sensitive to not compare themselves directly with competitors from within the industry. Taking a more aggressive approach was viewed with much reluctance and caution. Ultimately the strategy of loosely 'sticking together' were viewed as a safer and stronger approach in the short-to medium term.

> *"There is a lot of fragmentation within the meat industry, it's difficult to get people together and agreeing on actions. Particularly when not everyone shares the same problems."*

> *"There is a lot of self-interested behaviour between countries, species (beef versus pork versus chicken), and production systems. And the messages from consumers about what they really want, and across different countries, can be confusing and contradictory. It can therefore be hard to drive and sustain more ambitious collaboration."*

> *"There is a reluctance to resource common approaches or collaboration across the industry. Who pays? And how much?"*

> *"The meat industry is fairly conservative, fragmented and diverse. There is not always a lot of funding support available for cross-industry activities."*

> *"We are very weak. There is a lack of understanding and resource that goes into responding to these challenges and the industry isn't always prepared to contribute funding to improving the situation. Better communication requires adequate funding."*

"There is a diverse membership. So, some things are not discussed yet that maybe should be. But it takes time to build trust between different interest groups"

"We are always on the back-foot, defensive. We are not perhaps equipped to deal with these issues at the moment in the best way, although that is slowly changing. We need to change that. Working together on these issues can help make that change happen more quickly."

"The industry is one with small margins, high risk, and it's hard to survive. There is not always the 'bandwidth' to process these complex sustainability issues. There can be 'short-term' trading mentality that makes it hard to obtain resources or input on these issues to the degree required."

"There are so many short-term problems facing producers and processors. It is very difficult to focus on long-term strategies around sustainability that are ideologically-driven. We need to look at the issue in a different way, but we don't have the resources to do that. And it needs a lot of money which we do not have. We used to have an industry levy but that was abolished and now it's collected on a voluntary basis. All the members need to contribute some funds, but that doesn't happen."

"The industry needs to urgently collaborate more, not just within the industry but also with other value-chain members."

"There are a lot of privately-owned companies in the meat industry and this potentially does not expose such companies to the rigours of accountability and marketplace expectations that publicly listed companies might face."

"Often producers and processors are not directly connected with consumers. This can create a distortion in marketplace signals."

"Global coordination is difficult because of the different interest groups. Meat production systems are some of the most complex production systems in the world… different systems, different interests, it all makes it very hard to get strong collaboration and adequate funding."

4.15.5 Stakeholder interaction is difficult

Roles of different stakeholders in addressing various concerns was discussed in some detail. Stakeholder interaction was largely seen as difficult. Stakeholders were largely categorised by participants as either opposing stakeholders or supportive stakeholders. Supportive stakeholders could be further categorised as either external to the industry or internal. Internal stakeholders for example included those within the meat industry, for example, producers compared to processors. Yet these internal stakeholder relationships were also described as being difficult, complex and associated with considerable tension. For example:

"Meat processors are often in conflict with producers. Farmers don't feel they get enough money for their livestock. The relationship is often adversarial."

"Big meat processors continually squeeze the producers. They are interested in getting access to meat at the cheapest price they can."

"Farmers are getting poorer. There is too many of them perhaps. As a consequence, they are price-takers. The business-model will likely need to change if farming is to more a more sustainable enterprise in the future."

"Farmers can be difficult to communicate with and get on-board. It takes a lot of work. Many farmers are quite introverted. They don't want some outsider coming to their farm and telling them how to farm. We sometimes have to make a big effort to get them involved and drive change on-farm."

"It's difficult working with some meat industry groups because they have a very different way of communication on issues that is more aggressive than what we would prefer. And they sometimes have very different positions on issues such as GMOs, antibiotics or hormone use."

Supportive external stakeholders mentioned included government, scientists and some non-governmental groups. Supportive scientists or researchers we described as 'those we work with', or 'support', and/or who 'hold positive views of meat'. Supporting robust scientific research on different aspects of meat associated with sustainability, welfare, and health was considered vital to the industry. Therefore, these stakeholder relationships were highly valued. Opposing scientists, were viewed as 'having an agenda', and largely concerned about reducing or even eliminating meat consumption based on ideological reasons, as opposed to sound science. There were questions as to the robustness of their research, including their knowledge of actual industry practice and/or their awareness around the negative impacts implementation of any of their recommendations or findings would create in the 'real world', particularly in respect of long-term indirect effects. Likewise, some government officials, in particular, those from environmental ministries, were sometimes seen to be captured politically by the 'anti-meat' movement. Similarly, many NGO groups were also considered to be anti-meat and thus also anti the meat-industry. Therefore, it was considered difficult to engage in any proactive way with them. Stakeholder relationship management with these groups was described as mostly adversarial and often avoided. However, there were also good examples of considerable success with wider stakeholder engagement. For example, Ireland's Origin Green Campaign was mentioned by both Irish and non-Irish interview participants as an example of the benefits of bringing stakeholders together from across the value chain, as well as non-governmental organisations. The Global Round-Table/s on Sustainable Beef were also described as a positive and valuable opportunity to bring different stakeholders together to help develop new thinking, as well as agreement on principles for sustainability to which the industry could use to measure, improve and verify performance. The LEAP Partnership, a multi-stakeholder partnership supported by the UN Food and Agriculture Organisation was also presented as another example where different stakeholders

could work together to develop robust guidance for measuring and improving environmental performance. Another example was given of a specific group set up at national level by the meat industry, to purposively engage with NGOs on issues. This was considered an important proactive and constructive strategy to openly talk about issues and help manage problems together.

4.15.6 Meat is important to society

The importance of meat in society was referenced often and emphasized firmly. This included the contribution of meat to dietary health, for example meat's role in providing a high-quality efficient source of protein, as well as a source of essential vitamins and minerals such as iron and vitamin B12. Concerns about protein-deficient populations were mentioned. The importance of meat to specific sub-populations such as children and the elderly was also emphasised. The contribution of the meat industry to the health and well-being of many rural communities, along with the important contribution of rural communities to both culture and economy of countries was also raised. The cultural importance of meat and meat production (e.g. farming) was also considered important.

> *"Protein is an important part of the diet. Meat is a ready source of protein and it has lots of other benefits. The importance of meat in the diet is often underestimated particularly for elderly people."*

> *"Meat production is important in many rural areas. It keeps rural areas vibrant and provides work opportunities and creates wealth in these areas."*

> *"Farmers think about the long term. They care for their livestock and they want to do better. They understand sustainability as the need to pass on an economic, environment and socially performing farm to the next generation."*

> *"Farming is part of our culture."*

Reference to the environmental benefits of meat production were stressed. Many comments or questions were raised as to whether the environmental benefits of livestock production were fully recognised and valued in society. As well, there were references to the need for "meat reductionists" to clearly indicate or show the potential unintended direct and indirect impacts of some of their proposals.

> *"Our meat production is based on natural free-ranging grass systems. Moving to soy-based alternatives for example, that's very industrial, is that really natural and healthy?"*

> *"Beef-systems have many co-benefits to the environment and to the community."*

"What worries me is the idea that it is really is better for the planet to switch largely to soy-based protein. 70% of the grassland is not suitable for food production other than meat production. And we have 2 billion more people by 2050."

"Integrated farming systems are more productive than monocultural systems. Livestock farming is part of that integrated system. There is also an important relationship between meat and vegetables that also gets forgotten"

"Is eating that heavily processed vegetarian food healthier or better for us as a society?"

"Meat production often uses land that you cannot produce any other food on. It provides important co-benefits like managing fire-prone shrub vegetation. Managed grasslands can be rich in biodiversity. There are also benefits from good management of pasturelands for climate change."

"A balanced diet is healthy."

"Good quality fruit, vegetable and meat must coexist together."

"The important role of livestock is not understood."

Although the sample size was small, it was noted that there was a difference in the style of responses between interview participants that held policy or marketing coordination positions and those who were directly working for a meat company, processing, producing group. This may be simply due to policy/marketing representatives being more routinely asked to represent the meat industry on these broader societal benefits and concerns related to meat. Thus, they may be more able to provide a more practiced and nuanced response. It is a point to reflect on, however, in thinking more about how these issues are communicated and made sense of internally within the industry.

4.15.7   Society is changing

There was notable discussion on changes in society which were driving a possible re-evaluation of the values of meat in the human diet. This led to very interesting discussion about the role of meat, emerging trends, diversity of issues facing the industry, and the complexity and ambiguity of societal change in a rapidly changing world full of 'noise'. Those interviewed provided often diverse, insightful and thoughtful insight on a range of underlying drivers for change. Several people stressed the importance for the industry to connect better to consumers in urban areas or with younger generations that had 'lost touch' with farming and the way food was produced. This was viewed as a key area to somehow better engage on in the future.

"I don't know if vegetarianism is increasing in the population, but it feels like that the trend towards vegetarianism including vegan diets has become much more popular at the moment.

It's fashionable. There are lots of magazines and cooking books now that focus on vegetarian diets or even vegan lifestyles."

"A consumer study 3 years ago, showed decreased meat consumption mostly for economic reasons. A very small percentage declared they were eating less meat for ethical reasons. But we see weak signals in the marketplace that consumers are thinking about or starting to reduce their meat consumption."

"The younger generations are fed lots of negative messages about meat and are being taught that meat is bad. This could have a big impact in another 5-10 years when they are adults. There is a generational shift happening with regards meat-eating behaviour."

"Meat involves sacrifice. The industry is a victim therefore of the symbol of the product it sells. There is a feeling of guilt associated with eating a sacrifice and also the need to find a belief system that assuages guilt especially as less people now actively practice organised religion. This guilt therefore also culminates on certain products like meat."

"Our society is becoming increasingly feminised. Red meat is associated with male characteristics. You also have to kill an animal. Red is a colour that is associated with blood, death, anger. It's also a predominantly male-industry. Compare this with dairy production, for example, milk doesn't get the attention that meat does. Maybe because its white, it's produced by females (cows), and people forget that the cows get killed at the end. It appears less confronting as a product."

"Our societies are losing touch with how food is produced, with farming, rearing animals and the understanding and knowledge of how important farming is and how farmers care for and manage animals. People just see the negative images."

"Many people have never been on a farm. This is different than a generation or 2 generations ago."

"There are consumers now that specifically look for grass-fed beef. And they will pay more."

"There has been increasing concern over the last 10 years on animal welfare. People want permission to feel good about food. We hear people want more guarantees that we are doing a good job."

"Consumers are becoming more ignorant. They often don't understand how food/meat is produced."

"There needs to a conversation around the role of rural communities in the future. And whether this role needs to change."

The nature of media in society was also raised:

"The media is one of the worst things in modern life. It's mostly negative and the standard of reporting is sometimes very poor."

"The media are biased. They only want headlines."

"Media has changed. There are many ways to communicate now, different people communicating, and to a range of different social groups. It's difficult to keep up."

"It's not necessarily a specialist agriculture journalist that we need to talk to now. It might be the food, environment, health reporter or it could be some blogger."

"Many of the activists are experts at social media and can reach out to big groups of people with provocative convincing messages. This is a non-traditional way of communicating that we need to get better at."

4.15.8   Sustainable meat consumption is complex

Sustainable meat consumption was largely described in the context of a broader sustainability framework and largely around actions focused at improving sustainable production. The subject was described as part of a complex and ambiguous set of issues which could not easily be defined or even identified. Definitions and actions were provided by some participants, although others struggled to define it in a clear and consistent way.

"Sustainable meat consumption is when people consume meat that is produced within available resources"

"It's buying something in a way that promotes the proper use of resources, land and water…buying something produced in a way, that allows for its production to continue in the future."

"Sustainable meat consumption is a package – social, economic and environment. It includes lifestyle choices."

"Well one of aspect to me [of sustainable meat consumption] is your own diet and the need for a certain level of meat consumption within that because that provides protein, so that's part of sustainable meat consumption. Another part is the production of that and how efficiently and sustainable and environmentally friendly that production has been. Another part of it could be that the meat sector is a very important economic activity in the countryside so it's important to sustain a rural community, a rural population and environment and regional development. So, there are many things."

Consumers were largely viewed as the only legitimate stakeholder that could really judge what was an appropriate quantity of individual meat consumption.

"Nobody threatens an American by saying you can't eat bacon."

"We are pro-consumer choice."

"No one is qualified to represent the consumer, except the consumer themselves."

"Our position is, that consumers will choose to eat meat that works for them."

Participants were also asked whether they provided any information to consumers on healthy meat consumption or could define quantitatively what heathy levels of meat consumption might be. Responses mainly focused on the important role of meat as part of a balanced diet with no agreement around what quantity of meat consumption in the diet that "balance" might represent. It was pointed out that 'quantity' or 'guidance' was also a factor that was dependent on the consumer, with certain populations requiring more intake due to nutritional needs relevant to that population, e.g. elderly, people with iron deficiency. Contributing to the

addressing the problem of food waste was provided as an explicit action which was focused on addressing sustainable meat consumption.

> *"We provide material on our website that sets our benefits of meat consumption as well as healthy ideas for cooking meat."*

> *"We put information on our website on how to choose and cook meat, and we also work with collective restaurants (e.g. school canteens) to educate around preparation and serving of meat."*

> *"Sustainable meat consumption is about an eating a balanced diet."*

> *"Meat is an important part of a balanced diet."*

> *"We refer people to the national dietary guidelines."*

> *"Healthy meat intake depends on the individual. Therefore, there is a need to differentiate between these individual requirements which means it's not very useful to provide an exact number or quantity. For example, some women are iron deficient and would benefit from increasing their meat intake. And some people need to eat less… of everything."*

> *"We don't directly talk about over-consumption or any specific daily or weekly intake."*

> *"People know how much meat is a healthy amount. You know when you have eaten too much of anything."*

> *"Healthy meat consumption is about "what feels right". I am not being facetious, but people need to listen to their bodies more and be honest about their eating. Generally, they need to do more exercise and drink less too."*

> *"Food waste, including meat waste, is becoming a big topic and we are involved in national efforts to help combat this. It's something we can all do."*

4.15.9   Sustainability is multi-dimensional

Without exception, sustainability was described as multidimensional. Mention was made to the three pillars of sustainability, being economy, environment and social aspects. Yet there was also emphasis on what was considered as important additional elements, including culture, ethics and health to any description of meat sustainability.

> *"Sustainability is about farming for the long-term. We undertake discussions with our members on this to help think about where we can make improvements. It makes no sense to 'mine' the resource you rely on. It's critical to be economically sustainable but this entails resource management and animal welfare. A new focus emerging is also now on the importance of communities, like the people that make up and support sustainable farming."*

> *"Sustainability is not just about environment but is now focused on social and animal welfare issues too."*

> *"We have five top national priorities for sustainability: animal welfare, health and safety, water resources, energy and land resources. There can be slight difference across operations*

4.15.10 *An uncertain future but more meat*

Participants talked about the paradoxical situation of an uncertain future regarding meat demand. At a per capita level, individual meat reduction was viewed as a 'likely possibility' in developed countries due to a combination of factors. These factors included price, rise in flexitarian behaviour, a growing negative focus on meat, and the belief that total meat consumption was already quite high in the developed world. Therefore, any shift in meat consumption patterns was more likely to be a shift between meat products or a decrease in total consumption. This could have a significant impact on those producers and processors that were traditionally reliant on those markets. At the same time, interview participants stressed the parallel situation of growing total demand for meat created by a growing global population, along with specific populations where meat demand per capita was likely to increase rapidly (i.e. growing middle class in developing countries). This would create a shift in demand towards other markets and hence create the need for new strategies by producers and processors. This paradox, however, between reduction behaviour in developed markets and the situation of total global growth of meat, appeared as a potential block to sensemaking around sustainable meat consumption. It often resulted in a description of two parallel strategies – one for developed countries where meat consumption was coming under increasing scrutiny on sustainability, ethical and health aspects, and one for developing countries who might be much less demanding regarding external meat attributes and meat quality. This parallel strategy, however, was also described by some of those interviewed "complex", as a "potential short-term strategy only". A few of those interviewed felt that consumers in developing countries would begin to demand higher quality meat relatively quickly and reach saturation faster and lower quantities per capita than experienced in developed country populations. It was also mentioned that rising consumption in developing countries might lead some governments to implement more aggressive nutritional policies to control issues of overconsumption and protect broader political interests. The example of China's problems with rising consumption levels was raised.

> *"Traditionally our quality meat has been for domestic consumption because consumers here demand a quality steak. But there has been increasing demand for that in China now. It creates huge demand that is difficult to reconcile sometimes."*

> *"China has so much potential. We could just concentrate on these markets and we still would not be able to meet the demand for meat."*

"Long-term, you cannot escape that meat will come under pressure on sustainability and health factors. But yes, over the long-term meat consumption is also growing. It's shifting to different parts of the world. So, that creates the need for new business models in the industry which are more sustainable, economically, socially and sustainably."

"[the paradox] …It feels like the industry is holding onto a 'get out of jail free card' in its back pocket. But the industry needs to change."

"China is complex. It's a situation that could change rapidly. There will be serious health and environmental problems in China over the coming years. And the Government won't be shy to address these through stricter regulations on consumption, including meat consumption."

"China is becoming more active in nutritional guidance which is looking at setting some limits to meat consumption. Publicly the reasons are for health and environment, with meat contributing to rising obesity or poor health associated with overconsumption as well as the high GHGs emissions of meat. But this is also about politics. The Chinese do not want to become reliant on imports and want to be as self-sufficient as they can to protect their sovereignty."

4.15.11   Science-based approaches are critical

The need for science-based approaches to help support the industry to respond to pressures was underscored. This was a common theme throughout interviews and included the requirement for the meat industry to work more closely with the scientific community to help build more knowledge on the benefits of meat, as well as ways to improve sustainability. Overall, scientists and science were viewed positively in relation to traditional areas of agricultural or 'meat' science (e.g. production, meat safety, agricultural economics etc.). Yet scientists were also sometimes seen as being captured by the other side and promoting weak or poor science with an agenda to damage the meat industry.

"The scientific community is supportive in many instances."

"There is a need for more research on importance of integrated systems. Journal articles are important but it's difficult for the media or public to understand the sometimes nuanced but significant messages in research."

"We are developing a robust multicriteria process with scientists, farmers and with support from the Ministry of Ecology to help further reduce emissions on farm and in the slaughterhouse."

"A lot of science around methane has not been done. But needs to be. Clear links between livestock and climate change not demonstrated. There may be a big difference between different sources of methane whether ruminant-sourced methane is a net contributor etc. We need to understand these issues a lot more."

"We need credible sources of information."

The issue of measurement or research related to meat overconsumption was raised several times. In this regard, there were questions as to whether statistics related to meat consumption

data being used by many researchers was robust, up-to-date, or fit for purpose. An example was given of the use of national-level statistics for meat consumption which bases per capita consumption. These statistics were not seen to be a reliable enough to determine policy and recommendations

> *"These is not much information that shows what people are actually eating and how they eat. That's important to getting a clear idea of what really is happening. We would like to do this work too but it's very expensive."*

> *"The WHO statistics are out-of-date."*

4.15.12 We have actions to improve sustainable production

There were many very good examples given of actions taken to improve the sustainability of production. And this was viewed as the primary area of action where the industry had a direct role and could take concrete action. It was also an area where the industry was working with supply chain partners to improve practices across the value chain and help meet changing consumer demands.

> *"We have a major programme on reducing GHG emissions in meat production and processing."*

> *"There is work going on at international level across initiatives in the SAI platform, GRSB, IMS. It's good stuff. At national level, there are significant initiatives across the industry to improve practices."*

> *"We have this new online tool called the "carbon navigator" which you type in some different variables and you see the sustainability benefit and the bottom line benefit from specific actions, back to the enterprise. That's kind of been rolled out at the moment through discussion groups and advisory groups whereby farmers have to use it and see, 'Well, if I improve a little bit on the grazing season or if the calving interval is down by 6 or 7 days, what difference will that make?'. It can then show that 'I'm actually making a benefit on my own bottom line as well as reducing GHG emissions'."*

> *"We are working across areas to make improvements, better herd data, genomics, disease eradication programs which kind of look at the animal health and welfare of the national herd and improving that, also the use of anti-microbials and bringing in management strategies that benefit the herds. And meat safety research and meat waste. We have programmes with research partners also."*

> *"We are active in multi-stakeholder partnerships to help develop environmental life-cycle assessments of meat products and to develop a set of indicators and framework to verify sustainable beef."*

> *"We work constantly with producers to help improve production practices."*

> *"We are investing a lot of resource into improving the welfare conditions of animals."*

4.15.13   Moderation is sensible, but consumers decide

Moderation of meat consumption by consumers who were overconsuming meat was believed to be sensible. Individual over-consumption was not viewed positively, for the individual's health or the industry in general.

> *"Well yes, people should not over-consume meat. But the studies which come out which kind of say things like when you eat too much meat you get bowel cancer make you then ask, "Well, how much is too much," and you're told "Well, five steaks a week." And you kind of go, "well, that's a lot of steak," and I'm not sure that it would be the end of the meat industry if people cut back to three, you know? And that seems to me the only tenable position a food industry can take, right? It's like, no we don't want you to stuff that down your throat until you get sick. That's not a good outcome, alright. So, yes, people need to eat moderately."*

> *"I mean it's everything in moderation, that's the answer all the time. Some people go to extremes but extreme diets are not the answer. It's a balanced diet and meat certainly has a role in that and has huge benefits.*

There was a strong view, however, that consumers should take responsibility for their own consumption. This included: ensuring a balanced diet; being aware that over-consumption of any product was not ideal; and, the belief that consumers needed to be 'truthful' to themselves by listening to their own bodies, by doing more exercise, and by taking responsibility for their own health. There was also some discussion as to whether 'over-consumption' of meat was an issue.

> *"Are people eating too much meat? The research we have seen shows that people are consuming around 100gm of meat around 3x per week. This is not an overconsumption problem."*

> *"We eat too much of everything."*

> *"You need to differentiate also. Processed meats for example should be consumed in smaller quantities. And different cooking methods play a role. So, consumers might need to consume less meat which has been cooked at high temperatures."*

> *"People talk about meat, obesity and heart disease. But meat is not the problem. It's eating too much of a variety of foods like sugar and other processed carbohydrates that really don't provide anything good from a health perspective."*

> *"It's not a good idea to eat too much meat. But some people need to eat more."*

> *"I can't give you an answer on how much meat is the right amount in grams or frequency. The meat portion on your plate should be "enjoyed" and you know when you eat too much."*

> *"The national dietary guidelines provide advice on how much meat people should consume. We align with that guidance."*

> *"We give specific information on healthy meat quantities for children. We follow the National-level guidelines."*

"The quantity of meat that is often used to describe healthy intake of meat per day is based on WHO recommendation which are out-of-date. It's around 70gm animal protein per day. But it's also misleading in that this is something that cannot be specifically determined as it is dependent on each person's requirements and other factors. And is it relevant for all countries?"

In discussion of different stakeholder roles in tackling meat overconsumption the 'consumer' remained most important. Generally, it was considered that the role of government should be limited to dietary guidance which should focus on the benefits of a "balanced diet" or in addressing overconsumption more generally, including wasteful behaviour such as food waste. Regulatory interventions such as taxing meat to moderate meat consumption were viewed highly negatively, mainly for creating perverse outcomes. A strong role for industry was not seen as appropriate due to several reasons. Firstly, there was no agreement as to whether there was an actual 'overconsumption' problem; there was complexity with defining healthy levels of meat consumption given differences in individual requirements; and there was concern as to how an industry could convey a 'reduction' message. There were also doubts as to whether industry would be viewed as 'independent-enough' to be providing information to consumers on the topic. Therefore, the industry role was primarily around education with regards safe and healthy preparation, cooking and waste handling. NGOs were not viewed as being capable to present neutral, science-based information to help the public make informed decisions.

"Meat over-consumption is not a problem for our country. So, this is a question that is not relevant to us. In general, education around over-consumption could be useful. The Government is best placed to do this."

"A tax on meat will mean that poorer people who may be more likely to be protein-deficient won't be able to afford meat as much. And it won't make any difference to protein demand more generally. So, the net-impact will be negative. We don't regulate other food like this."

"People need to take responsibility for their own eating."

"It is in our interests for consumers to consume responsibly. We need to help consumers make informed choices which includes healthy portions of animal proteins."

"There is tendency to focus on the big 'rugby-man' type of male who eats a lot of meat. But there are huge pockets of society who are not eating enough meat for their health."

"There needs to be better statistics and knowledge on how much meat people are actually consuming. Currently, many studies are relying on data that is not telling the real story on what individuals are actually consuming."

"I guess companies might comment that it's hard enough selling stuff as it is without having messages saying, 'Actually, don't eat too much of it'."

4.15.14   Communication is a mine-field

Communication was a major topic that surfaced in the interviews. It was largely described as a minefield which many participants in the industry were reluctant to traverse. There were several aspects to this category. Firstly, there was uncertainty on how, what, where, when and to whom to communicate to on these issues. Secondly, there was sensitivity as to consequences of communication which might result in the industry "getting burnt", or receiving negative press, because of any communication. Communication was described as largely defensive therefore. It was mentioned that 'bravery' was needed in this area.

> *"We communicate when we have to. Unfortunately, that means it's often in response to a crisis."*

> *"We have a bad relationship with media currently. They just focus on negative stories"*

> *"We invited the media, but no one turned up."*

> *"The industry views the media with deep suspicion. But you can understand why."*

> *"The industry has a culture that is reluctant to talk about itself. It's uncomfortable in the spotlight because usually it's a crisis that brings them there. It takes some bravery to put your head above the parapet and communicate on something good."*

> *"The IARC Report was totally misconstrued by the media. It was also communicated in a way that was so negative. It was difficult to respond. The US industry response was very aggressive. But I think ultimately this aggressive approach turned it into a row that kept the news churning."*

> *"The meat industry is bad at communicating with the public in general. Commodity industries seem to be often bad at this. Traditionally they have not been forced to do it and so have not. Therefore, it's difficult to change."*

> *"We need to invest in a new way of communicating on these issues."*

> *"The meat industry responded defensively to the IARC Report and media reporting. Just being defensive won't work."*

> *"In terms of the benefits of meat and in terms of nutrients, minerals, and vitamins, etc. We probably don't do enough of it [public communication] because I think there are fears about communicating. If all is quiet out there on the news in the morning, right? And all that we're worrying about on the radio or on the news channels is the government and whether or not it the government will do this or that etc. or some other issue, then you're not going to go out and raise your hand and say, "I want to tell you about how great meat is." Because you don't want to bring the debate onto yourself again or invite potentially negative focus. But the problem is, that when we do communicate, it always seems to be because we are reacting to somebody who has come out with something negative."*

> *"People are being told the wrong stuff or statistics in a misleading way. I mean what really gets me mad is that somebody reports that eating too much red meat increases your chances of dying from cancer by 20% right? 20%? That is quite a lot isn't it. Sounds bad. But your chance of getting that cancer might be around 0.2%. So, that is 20% of 0.2%. Now, how much is that? Not much. So, people are kind of misleading consumers and creating fear. But it's*

difficult to respond to these types of misleading statistics. The challenge is, is that once that is statistic is communicated to the masses it's difficult to correct in people's minds. You can point out, and say, look the risk is actually this, but you are going to get 1% or 2% of the people that heard the original message probably taking note of your correction."

"Some stakeholders are very aggressive and also publish videos that denigrate the industry as a whole by using specific cases of animal cruelty that they have found. These don't represent the industry at large. We try not to respond to aggression and communicate on robust, solid consistent messages of what we are doing to improve practices."

"The industry does not engage enough on communicating about what it is doing."

"There is a lot of fear around media. The industry feels targeted. There are a lot of messy conversations going on in the public, but what are the real concerns?"

"The industry is trying to balance public conversations but it's hard because as fear becomes more prevalent and credibility is damaged in the eyes of the public it becomes even more difficult for the industry to communicate."

"We don't communicate in general well. But even the words that we use in the industry, such as 'slaughterhouse', 'carcass', 'live-weight', 'dead-weight'... well they don't really project a positive image to many people from outside the industry, do they?"

"The meat industry is not the tobacco industry. But we seem to be making the same mistakes they did in responding to criticism and detractors."

"The meat industry needs to build a much longer-term relationship with the media and on a variety of issues. How many meat companies have a PR person who can talk on these issues and who can proactively communicate, rather than just defending the industry when a crisis hits?"

"It's not useful for the industry to get in a mud fight with opponents or be condescending or mocking in the media about other views or stakeholders. It's not a positive result for the industry."

"We invited a journalist to our conference. It worked well. He still asked hard questions etc. but he took the time to investigate what was happening, was open to learning and met people in the industry who are working hard to improve sustainability. We need more to be more transparent around what we are doing."

4.15.15 We need to do things differently

There are many positive actions happening across the industry and all those interviewed could list various actions or changes that were occurring. But there was also a strong voice for the need for change in the industry with regards responding to sustainability, ethical and health issues. There was very strong agreement around the need for change with regard how the industry responded to and communicated on these issues. There was also strong agreement on the need for more coordinated and ambitious action across the meat industry. Some of those interviewed also outlined the need for major transformation within the industry involving development of new thinking and business models.

"Just being defensive won't work."

"The meat sector has a social licence or 'licence to operate' that it must maintain with the public. This involves building or maintaining public trust. The industry needs more transparency. It needs to point to actions that prove it is doing good work and have positions that can show authentic or concrete action."

The industry needs to show how important livestock is to agricultural systems."

"The industry needs to change more quickly"

"The sector is working together to help address these concerns. But there are a variety of interests involved so it takes a lot of time."

"There is a need for the industry to build a better relationship with the media."

"The business model for many meat producers needs to change. It's difficult to make a living. Some consolidation is needed to improve the sustainability of the industry as a whole."

"The role of livestock is not understood by many people. The industry needs to communicate on that and get clear positive messages around what is happening. This requires a change in thinking and communicating."

"There is a gap between the consumer and the meat industry. This gap distorts market signals. There needs to be more collaboration with all parts of the value chain to improve feedback to the industry and help bring change more quickly."

"The industry needs a better understanding of what is happening. Criticism is coming not from just one citizen group but across different groups and issues. We need to understand what is driving that to better respond and know what the problems are how to work to address them. We need better communication and new ways to communicate. I fear the industry will not react for another 5-10 years and that maybe too late in some places."

"We need to look at all these issues from a new perspective."

"A holistic approach is necessary based on science and which is coordinated across the different meats and countries. Common messages but able to be tailored as relevant to the circumstances."

"We need to communicate differently too. We tend to respond in a boring way that is not very accessible to the public. We need to think about pleasure and culture not just the scientific reasons for eating meat. These are important too."

"There is potential to connect more with consumers directly. Invite them to farms, show them what happens in the meat industry. Attract the younger generations and promote farming and meat production as a lifestyle, career, important part of society."

"Making people think about the unintended impacts of a world without meat might be interesting. Loss of culture, rural communities and lifestyles, protein and mineral deficiency, unmanaged rangelands…"

"Wouldn't it be nice if some of the advertising funds to promote meat consumption were used to educate how meat is produced – so people start to understand more about how meat gets to their plate and the good things happening before it gets there."

"We seem to be making the same mistakes that the Tobacco industry made. Yet, eating meat is not smoking!"

"The important role of livestock is not understood by most people."

"We need money for better communication and new communication."

"We need a better strategy to respond to these concerns. They won't be going away."

4.16   Overarching Categories

The 15 themes that emerged in the coding and categorisation process can be further aggregated into six overarching categories: Defending ourselves, Identity, Communication, Interpreting Ambiguity, Responsibility, Doing better. These six overarching categories in presented are presented in Table 19, along with their related sub-categories. The six overarching categories give a clearer appreciation of the key themes that decision-makers are drawing on in sensemaking efforts.

Table 19. Overarching Sensemaking Categories emerging from Industry Interviews on Sustainable Meat Consumption

Overarching Category	Sub-Category	Description	Key Sensemaking Characteristic
Defending ourselves Focus is on defensive strategies and reactions. It is often the underlying driver for actions or responses. Mentality of being 'under siege'.	**The way we do business is always scrutinised**	We are continually being scrutinised and facing challenges to how we do business.	Ongoing, Extracted Cues
	We need to defend ourselves	We often feel unfairly attacked by opponents to meat consumption and we need to "defend" meat and meat industry	Identity, Enactive of Sensible Environments
	Staying together is important	There are different interests in the meat sector, but the sector is stronger acting together to sustain and defend legitimacy values of meat in general	Social, Enactive of Sensible Environments
	Science-based approaches are critical	Science-based approaches are important in providing a fair 'level playing-field' and in defending the values and importance of meat to human diet and sustainability	Enactive of Sensible Environments
Identity Identity is confronted. On one hand, meat is considered vital, the meat industry is an important and key contributor to economy and society. On the other hand, meat is now being questioned, re-examined and confronted. The meat industry is not held in the same high esteem as it once was.	**Meat is important to society**	Meat is important to society and has many positive benefits for health, environment, culture and economies. There is no substitute for meat.	Identity
	Society is changing	Society is changing, and meat is losing some of its legitimacy as the key component of some diets. Meat's values are being questioned. The meat industry is devalued in the eyes of many consumers.	Identity, Focused on and by Extracted Cues

Communication	There is a lack of co-ordination & resources are often weak	Coordination is difficult because of mixed and sometimes competing interests as well as lack of resources. We find it difficult to communicate with one voice. It takes a crisis to get us truly motivated.	Enactive of Sensible Environments, Retrospective
Communication is complex and sometimes dangerous. It's avoided if possible. Interaction is difficult with stakeholders external to the industry that are "anti-meat". Better ways to communicate and more coordination are needed. But who do we communicate to, and on what exactly?	Stakeholder interaction is difficult	Stakeholders can largely be categorised as supportive or opponents. It's difficult to find common ground.	Enactive of Sensible Environments, Social.
	Communication is a mine-field	Communication is difficult and presents significant risks to the industry. We are not sure how to communicate in the best manner, who to communicate to, or whether it's desirable to do so.	Identity, Enactive of Sensible Environments, Retrospective,
Interpreting Ambiguity	Sustainable meat consumption is complex	Sustainable consumption is confusing and complex with mixed signals. The consumer needs to take responsibility based on fair and accurate information.	Focused on and by Extracted Cues
Sustainability is complex and everchanging. It's difficult to reconcile the need for more meat with a growing global population, and the need for some individuals to reduce meat consumption.	Sustainability is multi-dimensional	Sustainability consists of multiple elements including ethics, health and animal welfare. There are trade-offs that must be managed but these can be difficult to understand and decide on. There are many contradictions.	Focused on and by Extracted Cues
	An uncertain future but more meat	There are many challenges to the meat sector today, yet the global population is growing and thus the overall demand for meat is also increasing. There are many contradictions.	Plausibility, Focused on and by Extracted Cues
Responsibility	Moderation is sensible, but consumers decide	Moderation of consumption is sensible, but it is the role of the consumer to decide what that means.	Social, Identity
There are many actions that we are working on to improve our sustainability. We are responsible for our product. But consumers must take responsibility for how and what they eat, not the industry.	We have actions to improve sustainable production	There are many actions now being implemented to improve sustainable production of meat. Many farmers desire to manage for long-term benefits. We want to do the right thing, but it needs to be profitable.	Driven by plausibility rather than accuracy
Doing better	We need to do things differently	Times have changed, and the industry has been slow to adapt to new and sustained challenges. We need to be less 'reactive' and more proactive.	Retrospective, Identity
We must do better as an industry in responding to issues involving health, sustainability and ethics. We need to transform our industry.			

4.17   Sensemaking Discussion

The seven characteristics of sensemaking as defined by Weick (1995) and presented in Table 5 in Section 2.12 of this thesis are all evident in the ongoing process by the meat industry to make sense of the complex, multi-dimensional external pressures facing the industry associated with sustainability, ethical and health concerns as identified in the emerging

frames above. Tables 18 and 19 indicate several sensemaking characteristics as they directly relate to a specific frame. For example, descriptions of the importance of meat in society to health, culture, sustainability and economy indicate the importance of identity construction in sensemaking. Across the interviews a very strong reactive and defensive element emerged with regards sensemaking efforts within the industry. This is not to say that there were not good examples of innovation and commitment to improving sustainability. Industry members described plenty of examples of projects and activities that demonstrated change and good practice. Yet, members talked strongly, and with some emotion, about feeling 'attacked', an 'industry under siege', 'hurt' and 'unfairly targeted' and these emotions appeared to be a major factor in shaping sensemaking. Why meat was seemingly receiving so much negative attention was a real question at the heart of these concerns. This sense of being attacked and under-siege also created a deep reticence to undertaking any public communication on these issues due to the perceived negative attention any self-generated publicity might receive. The was a sense that the industry was describing itself somewhat like a 'rabbit which has been caught in the headlights of an oncoming car'.

Three characteristics of sensemaking emerged as being of particular importance: identity construction, extracting cues, and being enactive of sensitive environments and these three characteristics also closely relate to the six overall categories that emerge from the data. These are discussed in the following section. Three additional aspects viewed as important contributors to sensemaking on the topic are also addressed. The first is whether industry structure is a possible barrier to change. The second emphasises the importance of how ambiguity and uncertainty are managed. The third point addresses idea of prospective sensemaking.

4.18   Identity construction

Identity construction demands the establishment and maintenance of identity with 'sensemaking beginning with a self-conscious sensemaker' (Weick's (1995, p.22). The overarching categories of Identity and Defending Ourselves were key themes of participant responses. It is identity that is also being challenged when the legitimacy of meat and its role in healthy and sustainable diets, and the meat industry itself, is being questioned. The industry itself was described by industry participants in this study as 'conservative', 'traditional', 'needing to change', 'needing new ideas and strategies'. It was also described as a 'tough industry', 'competitive', "focused largely on producing" and working on 'low

margins'. Meat-reductionists were described in oppositional terms and with strong and powerful traits such as being 'well-organised', 'powerful, 'well-funded' and 'communication-savvy'. Some of those interviewed described the industry as 'not currently equipped' to best handle challenges around sustainable meat consumption. Participants described feelings of the industry being attacked when confronted with public descriptions of meat as being carcinogenic and polluting, and the industry as murdering, untrustworthy and comparable to big tobacco and alcohol. There was strong concern voiced about what was viewed as a defensive and reactive positioning of the industry in public communication on health and sustainability issues. The use of a more responsive and proactive approach on issues of sustainable meat consumption was considered vital to the industry in the future. Participants could point to examples of innovation and performance improvement across a broad range of sustainability and health areas, particularly within production practices on-farm or within coordinated action at national-level as part of broader food-marketing campaigns. Yet, action was often described as 'slow', 'under-resourced', 'fragmented', 'under-communicated', 'not urgent enough', and/or 'communicated poorly'. In relation to some efforts made by other members, there were also concerns over whether these represented authentic and/or real change or was just 'window-dressing'. One participant described his role as being under-valued in society:

> *"I don't really tell people [from outside the meat industry] that I work in the meat industry. It's not seen as an attractive or interesting industry to talk about socially."*

In summary, a strong positively-framed identity of the meat industry did not emerge in the interviews. Some comparisons were made with the dairy industry:

> *"The Dairy Industry is very proactive, positive. They have a different mentality, more resources, higher margins. They don't kill animals as their main business which probably helps. Their business-model is also more focused on added-value products and ingredients which I think makes a difference. And they have attracted professional executives from outside the industry that helps to bring in new thinking."*

Identity was also a major category. Therefore, identity was both an element running through other categories, as well as a stand-alone category. This related directly to the representation of meat, by participants, as being essential to human nutrition and important to society but an awareness that positive traditional values around meat were being actively re-examined by some parts of society. This was described with some emotion and appeared as a confrontational process in which identity of meat and the meat industry was being contested.

4.19   Identity construction in sensemaking

The importance of industry identity in sensemaking was not considered in detail within the prior literature search. In keeping with a Grounded Theory approach the aim was to let themes or elements emerge from the data. The dominance of identity as a category that emerged from the interview data, however, requires the need for deeper reflection on this aspect. Identity construction is also a vital part of sensemaking and issues in identity construction are likely to have significant flow-on effects to sensemaking efforts as a whole. For example, Weick (1995, p 23) notes 'firstly, that controlled, intentional sensemaking is triggered by a failure to confirm one's self and secondly, that sensemaking occurs in the service of maintaining a consistent, positive self-conception'. Accordingly, sustained negative public debate on meat quality, safety, ethics, health, environmental integrity and trust will challenge the legitimacy of meat and the meat sector and therefore trigger intentional sensemaking. A pertinent question may then be: "Who are we as a sector in response to these sustained and serious attacks on integrity and values?" In the absence of concluding a clearly defined positive industry identity in answer to this question, the industry may therefore struggle to effectively make sense of the situation. In this case, determining appropriate strategies and actions in response to profound legitimacy challenges are likely to be difficult. This may also result in any sensegiving efforts giving mixed or negative signals. Poor sensegiving efforts therefore may lead to situation where the intentions or values of the industry may be misinterpreted, viewed as purposefully opaque, or as being unauthentic by external stakeholders. Such negative feedback may further stall industry sensemaking efforts. The notion that there is need for 'new thinking', 'change', 'transformation' in the meat industry voiced by many participants also points to an active identity construction phase.

> *"Most meat industry people are just focused on the day-to-day job of producing and selling meat. Not many people are thinking internally on the big picture. What's needed is a birds-eye view."*

> *"The industry needs to change."*

4.19.1 Research on identity construction

Of interest to this study are other cases where the identity of organisations is challenged through challenges to legitimacy of the organisation. A number of studies exploring organisational identity in response to stakeholder threats (Elsbach & Kramer, 1996; Gioia, Schultz, & Corley, 2000; Ravasi & Schultz, 2006; Steele, Spencer, & Aronson, 2002) suggest

that organizations will attempt to restore alignment between their identity and how they believe external constituents view them (Dutton & Dukerich, 1991; Dutton, Dukerich, & Harquail, 1994). They may even seek to alter their identity to move toward or become isomorphic with external stakeholder demands (Gioia, Schultz & Coley, 2000). Dutton and Dukerish (1991) investigate how individuals make sense of their organization's response to a non-traditional and emotional strategic issue. They found that an organization's identity and image are critical constructs for understanding the relationship between actions on and interpretations of an issue over time (p. 520). Specifically, their analysis found that the identity of an organisation, or how organization members saw it, played a key role in constraining issue interpretations, emotions, and actions. At the same time, how members thought others perceived their organization was used like a gauge against which they evaluated and justified action on the issue (p.520). According to Dhalla and Oliver (2013) and drawing on Glynn (2008) there is a lack of research specifically on issues involving identity issues explored from an industry-level perspective. In the case of the meat industry, it is industry identity, that emerges as a key and pervasive element of current sensemaking efforts.

4.19.2 Industry-level identity and sensemaking

Of interest, therefore is industry-level research by Dhalla and Oliver (2013) who explore a situation where firms elect to ignore salient or coercive institutional pressures or to forego identity alignment with stakeholders and are therefore not responsive to institutional pressures. They demonstrated how that a strong industry identity can also be a source of institutional resistance (p. 1805). Using the Canadian banking industry as a case study, they found that there was a tendency for firms, within this sector, to dismiss significant institutional pressures as a consequence of a strong industry identity acting as a source of resistance to stakeholder expectations. In this case, the industries own confidence in its relevance, purpose and value, along with an oligopolistic industry structure, resulted in a situation where external demands for change were often dismissed, creating a sustained misalignment with stakeholder demands (p. 1829). The research suggested that firms which are members of industries with strong identities may therefore feel less compelled to negotiate with stakeholders and potentially become more oriented towards one another than to their stakeholders as a strategic point of reference for selecting appropriate strategies (p.1829).

4.19.3 Benefits and drawbacks of strong industry identity

There are of course benefits to a strong industry identity, such as lower transaction costs, increased information exchange, shared resources, and efficiency gains which can potentially enhance survival and profitability (Peteraf & Shanley, 1997, p. 179). Yet Dhalla and Oliver (2013) point to the risk that a strong industry identity can also narrow attention, increase cognitive myopia and introduce risks to long-term performance, with 'new information triggered by external changes having to penetrate a dense collective interpretive schema that contains highly revered and trusted cognitive recipes for navigating the strategic environment' (p.1829). Therefore, the problem appears to be when the identity is collectively so strong that sensemaking is stalled due to a reluctance to break down sense to remake new sense better equipped to respond to a changing environment. It was pointed out earlier that there appeared to be an absence of a clearly defined positive industry identity in relation to emerging demands associated with sustainable meat consumption. It therefore may seem counter-intuitive to then propose that it might be a strong industry identity that is stalling sensemaking within the meat industry. Yet historically, the industry has enjoyed a very strong identity. Traditionally, in many countries the high-value that societies have placed on meat production and meat itself has been strongly reinforced through the important contribution of agriculture to the development of national economies. While major developed economies today rely substantively less on agriculture as their main source of GDP there remains very strong emotional, social and economic ties with agriculture. The images of cowboys, ranches, farmers, and farming is an enduring part of the romantic culture of many countries. In developing countries, agriculture largely remains as one of the biggest employers and more important industries. Deeply-held positive and ensuring cultural values around meat, its symbolism for strength, masculinity, wealth and its important nutritional benefits endure in many communities. Therefore, it is not surprising that confrontation to this identity results in the mostly defensive and reactive response which currently binds the industry together. However, the values and benefits of meat are now being re-evaluated and questioned through by example, urbanisation, population growth, flexitarianism, environmentalism, feminisation, sustainable development, consumer ethics and through challenges and growing awareness over the impacts of overconsumption, climate change, deforestation, and pollution. This confrontation of values arises in the type of self-reflective questions that participants raised in the interviews concerned with 'why meat was receiving such negative attention?'. Therefore, the meat industry is in the process of a possible transition from its past strong identity as an

industry critical to economy, health, diet, livelihoods and above serious criticism to one that is now fundamentally challenged on all these issues, as to whether meat is healthy, essential to the diet, ethical, and environmentally-friendly.

In a study of the airline and trucking industries over a ten-year period, Audia, Locke & Smith (200, p.837) revealed that greater past success led to greater strategic persistence, even in the face of radical environmental change. A strong industry identity based on a high satisfaction with past performance was therefore more likely to protract organizational change and threaten long term performance. Several of those interviewed alluded to such a situation within the meat industry:

> *"The industry has never been really challenged on these issues in the past. It's never been forced to, until relatively recently. It's a commodity industry and its focus has been on selling meat. And people have been eating it and wanting more. So, you don't need to talk about it. The natural inclination then is to just ignore some of the criticisms and hope it goes away. Keep your head down. So, now when it faces serious criticism it is often the case that it seems unprepared or doesn't know what to do. The first reaction then is mostly defensive. That's changing slowly."*

> *"The FAO Livestock's Long Shadow Report in 2006 and Greenpeace's Slaughtering the Amazon Report (2009) really put a negative focus on the industry. The industry wasn't prepared or knew how to best respond."*

4.19.4 The potential for sense-breaking

Presuming therefore that an historically strong identity enjoyed by the industry may be hindering sensemaking efforts, then industry members will need to "sense break" to "sense make". Sensebreaking describes a form of sensemaking or "sense-unmaking" where organizational members must break down sense in order to give sense (Almqvist, Catasus & Skoog, 2011) and it therefore involves the "destruction or breaking down of meaning" that was previously held (Pratt, 2000, p. 464). While this is not an easy task, neither is failure inevitable. There are examples of successful organizations which have been able to transform their identity and business in relation to environmental sustainability, including Unilever, Nike, Hewlett Packard and Interface. Walmart's transformation from a pariah on environmental and sustainability performance to a committed leader is also impressive. Innovations by these companies around sustainability have also helped to redefine wider industry direction and action. With respect to the meat industry, a few examples of leading meat companies were also provided by participants as the type of companies that were really trying to redefine themselves based on sustainability and health credentials. The Origin Green Programme and Global Round-table on Sustainable Beef were also examples of efforts to

transform thinking at a wider industry-level and embed meaningful change across the value chain. Yet efforts were described as challenging and slow:

> *'One example I can think of, a company that is really trying that stuff, its hard work. They need a lot of investment and it remains to be seen if they can get the return on that investment at the end of the day. The industry is just so competitive and based on price."*

> *"I just sell meat. I want to get the best price I can."*

> *"It takes time. The industry is very fragmented. Getting everyone around the table is difficult at first. People are suspicious of others. First, we have to build trust. Then we can start to move cautiously."*

> *"It often takes a crisis to get the industry really working on these issues".*

All participants expressed concern around the multiple challenges facing the industry. But almost all talked about the situation of the world needing more meat in the future which was something the industry may even struggle to meet. It is this remaining ambiguity, the idea that there is a 'get out of jail card' which the industry has, even in the face of demands for reduction in meat consumption, that may potentially seriously hamper any 'sensebreaking' or new identity-construction. How the industry goes about the constructing a new identity over the coming years, or whether this is indeed possible in a managed way without significant disruption to the industry itself, is therefore of interest.

4.20   Enactive of sensible environments

A sensemaking characteristic that was particularly relevant in the interviews was that of being Enactive of Sensible Environments. This also directly relates to the overall Communication category which demonstrates difficulty amongst participants in making sense on how to best communicate on issues regarding sustainable meat consumption. As well the Doing Better and Responsibility themes are also relevant in that participants expressed motivation to do better and a responsibility, shared with other stakeholders like consumers, to address negative aspects of meat consumption, although with an emphasis on improving production practices.

4.20.1 Communication

Communication was described as difficult internally within the industry, across its diverse and sometimes competing members, as well as with external stakeholders such as media, consumers, research groups and non-governmental groups. In this regard, industry creates its operating environment as those environments create or impinge on industry with participants

playing some role in helping to produce part of the environment they work within (Weick, 1995). There is indeed some awareness in the industry of its own enactive role in public discourse around the role of meat in a sustainable and healthy diet. One example relates to industry communication in which the industry describes itself as failing to best communicate on the good efforts being made by the industry and on how important meat is to society, including the multiple positive benefits of meat across health, economy and environment. Industry members described the need to better communicate in a more transparent way as well as being proactive and responsive rather than defensive and reactive. Thus, there was recognition that the industry does itself some disservice when it fails to communicate well on its good actions or in its responses to provocation or challenges.

> "But we still don't do enough of this [communication], in the media, in the public arena, and it comes from this kind of a perspective where we don't want to 'rock the boat when things are going well camp'. I know this is the feeling across most of the meat industry across the world really. We are slow to step up and get out there, and push the benefits of meat and its place as part of, the best part, of a healthy diet. But we need to do it."

Conversely, the success of 'anti-meat' or 'meat reductionist' groups in communicating messages to the public was not a revelation to the industry. They were described as better resourced, coordinated, more media-savvy especially with social media and able to generate attention-grabbing headlines. Therefore, there is an awareness that the current industry approach only reinforces the defensive positioning of the industry.

With regards stakeholder interactions, many participants also talked about a fear or reluctance to be involved with civil society groups. As discussed within the Frames section earlier, this was often left to a larger food or meat promotion body or marketing body which was believed to be better equipped or able to manage these relationships.

> *"Q. Do you involve NGO groups or such stakeholders to any discussions/meetings?*
>
> *A. No. That sort of stuff is done by the national food marketing people. And at EU-level, yes. Like if there is a civil dialogue group on meat then a variety of stakeholders sit around the table, including CSOs.*
>
> *Q. But do you engage with them directly within your organisation?*
>
> *A. "No. That said, we've never had a request, have we? We haven't turned down any requests. But we're not put a flag up to say, 'hey why is it you're not meeting us either?'. I mean there's a lot of other things to do."*
>
> *"I don't think there is much value in inviting people that just want to attack the industry and stop people from eating meat."*

Yet more direct interaction within the industry, with groups 'that think differently' may provide valuable insight to meat producers and processors. It may also be useful in diffusing tensions or misinterpretation of motives and offer new avenues for communication. And it can help to reframe demands and motivate new thinking or solutions on both sides if there is genuine motivation to do so from both parties. Several studies, (Audia et al., (2000), Ashford and Tsui (1991) have also found that failing to seek negative feedback, internal or external, can also foster managerial ineffectiveness. Positive benefits were mentioned by participants who had experience working with NGOs or external stakeholders:

> "We work closely with a number of NGO groups to help develop some agreement r common approach where possible."

> "Some of the NGOs in our stakeholder group wanted to say how much meat people should be eating. But we discussed this for some length. We were not opposed to it per se but wanted to make sure that whatever it was, it was based on robust research and was consistent with national dietary guidance. In the end, we agreed we couldn't find that information which was supported by evidence. So, we agreed together to support messages around a 'balanced' diet."

> "Those groups that involve downstream retailers and NGOs etc are extremely valuable to the industry. It really helps to drive change more quickly when we have their input."

The relationship with news media is also potentially weak. Many participants talked about substantial difficulties with communicating with media, and in dealing with social media on these complex sustainability, health and ethical issues. Most were reluctant to engage with media. Yet, this potentially weakens the ability to be proactive on issues.

4.21   Focused on and by extracted cues

A sensemaking characteristic that appeared strongly across interviews was that of "focused on and by extracted cues". Extracted cues are simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring (Weick, 1995, p.50). Context, however, has an important role in affecting what is extracted as a cue in the first place and secondly how the cue is then interpreted (Weick, 1995). This sensemaking characteristic was an important feature of the overarching categories Communication and Interpreting Ambiguity. Participants appeared to struggle with how to identify and interpret cues which were often portrayed as being highly ambiguous or even potentially false. Cues which did not align with industry views were therefore treated with suspicion and/or sometimes dismissiveness. They were often viewed as being unreliable, irrational, based on weak

science, or driven by ulterior motives, for example, by 'anti-meat stakeholders whose purpose is to attack the meat industry' or by media who 'often appeared more interested in generating attention-grabbing headlines than reporting facts'.

4.21.1 Focusing on "unfairness" and "defence"

Discussion regarding the IARC Report and subsequent media attention on meat and cancer provides an example of wider contextual elements impacting on cue focus and extraction. In the interviews, the Report was described as 'unfair', 'biased', 'attacking', 'poor science', and 'politically-based'. This is consistent with public industry statements by the industry on the Report also. Several concerns, however, were voiced around what was viewed as an overly "aggressive" public approach by certain meat industry members in response to the Report. Such an approach was described as leading to the meat industry portrayed as angry, powerful, bullying and potentially having the effect to only 'fuel negative publicity about meat and the meat industry'. At the same time, the development of an international statement by the International Meat Secretariat in response to the Report was described as a positive development and a potential example of how the industry might better respond to such issues in the future. Yet there were also conflicting stories. A few of those interviewed noted that it was well-known that the IARC Report was being produced, industry-representatives had participated as observers in IARC meetings on the issue and there was wide-spread concern in the industry with the proceedings prior to the Reports release. If this was so, why is it that industry is not more coordinated on more proactive and positive responses to media questions and concerns? One of the reasons may be the strong attachment to the idea that the meat industry and meat is being unfairly attacked. The feeling of unfairness, of siege mentality, might focus responses in a defensive and reactive fashion rather than a proactive and responsive approach. It might also lead to an over focus on cues in the environment that are negative, attacking, and provocative.

4.21.2.   Weak co-ordinating "brain and muscle" at international level

Participants also expressed concern around a lack of resources and investment at an international level to coordinate and respond to emerging health and sustainability issues. The reluctance to invest money into pan-industry efforts at international level seemed to exist because such funding was considered a highly scarce resource and when available, was tightly controlled at national or firm level. The difficulty of internal dynamics whereby tensions exist between different meat sector interests within the industry was also raised. This

contributed to a possible situation where the status quo was largely accepted as being easier than developing a comprehensive multifaceted communication strategy, which would require significant funding to develop and wide agreement. For example, pork producers were described as having different pressure points as compared to beef and lamb producer, the same for intensive production compared to more extensive systems, grass-fed versus corn-fed, large corporates compared to farmer cooperatives. Other participants in the interviews, summarised divergent approaches to how industries approach issues in different regions and countries as cultural differences. One participant talked about the different cultural values in different countries around the use of antibiotics, hormones or GMO-feed. Also, the 'American-way' of communicating publicly was regarded as sometimes being more 'aggressive' than a 'European-approach'. This diversity across several fronts creates difficulties in resourcing pan-industry strategies but it also creates difficulties in the focus and extraction of cues that can help both motivate sensemaking, as well as commitment to shared strategies. As explained by a participant, industry stakeholders were less inclined to pay for actions that were not seen to be providing a direct immediate return and which might even benefit a competitor. All of which conjures up the classic 'prisoner's dilemma' approach (see Robèrt and Broman (2017) for an excellent examination on this), and highlights the difficulties commonly involved in driving industry-level initiatives. Such an approach or mindset, however, is not well-suited to achieving sustained authentic change towards any new industry-driven paradigm of sustainable meat production and consumption. Also, when industry members heavily rely on self-interested approaches they are more likely to direct attention to the cues that are only important to them and which reinforce existing power structures.

4.21.3 Power

According to Smircich and Morgan (1982), cues establish the point of reference to which organisation and direction emerges from. Therefore, the choice of which cues serve as a point of reference, also becomes an important source of power (p. 258). Therefore, the lack of resources to better recognise and respond to cues at pan-industry level, may also represent the state of competitive power relations within the industry. This is further intensified by the current defensive-based mentality of the industry, which focuses and extracts cues which mostly maintain existing deeply embedded institutional thinking. Consideration of alternative frames that might challenge accepted assumptions are therefore largely resisted. This also means that cues are largely interpreted retrospectively to justify existing beliefs or identity.

In discussions about the IARC Report and subsequent media publicity, participants although holding different views on appropriate external industry communication, expressed general agreement internally that the Report itself was poor, lacked scientific integrity, deserved to be ridiculed. This was also retrospectively justified by many participants who described the Report and media reporting as "ridiculous", "actually annoying consumers", "poor science and poor journalism". One participant talked about how the debacle had largely led to 'IARC being discredited'. There was little separation made, however, between the media's reporting on the IARC Report and the content of the actual Report, which were markedly different. Therefore, important cues that might lie within the IARC Report may not have been noticed, and therefore not be available for sensemaking. In this case, whether one agrees with the Report's recommendations or not, valuable information may have been ignored.

4.21.4 Ambiguity of Cues

The broader context of growing global meat demand, and the projected need for a near doubling of meat production by 2050 to meet a growing world population, is also significant to the focus on, and extraction of cues. Social context is viewed as a critical component in sensemaking 'because it binds people to actions that they must then justify, it affects the saliency of information, and it provides norms and expectations that constrain explanations" (Salancik & Pfeffer, 1978, p. 233). The inherent contradiction caused between demands for meat reduction based on serious concerns about sustainability of meat production and consumption, and demands for more meat production to meet growing total consumption is an important contextual element. It potentially dilutes the power of any extracted cues which normally would be expected to drive change in the meat industry. One participant in the study ended by asking:

> *"Does the industry really need to worry about a small decline in consumption in due to health/ ethical/ environmental/etc. concerns, if total global consumption is increasing significantly anyway?".*

Signals or cues that might normally lead to change are therefore potentially weakened if projections of future long-term demand are such that it predicts that global meat demand is much higher than what the industry can produce currently, or if there is market leakage, where substantially growing meat demand is occurring in populations which are not sensitive in the short-term to external quality attributes.

4.21.5 Noticing cues

Another important point within this topic is that some cues are also potentially weaker due to the position of meat producers and processors in the value chain. In general, producers and process operate in business-to-business relationships and function some distance from the final consumer. Therefore, 'noticing' important consumer cues in the first place may be more difficult, and secondly interpretation may be distorted as cues might be communicated through an intermediary in the value chain, who will interpret cues within their own worldview. Some participants therefore pointed to the importance of the industry to be better connected to consumers, and/or stakeholders in the value chain who have direct relationships with consumers:

> "The Programme we have at place across the food industry in our country is heavily supported by the meat industry. It has been very successful, and they are big champions of the initiative. I think they are happy to see the outreach we do and find it valuable to be more connected with the consumer-facing side of things."

> "The producers are too far away from the consumers. There is no feedback loop because the customer is the meat processor. I think this creates some distortion in messages back to the producers."

4.21.6 Weak external stakeholder relations

Lastly, it was noted that there was noticeable separation of roles with regards stakeholder engagement. For example, stakeholder engagement with civil society appeared to be largely conducted at national level within broader food or meat marketing groups (e.g. Ireland's Origin Green initiative), or within specific multi-stakeholder forums external to any individual meat company (e.g. LEAP Partnership, Global Round-table on a Beef (GRSB)). The benefits of stakeholder relationship management within these types of external partnership groups are obvious. For example, they can present an efficient management and communication structure and often provide a Secretariat or faciliatory role dedicated to achieving broad stakeholder consensus and commitment to action. However, there are drawbacks of relying too heavily on these external structures, where for example, they are used to contain issues or confrontation at a safe distance from decision-making or business-as-usual within individual companies. This separation can prevent important cues, market signals, and alternative viewpoints from reaching deep into the organisation. This separation might therefore stall change or new thinking from within the meat industry. It is important therefore that there is a close relationship between people who focus on the sustainability, health, and ethical components of producing and processing meat and the people who see

themselves as involved in the operational purpose of producing and selling meat at the best price.

4.22   Structure of the industry as a change barrier

The structure of the industry and its high number of privately-owned companies was raised as a possible reason that might slow change or progress on responding to sustainability and health issues. An example was given by one participant of innovative companies such as Unilever or McDonalds that were forced to "front up to shareholders every quarter and be questioned on sustainability and have to demonstrate transparency". This may be a factor, however, there are many privately-owned companies in the world that position themselves as champions or leaders of sustainability (e.g. MAX Burgers). Many of these companies also state that their 'privately-owned' status enables them to make investments based on long-term considerations that improve satiability which they would find difficult to justify under short-term shareholder demands that require rapid return on investment.

Another contributing factor mentioned was the distance between the meat industry and consumers, with most industry members involved in business-to-business market relationships and therefore remain somewhat 'aloof' to signals in the marketplace that might drive quicker change. Many participants pointed to 'fragmentation' of the industry as a possible factor for slowing change. Conversely, consolidation of the industry was raised as action that was needed in the industry to improve performance – economically, socially and environmentally. Industry structure is likely to have an important impact or contribution to, driving new thinking and innovation around sustainable meat consumption. Yet this raises an extremely complex set of questions. For instance, it involves evaluation of the different and often competing societal values held concerning meat production and meat-eating. For example, how important is a rural landscape that includes small-scale production and processing constituents? Does consolidation of power and resources necessarily make production and processing more sustainable over the long-term? Is it inflexible structures or inflexible minds that create barriers to change? Or both? These questions, and many more, would profit from further analysis.

4.23   Ambiguity and uncertainty

The need to separate between the need to resolve ambiguity and the need to resolve ignorance/uncertainty based on a lack of knowledge was raised by Weick (1995). However,

potentially both situations exist with regards the meat industry and its role in addressing demands around sustainable meat consumption. The ambiguous nature of the issues involved, and future trends was discussed by all participants. At the same time, participants mentioned the need for more discrete understanding or knowledge on the issues. Where further information or knowledge is needed then this should be identified concretely and sought. One might consider, the development of standards, globally agreed principles, measurement protocols, performance and benchmarking data as well as environmental impact studies types of information and knowledge useful to driving industry transformation. The difficulty in issues of sustainability and external product attributes, however, are that they are often highly complex, subjective, and multi-faceted. This was identified by the participants also. The emergence of the frames, "Society is changing", "Sustainability is multidimensional", "Sustainable meat consumption is complex" and "An uncertain future but more meat" within the discussions shows an awareness that there is significant ambiguity existing. This was represented in the overarching category of Interpreting Ambiguity. One would caution that much of this ambiguity will, however, never be resolved through lengthy information-gathering projects or waiting for the right information to guide action. In this respect, as one participant pointed out, "sustainability is not perfection" and neither are attempts at improving sustainability. A key characteristic of sensemaking is that it should be driven by 'plausibility rather than accuracy'. Thus, action should not be slowed down by paralysis.

The emergence of various actions largely focused at improving sustainability and predominantly efficiency actions at production and processing level could be described by all participants. Animal welfare was also a popular action area. These could all be described as actions within the direct control of the industry. There were few examples of sustainable consumption focused actions and when raised included food waste action or recipes and dietary information. With respect to dietary information, "meat as part of a balanced diet" was the key theme. Examples of partnerships across the supply chain were also provided which involved building relationships with supply chain partners that were customer-facing. Yet, it was unclear sometimes who was primarily driving these initiatives, the industry or the supply chain partner.

4.24   Prospective sensemaking

Prospective Sensemaking was explored through several open-ended questions that asked about the future and what that future might look like for the meat industry. Several probing

questions were used to follow up on any specific answers that required more explanation. Questions also sought to understand whether the industry saw itself as a provider of animal protein or more generally as a 'protein' provider. They were also asked if they could foresee a future where consumption of meat was likely to be heavily reduced, and what such a future might like. With regards alternative proteins to meat there was a strong commitment to the perspective that the industry is a 'provider of animal protein', with some pushback against the idea that they might be considered as 'protein providers'. Participants expressed surprise with some meat companies who were looking to expand into alternative-meat products or gave examples of conflict created in companies at the mere mention of such a strategy. This suggests some strong cultural attachment to "animals" as part of industry identity. This is not unexpected as there also appeared a deep attachment to the historical and cultural roots of meat production and consumption in discussions related to the importance of meat to society.

> *"Some of the big corporates are looking at alternative proteins. But the small meat producers, for them it's a long, hard, often thankless job. But they do it because they love raising animals. It's a livelihood, not just a job."*

> *"Cargill has invested in meat-alternative proteins. But that seems a logical fit as it's a big diverse commodity trader. But Tyson bought a stake recently in xx and that was surprising."*

> *"You just wouldn't suggest diversification into protein-alternatives at certain meat companies. It wouldn't be a sustainable strategy if you wanted to keep your job."*

> *"Our industry members are not interested in soy-based proteins. We have a more natural-based system with living animals who are looked after well, fed grass and allowed to roam freely. Paradoxically, those meat alternatives are actually often very industrial so potentially worse for your health."*

Overall, it was somewhat difficult for participants to project into a different future.

> *"I don't see a world in the future which is eating less meat."*

> *"If there was less meat consumption… what would that look like? What would that look like?"*

When they did, any future scenario was usually explained through a current frame or theme, the future was quickly situated within the present time. It seemed that prospective sensemaking was largely a product of retrospective interpretation. Sensemaking about the future was also not decoupled from current identity or ongoing process of current sensemaking.

> *"Meat is what we produce, if we want to exist tomorrow."*

> *"A future with less meat? Not sure we will be better off. Meat production uses land that you cannot produce anything else on. There are important co-benefits that people are not aware of."*

The difficulties encountered with projecting into the future, or in imagining future perfect scenarios reveals a potential lack of vision as to where the industry wishes to project itself, or an appreciation of different world-views outside their own industry identity. Alternatively, it could also suggest that the traditional strong industry identity as a critical provider of highly valued animal protein to society, and mostly impervious to challenges of legitimacy, remains very strong and potentially blocks any reframing efforts.

> *"Yes, perhaps I can see a world with less meat consumption in 50 years. But then, we will be struggling to provide meat to everyone who wants it anyway. And if we did produce less we would struggle to use much of the land now in meat production for other purposes because it is not land suitable for other food production. So maybe not."*

> *"What worries me, is if everyone was switching to soy-based food etc., really better for the planet and people's health?*

> *"I do see a future where people eat less meat. It's very likely in Europe. But global consumption will increase."*

4.25   Conclusion

The results of this sensemaking study provide rich insight into how the meat industry is responding to the challenges it faces in respect to emerging public dialogue on the future role of meat in a healthy, ethical and sustainable diet. This offers fresh insight to discussions regarding sustainable meat consumption. First, it provides a new perspective on how the meat industry itself, is making sense of the challenges it faces in respect to increasing demands to address negative impacts of meat production and consumption. For instance, 15 themes emerged that provide a better understanding on current thinking within the industry. These can be further categorized into 6 main areas: Defending Ourselves, Identity, Communication, Interpreting Ambiguity, Responsibility and Doing Better. Secondly, it contributes to the understanding on how organizations might make sense of threats to legitimacy and identifies possible areas where sensemaking might be stalled for some reason. Finally, the emergent sensemaking themes when applied to the seven sensemaking characteristics have indicated several sensemaking themes or categories that are particularly important at this stage of industry sensemaking efforts in relation to sustainable meat consumption challenges.

Together, these themes depict a largely defensively positioned industry, struggling to identify and extract cues, and stalling in its efforts to construct a new way of thinking in response to an emerging set of serious and complex demands. There is also an over-reliance, by industry decision-makers, on an historical identity of the meat industry and meat which is not best

suited to the changing operating environment which involves a wider reevaluation of the role of meat in society.

Interview participants identified the need for urgent change within the industry. Action was often characterized as being too slow, not proactive enough, and/or constrained by existing structures and thinking. There were, however, many examples of noteworthy activities within the sector to improve meat sustainability, specifically in relation to practices at production or processing level. But, there was limited focus with regards sustainable meat consumption action. A well-articulated position on sustainable meat consumption was also lacking.

There is huge potential for further research on industry sensemaking relating to sustainable meat consumption. It would useful for example to examine sensemaking within small focus groups, to observe social interaction and strategy development in relation to forging pan-industry responses to problems associated with sustainability, ethical and health aspects of meat. Interviews at different levels of organisations within the meat industry, in particular with those holding senior leaderships positions and who are responsible for long-term strategy (CEO, CSO) would also be highly valuable. There are also examples of individual companies that are innovating around sustainable meat. In this respect, investigating alternative organizational forms which might emerge as best practice examples of commitment to 'sustainable meat production and consumption', and/or alternative business models existing in the industry that address sustainable meat consumption as a central business goal, would be highly informative.

Lastly, a longitudinal study, allowing the researcher to follow the progression of activities and strategies across the sector over an extended time-period would also provide highly valuable insight into how sensemaking evolves at industry level. This would contribute to the further development of sensemaking theory which currently lacks a body of long-term research exploring prolonged sensemaking efforts at industry level.

PART D: RELATIONSHIP BETWEEN FRAMING, SENSEMAKING AND LEGITIMACY

This section seeks to set out the relationship between the results from the framing, sensemaking, and case study projects to legitimacy theory.

4.18   Framing and Legitimacy

Nine distinct Frames were identified in the Framing analysis. These were *Integrity of Science, Moderating Meat and Trade-offs, It's about Health and the Environment, Highlighting Conflict, Powerful and Combatant Industry, Creating Hyperbole, Risk, Role of Meat in Society, Governance*.

Together, the frames identified provided rich insight on the legitimation contests across stakeholders in relation to sustainable meat consumption. They convey a message that the future role of meat as a central part of a healthy, ethical and sustainable diet is being challenged - from multiple perspectives, across forums and in a sustained and organized manner. This presents a significant legitimacy threat to the meat industry.

The framing analysis also shed light on different legitimacy seeking behaviours of stakeholders. For instance, within the *Moderating Meat Frame and the It's about Health and Environment Frame*, both NGO representatives and scientists sought to increase public acceptance and legitimacy of the relationship between positive environment outcomes, improved health and lower meat consumption. The science community also sought to retain and improve legitimacy of nutrition science through explanations of reports, referral to evidence, and use of statistics as well as explicitly describing actions by the meat industry as "anti-science". Politicians in contrast largely set out to increase legitimacy of their role as power-brokers or decision-makers that could make sensible and pragmatic compromises. The meat industry sought to retain legitimacy of the role of meat as a critical component of a healthy and sustainable diet yet relied predominantly on actions aimed at defending legitimacy threats through intense and reactive responses.

Thus, each Frame also represented a strategic resource used by different stakeholders to repair, retain, or manage legitimacy. The Powerful and Combatant Industry Frame for example illuminates both industry's defence of its legitimacy, as well as other stakeholder's attacks on legitimacy of the meat sector. In this respect, the framing analysis provide useful

information on how organisations are attempting to extract resources and support, through for example the manipulation and use of powerful symbols, words and metaphors in public debate.

4.19   Case Study, Legitimacy & Sensemaking

The strong growth and rapidly changing nature of the fast-food burger sector can also provide a useful case study with which to understand different motivations around changing values around meat. It can represent a valuable opportunity to observe shifting values around the role of meat in society, more generally. Retailers represent important normative stakeholders to the meat industry holding often powerful positions as "gatekeepers" in the meat value chain. This case study identified several emerging market signals around demands for external quality product attributes related to sustainable meat consumption and production. For example, attributes related to how the meat was produced including whether it was family-farmed, organic or produced in a free-ranging system was evident in many of the new generation of restaurants in the study (post-2000 restaurants). Adequate supply appeared to be the limiting factor for these attributes for large-scale hamburger companies. Other attributes such as animal welfare policies, non-GMO, non-hormone, non-antibiotic use also appeared important amongst the restaurants analysed. McDonalds was the only example in the sample, where vegetarian burgers were not offered on the menu in its origin country.

McDonalds has a number of programmes in place across countries and regions that involve working with supply chain partners to improve sustainability of meat. The considerable power of McDonalds in the meat value chain can lead to transformation of meat supply chains, both nationally and internationally. In turn, this transformation can drive new forms of legitimacy in the meat sector. This would be a useful aspect to explore in further research.

Max Burgers was the only restaurant that addressed the issue of sustainable meat consumption explicitly, including targets towards increased plant-based and non-red meat consumption. Ambitious targets are set to help achieve this objective and actions to achieve this goal such as new products, choice architecture, carbon labelling and offsetting are tested vigorously. Max's Burgers commitment to a 'Sustainability as Innovation' approach is driving ongoing transformation of the business model. The interview identifies the power of the company's leadership in driving change and in enabling long-term investment decisions based around sustainability objectives. A critical element appeared to be the strong belief

from leadership that it is 'doing the right thing', as an organisation that is 'part of the problem' and therefore also 'part of the solution'. This drives sensemaking thinking and action that goes far beyond 'business as usual' and which even seeks to extend legitimacy through the development of a business model that purposefully diversifies away from its main product, red meat.

Together, market signals emerging across the sample of restaurants analysed, along with interview material Max Burgers shows changing values around meat with a greater focus on external product attributes, in particular on ethical and environmental attributes. This means that institutional environment is also changing. This will drive greater legitimacy demands on the meat industry to meet a more diverse set of values around ethical, environmental and health expectations of meat. However, it is noted that signals around health and overconsumption remain highly ambiguous in the fast-food sector.

4.20   Sensemaking and Framing

The degree of consistency between categories or frames that emerged in the sensemaking and framing studies was somewhat surprising. This was not expected, nor was it initially an explicit objective to directly compare the results of both studies. Yet many of the categories or frames appear to mirror each other. Together, the two studies therefore offer further insight into how society, the meat industry being part of that, is socially constructing values around meat and the meat industry.

The studies collectively provide a more holistic view to better consider the intersecting points of where legitimacy threats to an industry emerge and are then managed and/or contested by different stakeholders. Taking one example from both studies can illustrate this. A key frame that emerged in the media framing study was the *Angry and Combatant Industry Frame*. This Frame characterised the meat industry as angry, aggressive and reactive in response to perceived negative challenges to the status of meat in a healthy and sustainable diet. In the sensemaking study, the emergence of a very strong reactive and defensive element within industry sensemaking efforts was evident. The industry describes itself, like it is fighting some war, as an industry 'under siege'. This imagery has become part of the framing of issues related to sustainable meat consumption – in the media and internally from within the sector.

Another important element emerging in both the framing and sensemaking studies was the emergence of themes around the role of meat in society and how this was being re-evaluated. For example, sensemaking by industry members showed deep reflection on the changing status of meat and the meat industry, as well as the rising emphasis on external product attributes such as health and environment. This was also evident within the media framing study, in Frames related to health and environment (*It's about Health and the Environment Frame*) and in Frames that explored cultural behaviours (*The Role of Meat in Society Frame)*, as well as recognition of the need to moderate consumption (*Moderating Meat Frame*).

Many of the categories in both studies indicate some cause and effect' element from both directions and therefore reflect the importance in sensemaking of the need to be cognitively aware that 'we are neither the master nor the slave of our environment' (Follett, 1924; Weick, 1995). This relates strongly to the need to be aware that people create their environment as those environments create them (Weick, 1995).

4.21   Sensemaking and Legitimacy

The sensemaking study based on in-depth interviews with key sustainability decision-makers in the meat industry demonstrated a largely defensive and reactive industry, uncertain as to how and who to communicate to, relying on a strong historical identity of meat and the meat industry, and confronted with highly ambiguous and complex operating environment. Despite many good actions, particularly at production level, these were described as often too slow or not strong enough to appease aggressive ideologically driven opponents. Further, the industry struggled to communicate actions in a positive and proactive way. These are characterized in the six overarching themes, *Defending ourselves, Creating Identity, Communication, Interpreting Ambiguity, Responsibility and Doing Better* and explained in detail in 15 associated sub-categories. Certain characteristics of the sensemaking process appeared to be key to current sensemaking efforts. These were Identity Construction, Enactive of Sensible Environments, and Extracted Cues. These in turn had an impact on legitimacy-seeking behavior. In summary, on issues related to sustainability, ethics and health the meat industry appears to be operating in a phase of defending its legitimacy. This is evidenced through a largely reactive and defensive response as the industry seeks to counter legitimacy threats. Sensemaking within the industry also showed strong emphasis on strategic legitimacy approaches driven by pragmatic values within the industry. Yet this was supported by a strong cognitive basis that "meat" and meat consumption growth was important, necessary

and inevitable. Also, communication outside traditional supportive networks was often described as weak. This creates a need to sense-break existing approaches to legitimacy maintenance and repair to enable the industry to move from a weak position of legitimacy defense to a stronger phase of legitimacy maintenance. This is explained in more detail in section 4.22.

4.22   The Role of Legitimacy Theory

One of the objectives of this paper raised in the introduction was to understand how the meat industry was making sense of legitimacy threats. Legitimacy theory as earlier discussed in Chapter 2 would suggest that when an organisation/s perceives that its current and/or future values, output or methods of operation are at variance with social norms, standards and/or values, and there is risk that powerful stakeholders may recognise this and withdraw resources at some point, then organisation/s will tend to alter their values, output or methods of operation through legitimation activities, to conform to current or expected future societal norms, standards and/or values.

The sensemaking study demonstrated that there was a potential stalling of sensemaking, due to a persistent historically strong identity of the meat industry preventing new identify construction. This manifested in an overriding defensive and reactive response to sustainable meat consumption challenges. This aspect also emerged in the Framing study through the pre-dominantly negative depiction of the meat industry as a powerful, angry and largely self-interested industry.

From a legitimacy theory perspective, this stalling of identity construction effectively prevents the industry from moving from a defending-legitimacy phase to a phase of legitimacy regeneration.

Therefore, the relationship put forward in this thesis is that ineffective sensemaking impinges on the ability of the organization to perceive appropriate cues (e.g. changing social norms), evaluate stakeholder risk (e.g. by devaluing integrity of alternative worldviews) and construct new identity in response to rapidly changing operating conditions (e.g. over-reliance on historical importance of meat). Accordingly, such an organization/s is unable to respond with the appropriate legitimation activities to retain and then maintain legitimacy. This results in a repetitive and negative cycle of legitimacy defense, further eroding the legitimacy of the meat industry and positive values of meat over the long-term. Figure 21 demonstrates that if

sensemaking is stalled for some reason, then an organisation will not be able to successfully exit the defending legitimacy phase (dotted square), to regain legitimacy (Pathway B) and therefore it may be faced with losing further legitimacy (Pathway X).
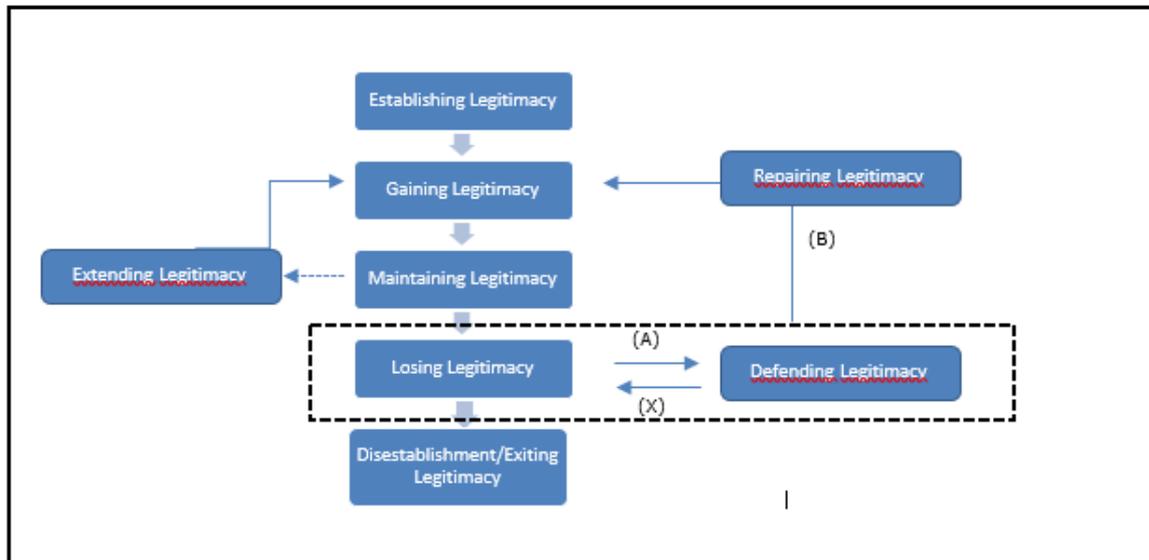
Figure 21. Legitimacy theory and sensemaking relationship

In summary, the frames that emerge in this sensemaking study and the media framing study indicate that the meat industry is in a phase of defending legitimacy. Further, current sensemaking efforts appear to be stalling due to problems with identify construction, in part due to a strong historical identify which reinforces pervasive frameworks in the industry that block new frameworks to emerge that are better suited to the new "sustainability" challenges facing the industry. Therefore, the model established in figure 21 would suggest that the industry is likely to follow pathway X, rather than B. This ultimately traps it in a vicious negative feedback loop of defending legitimacy.

4.22.1 "Defensive & Reactive" or "Responsive and Proactive"

From a pragmatic perspective, the question then for the industry is whether it wishes to remain to be viewed as angry and combatant and feel defensive and reactive? Such an approach, however, traps the industry into continually defending its legitimacy. Or does it wish to be viewed in wider public discourse as proactive and responsive? If yes, then this will require substantive changes from within the industry.

A range of legitimation actions are likely to be important with a proactive and responsive approach. Both pursuing continuity and pursuing credibility as well as seeking passive support and active support (Suchman, 1005, p 574) are likely to be needed. The difference, however, is on the emphasis on each dimension. At this point, the categories that have emerged within the sensemaking study demonstrate legitimation efforts largely fall within actions that pursue continuity and which seek passive support. This is indicated in the identification of several communication issues that demonstrate the industries reliance on passive support through traditionally strong cultural values of meat within society. For example, reference to "unfairness", "being attacked", "dissociation of urban populations with meat", "communication gaps" demonstrate an industry that is feeling challenged by new and confrontational demands to legitimacy.

Following Pathway B to regain legitimacy may thus require more than a reliance on passive support. It is likely that a range of plausible and authentic actions need to be instigated which pursue both credibility and active stakeholder support for the meat industry and meat. Seeking active support, however, requires that an organisation/industry and the product itself 'has value' (Suchman, 1995, p.575). Yet, many of the sustainability, health, ethical demands facing the industry are also issues related to a fundamental re-examination of the values of meat, in society. Therefore, industry identity again becomes important as it may need to reinvent itself, constructing a new identity that explicitly addresses its role in addressing issues related to overconsumption of meat, to successfully respond to growing legitimacy threats of the future.

CHAPTER 5

CONCLUSION

5.1   Research Objectives

The goal of the thesis was to understand how the meat industry makes sense of challenges based around the legitimacy of its product/s as being key components of a healthy, ethical and sustainable diet. The three main objectives of this research were as follows:

Objective 1: To identify how the role of meat as part of a healthy and sustainable diet is being challenged in public discourse, along with the meat industry itself;

Objective 2: To identify how managers in the meat sector makes sense of the challenges of achieving sustainable meat consumption and threats to legitimacy; and

Objective 3: To refine and further develop legitimacy theory by developing a model designed to understand better the relationship between sensemaking and managing legitimacy in response to legitimacy threats.

5.2   Summary of Research Process

The thesis began with consideration of the challenges associated with sustainable meat consumption and the urgent need to transform how we produce and consume. The applicability of legitimacy theory to understand potential responses to address challenges by the meat industry was then examined. Examples applicable to the meat industry were sought in relation to potential legitimacy threats with respect to the environmental, health, and ethical impacts related to the overconsumption of meat. The role of different stakeholders was discussed. Secondly, a Framing study was undertaken to understand how the meat industry is being framed by influential stakeholders in media reporting, as well as how the role of meat in the human diet is being framed in public discourse. Thirdly, a brief case study designed to ascertain how other influential business stakeholders in the meat sector were responding to challenges associated with market demands around ethical, health and sustainable meat was completed. This also provided information on potential legitimacy demands, as well as innovative business strategies, by downstream "gatekeepers". A sensemaking study was then undertaken to identify how managers in the meat sector make sense of the challenges of achieving sustainable meat consumption and responding to threats

to legitimacy. Finally, a model designed to better understand the relationship between sensemaking and managing legitimacy threats in relation to current efforts by the meat industry to response to challenges around sustainable meat consumption was presented.

5.3   Summary of Research Findings

The investigation showed that the future role of meat as a central part of a healthy and sustainable diet is being challenged - from multiple perspectives, across highly respected forums and in a sustained and organized manner. These challenges present serious ongoing threats to legitimacy because they demonstrate a reappraisal of the value of meat as a central part of a healthy, ethical and sustainable human diet and confront long-standing positively held societal norms and values associated with meat eating. Therefore, there is a potential real or perceived gap now and/or in the future, which represents some incongruence between the meat sector (and its individual actors') actions and the society's perceptions of what these actions should be. This threat to legitimacy manifests in a highly reactive and defensive response from the meat industry.

Interaction and communication around phases of legitimacy loss and defence can be also evidenced in broader public discourse. This was highlighted in public debate surrounding two highly public and contested events which challenged the role of meat in the human diet, the Scientific Report of the 2015 Dietary Guidelines Advisory Committee (Advisory Report) and the IARC Evaluation. Media framing analysis of these two events demonstrated that the meat industry is predominantly negatively framed as powerful, aggressive and combatant in responding to emerging policy and scientific advice that challenges health, ethical and sustainability credentials of meat in some way. While meat remains as a culturally important component of the human diet the strong cognitive basis underlying support for meat eating is being renegotiated through the emergence of frames that emphasize Environment and Health, as well as Moderation. An overall politicalisation of the public discourse also emerged in the framing analysis. From a legitimacy perspective, this politicalisation may ultimately be detrimental to the interests of the industry by undermining its own science-based approaches and by positioning the meat industry in opposition to sciences and science.

In-depth interviews demonstrated that meat industry leaders consider that the industry has both a critical and valuable role to play in addressing issues of sustainability. Currently, however, this role was largely viewed as being chiefly at production or supply chain level.

Addressing negative impacts of overconsumption was considered complex and often conflicting with traditionally-held business objectives. While overconsumption of meat by individuals was not seen as necessarily positive for the industry, the industry holds a very strong consumer sovereignty approach which stresses that consumers should decide appropriate levels of meat consumption. Appropriate levels of meat consumption were defined broadly, as a level that was healthy and culturally appropriate for that individual as part of a balanced diet. Active intervention by other stakeholders (Government, NGOs, researchers) through regulatory or non-regulatory means to address meat overconsumption was not considered to be appropriate, apart from initiatives targeted at addressing over-consumption as a broader societal problem.

In general, industry participants struggled to articulate potential strategies to respond to the problem of overconsumption and how to appropriately address external stakeholder challenges on the topic. A strong positive and proactive industry identity in response to the challenges it faces associated with sustainability, health and ethical dimensions of meat was notably absent across interviews in this research. The industry itself, heavily emphasised an urgent need to defend itself and a belief that it was 'under siege' or attack. In exploring potential reasons for the highly defensive and reactive orientation of the industry, it was noticed that three characteristics of sensemaking were of particular importance: identity construction, enactive of sensible environments; and the focus and extraction of cues.

In exploring sensemaking efforts by industry, it was also observed that the industry relies heavily on a strong traditional identity to make sense of current challenges, an identity that was largely forged in an era where meat and the meat industry was relatively unchallenged and highly-valued. In this case, the hypothesis is that this strong historical industry identity stalls current sensemaking efforts. This results in the industry, in general, being unable to easily construct a new identity, based on emerging cues, and a new environment that challenges accepted internal cognitive (e.g. beliefs and values) and normative (e.g. work norms and habits) legitimacy within the industry. It is further proposed that stalling of sensemaking in cases where organisations are in a phase of defending legitimacy could create conditions for a vicious feedback loop that alternates between legitimacy loss and legitimacy defence.

Understanding how influential downstream retailers, who often act as powerful "gatekeepers" between the meat industry and meat consumers, make sense of health, environmental and ethical challenges associated with meat overconsumption could provide useful input into sensemaking within the meat industry. Fast-food burger retailers, for example, represent a high profile "meat" provider to the public and meat is an important part of the customer offer. Many burger retailers examined in the thesis show an increasing interest in the use of external quality attributes of meat to help differentiate themselves from competition, conform to expectations (industry and public), and demonstrate commitment to sustainability. In some cases, purposefully addressing sustainable meat consumption has become a major part of the business model of the organization. Max Burgers is an example of such an approach which has resulted in considerable success not just through increased sales but also through improved reputation, growth in new customers, and lower relative environmental impact.

Red meat remains a valued component of the customer offer for Max customers, yet the company has committed to address the negative environmental impacts of red meat, through either direct or indirect means (e.g. offsetting). An ambitious strategy that seeks to diversify consumer choice and promote non-red meat burger options has also been implemented. The strong focus on a proactive "sustainability is innovation" approach along with targets, carbon labelling, carbon offsetting, choice architecture, and new products, nested within a broader sustainability framework deeply embedded in the organization, provides an example for the meat industry to learn from. Max Burgers is also an organization that is going beyond legitimacy maintenance to actively seek legitimacy extension through a transformation of its business model, one which was historically reliant on red meat.

The different elements of this thesis bring a holistic and broad perspective to developing a better understanding on how the meat industry is making sense of the challenges it is currently facing, from both an internal strategic legitimacy perspective as well as from the perspective of wider institutional pressures. It has identified a hugely interesting, rich and promising area for future research.

The conclusion of this study, is that the business world, including the meat industry, must be a key leader in addressing how society itself makes sense of overconsumption, in a world that is consuming far beyond it's planetary boundaries. Yet this requires a highly responsive and proactive approach, a strong identity aligned with clear sustainability goals and aspirations, and courage.

5.4 Implications for the Meat Industry

There is a fundamental re-evaluation of the role of meat in a healthy, ethical and sustainable diet that is now happening in most industrialised countries and increasingly in developing ones. The intensity of debate involved in this re-examination of the positive credentials of meat, combined with the urgency to which issues of overconsumption need to be addressed, is only likely to increase over the coming decades.

If the industry retains its predominantly defensive and reactive approach in responding to these emerging and growing challenges it will likely face a dismal cycle of ongoing legitimacy loss and legitimacy defence. It will continue to be depicted as aggressive, angry, self-interested and those negative connotations may potentially spill over and contaminate positive values that continue to exist around meat.

Industry therefore need to conceive of some way to understand and drive a moderation message that makes sense to consumers and the industry and which values meat as an essential quality product that endures as an important contribution to the human diet and society at large. This requires transparent public commitment to improving the sustainable production and consumption of meat products. It also requires leadership on the moderation message. The will entail a new way of communication and new and different partnerships with stakeholders. If the industry does not take leadership on the moderation message, then it runs the serious risk of having other stakeholders commanding this critical communication space with consumers.

While it can be well argued that meat will be continue to be eaten and in increasing total quantities over the next 50 years, this may not indeed represent the 'get out of jail card' that some industry members might think. It's certainly not an excuse for complacency. Sustained legitimacy loss over time will have a corrosive impact on the industry. For example, it will place additional pressures on an industry that is already highly competitive, driven by low margins and structurally challenged. It may also lead to the imposition of regulation that is not designed with industry input.

Increasing serious concerns based around sustainability, health, ethics transparency and quality which are not well-managed and lead to ongoing legitimacy loss will potentially lead to a fundamental transformation of the industry, with or without coordinated industry input. In this case, it will be companies who are better positioned to proactively meet legitimacy requirements that will survive. Those that fail to change, may exit the industry or be further

forced to compete in an increasingly low margin low quality business. Increasing resource pressures and growing attention to large societal issues caused by overconsumption are likely to be a feature of society in the coming decades. Therefore a 'race-to-the-bottom strategy' operating on lower margins with higher performance expectations is unlikely to be sustainable over the long-term.

It is also not inconceivable that consumers may radically change their diets over the next 50 years and decrease meat consumption markedly. Thus, the industry needs to ensure that it can sense-break old norms, values, habits and systems, and construct new thinking and internal structures fit for the changing environment. This will require new business models, some consolidation, potential diversification and specifically new and more profound partnerships that extend outside the meat industry and which better connect with consumers.

Considering the findings of this thesis, five key themes, along with questions are posed for reflection in Table 20. Each theme addresses various aspects that have emerged through the media framing analysis, case-study and sensemaking analysis.

Table 20. Five themes and questions for future sensemaking

Five Themes for Future Sensemaking
1.   The 'Ideal' Meat Industry in 2050
What does a financially robust, proactive, ethical and responsive meat company, which demonstrates real measurable commitment to sustainability and healthy livelihoods of people, look like in 2050?
2.   Authentic, Measurable and Verified Improvement in Sustainable Meat Production and Consumption
How can the industry better connect in an authentic way with stakeholders on the benefits of sustainable meat production *and* consumption?
Can individual meat companies measure and independently verify their performance on key sustainability indicators? How many companies, and on what indicators?
How many meat production and processing companies publish publicly-available sustainability reports on an annual basis?
3.   New partnerships and Stakeholder Networks
How can the industry develop new stakeholder partnerships with civil society? News-media? Consumers? Vegetable-producers? Education-providers? Urban-areas? Financial-lending institutions?
What would it take to get more diverse perspectives that 'challenge the status quo' into the boardrooms of meat companies?
4.   Leadership on Sustainable Meat Consumption
How can the industry take leadership on moderation, including meat moderation, as a theme of a 'balanced diet'?
5.   Significant new investment in coordinated industry-level strategy and action
What would it take for the industry to commit to a well-resourced, coordinated, international, regional and national-level strategy on sustainable meat consumption?

5.5   Implications for Theory

The use of a sensemaking and framing studies to observe how the meat industry make sense of legitimacy challenges to the role of meat as part of a healthy, ethical and sustainable diet is perhaps novel. However, it brings a different lens on observing industry efforts to understand, interpret, evaluate and together make sense of threats to legitimacy.

One of the main contributions of this thesis is through its linkage of sensemaking and legitimacy theory to show the importance of sensemaking efforts in responding to legitimacy threats. An inductive approach has also helped identify the complexities involved in making sense of overconsumption and the complexity of the role of an industry or business sector in addressing that.

The research also shows the importance of looking from both institutional and strategic legitimacy perspectives, utilising framing and sensemaking theory, to better understand the power of the contextual environment in driving behaviours from within, and external to the industry.

The thesis contends that stalled sensemaking leads to prolonged phases of legitimacy loss and defence which can be difficult to break. This cycle of defence and loss is of major interest in understanding legitimacy theory more profoundly because it represents a critical moment in an organisations future stability and potentially forewarns of significant need for future transformation.

The critical role of identity construction in relation to sensemaking efforts in response to highly ambiguous and challenging problems facing organisations is also of considerable theoretical interest. In this case, it is proposed that the over reliance by the meat industry on a historical strong identity of both the meat sector and meat itself, prevents the creation of a new identity better able to respond to rapidly changing market demands and societal reappraisal of meat values. It is this 'old' identity that effectively stalls sensemaking efforts. It also blocks identification of environmental cues and creates a defensive and reactive response that further stalls innovation and change.

Further research would be useful to gain a better appreciation of ways in which industry identities can be broken and reformed, and the possible impacts those organisational field-level processes can have on individual organisations within the sector. Finally, it would be valuable to further investigate situations of industries or companies which are positioned in

phases of defending legitimacy and thereby build a better understanding of how stalled sensemaking might lead to organisations and/or industries being trapped within cycles of legitimacy defence and loss. Or alternatively, how sensemaking can enable organisations and/or industries to break from defending legitimacy to a phase of regaining legitimacy.

The discussions related to sustainable meat consumption in this thesis are representative of the many complex debates related to sustainable consumption more broadly and which intersect fields of science, culture, health, environment and the economy. The study therefore has relevancy to efforts in other industries and fields that are seeking to address challenges associated with unsustainable consumption and who are considering strategies for framing future responses.

5.6   Implications for Policy and Practice

Understanding how the meat industry makes sense of the challenges it faces with regards sustainable, ethical and healthy meat consumption is critical for policymakers. It enables the development of policy that better meets the needs of all stakeholders. Importantly, policy also needs to implementable and ultimately not result in unexpected negative externalities. Chapter 1 outlined a clear and urgent need for changes to how humanity currently produces and consumes. However, it also pointed to the unintended effects of poorly designed policies leading to rebound, backfire and halo results. Power relationships and the structural rigidity of institutional frameworks that drive certain practices and behaviours and which constrain new thinking are also important reflection points for policy development.

It is vital that policymakers involve the industry as much as possible in the development of knowledge and actions that can lead to more responsible meat consumption. This could be on less contested issues to start with, such as reducing meat waste or information on healthy cooking methods. It important to stress that members of the meat industry are also individuals who are also trying to make sense of the impacts and benefits of meat. And that there are many examples of positive actions in the industry that improve the sustainability of meat which need to be better recognised.

There is also a strong role for policymakers in addressing gaps in knowledge and in leading development of fair and transparent standards. For example, better understanding on meat consumption behaviour at individual consumer level is critical in the development of consumer-based actions, but also in the development of relevant and targeted health policy. It is noticed that much of the research around sustainable meat consumption also fails to

adequately consider the differences between industrialised and developing countries. The perspective is often overwhelmingly from the lens of a Western-industrialised country (or individual) viewpoint, which is also one of the big limitations of this thesis. It is important to therefore consider that there is a wider food system to which meat contributes and that this system transcends borders and cultures. Different perspectives are therefore vital in understanding future policy choices.

5.7   Limitations

Many limitations have already been identified throughout the thesis and described in some detail in the methodological chapter. The biggest limitation is that the research only offers a very small perspective on a very complex issue. At the same time the thesis is perhaps too ambitious in that it seeks to do too much in one thesis. The balance is difficult. The importance, however, is that several approaches and a diversity of perspectives from within the industry and external to the industry are needed to bring better clarity to how consumption issues can be better managed. It is also critical to note that the research does not attempt to represent itself as a definitive view of the meat industry or the issues involved. It is a social construction. Therefore, readers should be aware that they may vehemently disagree with some characterisations or depictions within the research. They are therefore advised to take what is of use, for their own sensemaking efforts, and discard what is not. Future research that combines qualitative and quantitative approaches to help triangulate results would be useful.

An important limitation that this paper has recognised and addressed in an imperfect way is the narrowness of the research lens often used in studies concerning sustainable consumption and the role of business. The important point being that multi-disciplinary research is highly valuable and highly necessary if any deep understanding of sensemaking is to be a goal of the research. Accordingly, progress on achieving sustainable consumption will stall if the underlying social, cultural and economic dynamics that drive certain business behaviour is not well understood. Therefore, while this research only pertains to one industry and is limited to the understanding of only a small subset of overconsumption issues it raises the need for more interaction across research disciplines, as well as a more engaged scholarship approach. This will enable a more holistic system-based approach to understanding how businesses can better contribute to driving more sustainable consumption.

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Appendix 1

How is the meat industry making sense of challenges to the legitimacy of meat consumption as part of a healthy sustainable diet?

PROTOCOL FOR IN-DEPTH INTERVIEWS

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# Contents

1 Background and Rationale

The consumption of meat is coming under increasing scrutiny for a variety of different reasons, including ethical issues associated with animal welfare, health concerns over the potential link to non-communicable diseases such as diabetes and the environmental impacts caused from the production of meat. Many of these issues can be linked to increasing patterns of overconsumption of meat products, which are in turn driving negative environmental, health and ethical outcomes. The meat industry is therefore coming under pressure to respond to these concerns in a range of forums and at multiple and diverse levels. These can include regulatory-led processes around the development of national-level dietary guidelines, the development of international standards associated with sustainability outcomes, or in general public discourse in reaction to civil society campaigns to reduce meat consumption. Challenges to the legitimacy of meat consumption as part of a sustainable and healthy diet based on current production and consumption patterns challenge the legitimacy of the meat industry itself given its function is to produce meat for consumption. If current production and consumption of meat is no longer seen as desirable, proper or appropriate then it could be considered that the industry (and individual entities) may be facing a challenge to legitimacy. Maintaining or repairing legitimacy in the face of serious challenges can result in "intense and reactive management attempts to counter the threat" (Ashford and Gibbs, 1990, p. 183). Within this context, the objective of this paper is to understand how the meat industry is making sense of challenges to the legitimacy of meat consumption as part of a healthy sustainable diet, and how it might best frame any response to maintaining or repairing legitimacy in the marketplace, now and in the future. Such an understanding is important to the industry in developing a future response to such challenges but also to policymakers who are considering how to constructively involve the industry to best participate in resolving any concerns around unsustainable consumption patterns.

2 Conceptual Framework

Grounded theory is a systematic, inductive approach to developing theory to help understand complex social processes (Glaser 1978). This approach will be used to build up an in-depth understanding of sense-making within the meat producing and processing sector. The aim is to develop an understanding as to how the industry perceives challenges to legitimacy concerning overconsumption and what the industry considers as potential response mechanisms to maintain and/or restore legitimacy now and in the future. The study will contribute to broader discussions on the role of business in responding to issues of overconsumption which are impacting on sustainable development. A Grounded Theory approach is considered well-suited to this investigation for a number of reasons. Firstly, there is little current understanding of the potential roles of business in promoting sustainable levels of consumption of its own products/services, and in particular there is a lack of any substantive research within the meat sector. Secondly, there exists real conflict between the objectives of maintaining business growth and addressing unsustainable consumption of a business's products/services. This inherent conflict creates a complexity not easily managed, or made sense of by the meat industry, and therefore is not easily measured by quantitative research methods. Thirdly, there is no definition or shared understanding of the problem within the industry and there is no clear definition of sustainable consumption that is easily referred to, or consistently applied across the meat industry. The issues associated with (un)sustainable consumption are also not homogenous across the industry. For example, in some countries or some meat

categories, health issues predominant whereas in other situations the focus may primarily be on animal welfare concerns. Lastly, the goal of the research is also pragmatic. The project is designed with a strong desire to understand, invigorate and aid efforts in the industry to address sustainable consumption. The industry itself is seized with some interest to address such challenges, an objective of the 2016 World Meat Congress being for example, to discuss collectively ways the industry can promote responsible consumption and sustainable diet (WMC, 2016). Together, these points create a need to collect rich data from industry participants themselves to reveal their sense-making and framing efforts. Grounded theory offers the framework for "…systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data itself" (Charmaz, 2014: 1) and offers an exploratory tool to develop substantive theory (Glaser and Strauss (1967). Grounded theory is also useful given the lack of any established theory able to describe the phenomenon of interest (see Leedy & Ormrod, 2005; Cresswell, 1998) and with an industry which has yet to articulate clearly its response (Wilson & Hutchinson 1991) to the problems associated with overconsumption of its own products. This particular study employs a case-study approach involving the use of in-depth interviews as a way of obtaining access to rich data. This method of gathering data is appropriate for the investigation because of the need to understand the real-life phenomenon in depth, but also the contextual conditions relevant to decision-makers in the meat sector which are not clearly evident (Yin, 1981). The interview plan employs a semi-structured opened-ended question approach to the interview format. In this case, participants will be asked an identical set of guiding questions, but the questions are worded so that responses are open-ended (Gall, Gall, & Borg, 2003). Probing questions will be used to elicit further explanatory information from the participant to add significance and depth to the data obtained. In-depth interviews will enable the research to better understand perceptions amongst meat sector leaders on the role of business in addressing overconsumption of meat products including what potential future responses might be considered legitimate in the "eyes of the industry". This study is a component of a larger research project (figure 1) that looks at these issues from various perspectives to build up a holistic understanding of the research problem.
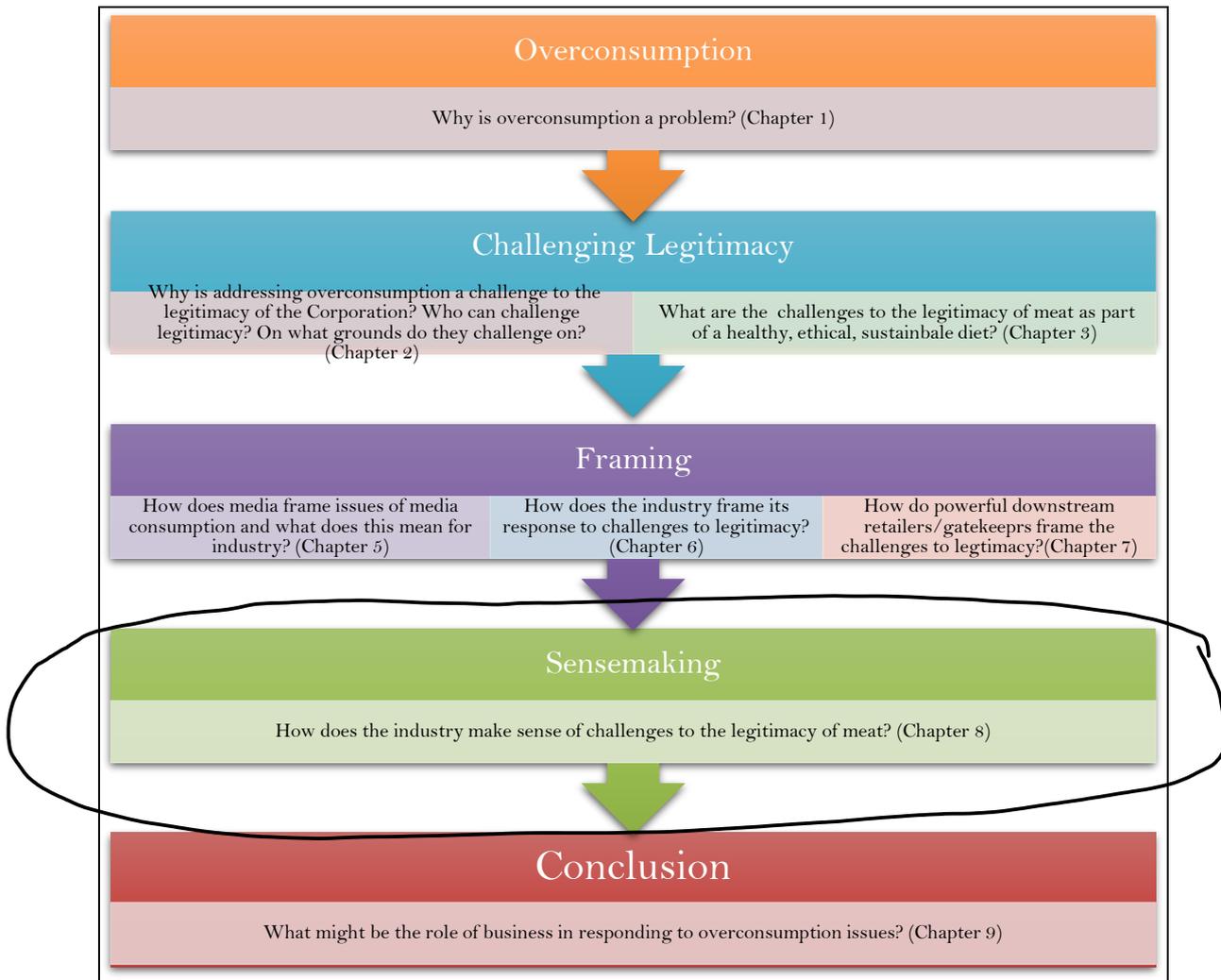
Figure 1: Research Project on Sustainable Meat Consumption (original draft structure)

3 Aim

This research aims to (1) develop an understanding on how decision-makers in the meat producing and processing sector makes sense of challenges to the role of meat as part of a sustainable and healthy diet, and (2) understand what potential responses to address future sustainable meat consumption can be undertaken by the meat sector.

4 Objectives

(xi)   Understand what "sustainable meat consumption" means to decision-makers within the meat sector.

(xii) Identify the level of concern within the industry as to perceived threats to a corporation's legitimacy from challenges based on concerns around overconsumption of meat products.

(xiii) Identify what motivates companies to respond to challenges of overconsumption and determine to what extent these motives can be explained by legitimacy theory.

(xiv) Identify and classify the <u>current</u> and <u>future</u> range of responses that companies/sector might pursue to address legitimacy threats related to overconsumption issues.

(xv)   Understand the processes by which the meat sector is making sense of the overconsumption challenges and what actions are seen as legitimate by different industry decision-makers.

5 Study Setting

The meat sector is currently facing a number of challenge related to concerns about the negative impacts of meat overconsumption. The industry itself is reflecting on what such concerns might mean to their business, now and in the future, as well as what possible response mechanisms might exist and which could be employed by the industry to help maintain or retain legitimacy. One of the major objectives for the World Meat Congress in 2016, for example, is to consider how to promote responsible consumption and sustainable diet (WMC, 2016). This study is therefore highly relevant to the industry. At the same time there are a number of other processes and debates that are emerging at international and national level that focus on the desire to move towards more sustainable diets (UNEP 10YFP Sustainable Food Systems Programme, x). Sustainable consumption of meat is a critical discussion and potential action point in these processes. The study therefore also has relevance to these broader policy initiatives.

6 Study design

The research study is part of a larger quantitative evaluation set out in Figure 1. The focus in this study is to develop an understanding on how the meat industry makes sense of, and frames its response to, challenges to its legitimacy related to concerns over meat overconsumption. The use of in-depth interviews with industry leaders is utilised to collect rich data as part of a grounded theory approach to develop a more holistic understanding of sense-making and framing with the meat sector.

7 Field Methods

In-depth interviews will be used to develop a deep understanding of sense-making within the meat producing and processing sector.

7.1   In-depth interviews

7.1.1   Purpose

The aim is to conduct in-depth interviews (IDIs) with sustainability managers in the meat and processing sector. The purpose of the IDIs is to collect information on how they perceive challenges to the meat sector related to overconsumption of meat products, how they make sense of these challenges and currently frame their responses and what responses, if any, they perceive as being appropriate to respond to such challenges. The interviews will explicitly aim to understand whether sustainability managers believe there is a role for the industry in addressing overconsumption and if so, what role they believe that to be in comparison to other stakeholders, for example consumers, governments, NGOs, researchers, downstream retailers, in addressing overconsumption. IDIs are an appropriate method to understand these issues because the topic is one that 1) involves the need to understand a real-life complex business decision-making process in-depth, 2) has not been previously studied within this sector and 3) is a topic of emerging interest in the sector but is not yet accompanied by any clearly articulated common understanding of the issues or potential responses mechanisms within the sector (Yin, 1981, x).

7.1.2 Participants

Managers (at mid-to-senior level) with the meat production, processing and trading sector who have some responsibility for sustainability within their organisation will be selected to participate by convenience sampling. The aim is to complete up to 15 IDIs, but this will be guided by the degree of saturation achieved as interviews progress. Meat advocacy/policy directors within organisations affiliated with, or representative of the meat sector will be part of the sample to facilitate a deeper understanding of industry perceptions.

Inclusion criteria

Mid-to-senior level employees at meat producing/processing/trading companies who have some responsibility for sustainability activities and/or policy within their organisation, as well as policy/advocacy employees at industry-wide advocacy organisations who hold a role that has responsibility for developing or implementing industry-wide sustainability initiatives.

Exclusion criteria

Junior-level employees will not be eligible to participate in the in-depth interviews because they may not possess significant experience or power in the organisation to fully develop, gain approval for, and implement complex sustainability initiatives. Downstream retailers who are not directly involved in producing, processing or trading meat products are also excluded as they are viewed as outside the sample population defined as being in the meat producing and processing industries.

7.1.3 Sample size

The important principle is that the emerging theory governs the process of data collection (Glaser 1992, p. 101). As a guideline, up to 15 IDIs including sustainability managers within meat producing and processing companies and policy/advocacy industry representatives will be conducted.

7.1.4 Sample Selection

Purposeful sampling will be used based on the criteria above. The rationale for this method is that it is important to get a diversity of views across the industry to help develop a richer understanding of sense-making in the industry and also potential future legitimation activities. Also, subjects who have critical experience with sustainability and/or strategy are likely to be well-informed on the issues and be able to contribute usefully with knowledgeable information in an articulate and reflective manner (Cresswell, 2011). The intention is to also ask subjects to recommend useful potential candidates for study (snowball sample) to ensure saturation of responses is achieved. Purposeful sampling allows the identification and selection of information-rich cases, in particular under time and resource pressure (Patton, 2002). Sustainability and/strategy managers given their direct interest on the issues are also likely to be seized by some interest on the research and therefore both more available and willing to participate. Where possible the most senior level director will be invited to participate in the research.

7.1.5 Permission and invitation

A letter of invitation to take part in an electronic survey will be sent to 50 senior sustainability directors across meat organisations worldwide who are members of the sustainability committee of the International Meat

Secretariat or the World Roundtable on Sustainable Beef. Based on the criteria listed above and taking into account availability and interest, interviewing will be conducted. A log will be kept that details all invitations, acceptance and details of interviews along with consent (Attachment 1)

7.1.6 Consent process

Participants will be sent via email at least 1 week prior to the interview an explanatory information sheet on the study (Attachment 2), as well as an individual consent form (Attachment 3). Consent will also be asked at the start of the interview.

7.1.7 Organising the interview

Interviews will either be conducted in-person at the physical office address of the participant or through an internet meeting/communication tool such as Join.Me/Skype.

7.1.8 Introduction to the interview

Information about the objective of the interview and overall study will be provided to each participant at the commencement of each session. Confidentiality and anonymity will be explained. Each participant will be asked if s/he consents to be interviewed and for the interview to be recorded using a digital tape recorder. The participant will be informed that the interview is voluntary and can be terminated at the wishes of the participant at any time.

7.1.9 Topic guide

The IDI will follow a process guided by the instructions in the interview guide (Attachment 4).

7.1.10 Recording interviews

During each interview, the interview guide will be followed. Where possible, a digital recording will be made of the interview and notes of the responses and non-verbal behaviour during the interview as well as any notes about the setting and atmosphere of the interview will be undertaken.

7.1.11 Debriefing sessions

A summary, with any reflections will be made shortly after each interview has been completed. This will be completed using the template provided in Attachment 5.

After the first 5 interviews have been carried out an update of progress will be communicated to my supervisor with the following purpose:

- to discuss key findings from data collection so far

- to discuss how preliminary findings might feed into the research

- to discuss any problems or possible changes needed to interview format

- to facilitate understanding as to whether new ideas are still emerging or if saturation has been reached on key topics

Attachment 6 will be used to guide the discussion for this session.

8 Data Management and Analysis

Sbaraini et al. (2011) outlined useful guidelines for data collection including: (i) record interviews digitally, (ii) analysis the interview transcripts as soon as possible, (iii) write memos immediately after every interview session in order to grasp the initial concepts, (iv) find opportunities to get access to participants to clarify concepts after interviews, and (v) employ phone interviews in order to have a wider range of participation.

8.1 Data handling and data entry

8.1.1 File Names

Each interview will be allocated a unique identifying number. This will be written on the interview, in notes taken, and will be used to name audio files and transcript documents. The format for naming files will follow Table 1, e.g. IDI#01MI0309.

Table 1 Labelling files

Type of data collection	Number of interview	Type of respondent/group	Date (DD/MM)
IDI	#01	MI=*Meat Industry* MIPA= *Policy advocate*	03/09

8.1.2 After the field

Summaries and notes of each interview will be typed into NVivo 11 for coding at the end of each day or the next day. These notes will be in English. All paper and soft copies of field notes, audio files, contact summary form, consent forms and any other notes will be kept securely, and if in digital format on a password protected computer and file.

8.1.3 Transcription and Translation

Quantitative

A data entry interface will be created for all quantitative data such as demographic details, in Excel. Data will then be imported into NVivo 11 as a new casebook. The relevant transcript and audio files will be linked to each case in the casebook.

Transcription

Audio recordings will be transcribed into Word and exported to NVivo 11 for coding and analysis. A standardised layout will be applied to all transcripts to facilitate the comparison of data at the analysis

stage.(McLellan-Lemal, 2008). A summary of quantitative data to describe the participant's demographic characteristics, the location and other key information will be included at the end of the transcript.

8.2   Data analysis

8.2.1   Methods

IDI will be coded as they are entered into NVivo 11. This will enable ongoing analysis and reflection on the purposes and findings of the research. Alongside this coding, memos will be kept, to draw out and justify emerging themes and lines of enquiry through the fieldwork process (Chandler, C., Reynolds, J. 2013). Transcripts will be coded line-by-line, sticking close to the data and utilising coding for actions where possible as recommended by Charmaz (2014:116). A second step of focused coding will be undertaken based on the emergence of common themes that might begin to emerge from initial coding (Auerbach & Silverstein, 2003, Charmaz, 2014). A coding template will be developed from a few of the early transcripts, and will be used to code later transcripts in an on-going process as data is collected. As more transcripts are coded, the template will be further refined to reflect any new emerging ideas or themes. At the same time the constant comparative methods (Glaser & Strauss, 1967) will be used to compare coding, themes, and emerging theoretical constructs and to address incomplete understanding or gaps until saturation of categories is reached (Charmaz, 2014).

8.2.2   Organising the data

All data will be filed into NVivo 11 NVivo (QSR International, Cambridge, MA) qualitative data management software for coding and analysis under the new project: IDI Meat Sustainability Project 2016.

8.2.3   Quantitative data

Quantitative data will be double entered into an Excel spreadsheet and then imported into NVivo 11 as a new casebook, to be linked with the relevant transcript and audio files.

8.2.4   Coding

Coding will be conducted by reading the data line by line, trying to identify the underlying meaning or concepts behind the statement and using gerunds. When the same idea appears again, this will be coded to the same node, creating a list of repeating ideas. As coding develops and themes emerge, nodes will be arranged in groups under a parent node labelled with the theme. Beyond this, themes may be collated into broader groups representing theoretical constructs, again as labelled parent nodes. (Chandler, C Reynolds, J., 2013)

8.2.5   Development of theoretical constructs

The aim of the theoretical narrative developed will be to demonstrate participants' sense-making by using the theoretical constructs that arise from the coding process.

9 Ensuring ethics and quality in practice

9.1   Ethics

The research will be guided by the Ethical Guidelines for Good Research Practice published by the Association of Social Anthropologists of the UK and Commonwealth (http://www.theasa.org/ethics/guidelines.shtml). Any complaints and issues raised with the research will be dealt with by the researcher in the first instance where possible. The supervisor will be contacted for guidance in any cases which cannot be resolved by the researcher. No information will be used without prior informed consent, participation in the study is entirely voluntary.

10 Attachments: Templates and Timeline

Attachment 1   -   Interview log

Attachment 2   -   Information sheet

Attachment 3   -   Consent form

Attachment 4   -   IDI topic guide

Attachment 5   -   IDI summary/review

Attachment 6   -   Supervisor debriefing form

Attachment 1   Interview log

	MI or PL	Explanatory Information sent	Consent	Date of Interview	Venue	Time	Consent for recording	Length of Interview	ID Number	Entered into NVIVO	Years in Industry	Female/Male
01	PL	Yes	Yes	17 Feb 2017	Skype	10:00	No	70 mins	#01PL1702	17 Feb 2017	15+	M
02	MI	Yes	Yes	21 Dec 2016	Skype	16:00	Yes	65 mins	#02MI2112	22 Dec 2016	8+	F
03	MI	Yes	Yes	28 Sep 2016	In-person	10:00	Yes	90 mins	#03MI2809	1 Oct 2016	20+	M
04	MI	Yes	Yes	28 Sep 2016	In-person	10:00	Yes	90 mins	#04MI2809	1 Oct 2016	15+	M
05	PL	Yes	Yes	11 Dec 2016	Skype	10:00	Yes	70 mins	#05PL1112	14 Dec 2016	15+	M
06	PL	Yes	Yes	4 Oct 2016	Skype	16:00	Yes	60 mins	#06PL0410	6 Oct 2016	8+	F
07	PL	Yes	Yes	6 Oct2016	Skype	11:00	NO	75 minutes	#07PL0610	6 Oct 2016	15+	M
08	MI	Yes	Yes	15 Feb 2017	In-person	11.00	Yes	60 minutes	#08MI1502	17 Feb 2017	10+	M
09	MI	Yes	Yes	15 Feb 2017	In-person	11:00	Yes	60 minutes	#09MI1502	17 Feb 2017	10+	M
10	MI	Yes	Yes	27 Oct 2017	In-person	19:00	No	90minutes	#10MI2710	28th Oct 2017	20+	M
11	PL	Yes	Yes	27 Oct 2017	In-person	19:00	No	90minutes	#11PL2710	28th Oct 2017	20+	M
12	MI	Discussed	Yes	8 Nov 2016	In-person	10:30	No	30 minutes	#12MI0811	11 Nov 2016	20+	M
13	PL	Discussed	Yes	8 Nov 2016	In-person	13:00	No	30 minutes	#13PL0811	11 Nov 2016	10+	F
14	PL	Yes	Yes	22 Mar 2017	Skype	9:30	No	60minutes	#14PL2203	22 March 2016	15+	M

INFORMATION SHEET

Introduction
You have been invited to participate in an in-depth interview as part of research being undertaken to explore perceptions of the meat sector on the business challenges associated with supporting sustainable meat consumption. I am interested in your views on sustainable meat consumption, what this means to you and what you believe the challenges are to the industry in supporting sustainable meat consumption. There are no right or wrong answers I am just interested in building an understanding of the different ways leaders in the meat sector make sense of sustainable consumption

Why is this study being done?
Many diverse challenges are facing the meat industry relating to concerns around sustainable consumption of meat products. Many of these concerns are raised as issues of overconsumption where increasing meat consumption is said to be causing negative environmental, health and animal impacts. Several alarming headings in the media over the last five years has brought attention to concerns about meat consumption and potential links to cancer, high GHG emissions, animal welfare abuse and destruction of tropical rainforest to mention some examples. The consumption of meat, however, also has positive health benefits and is economically, socially and culturally important to many societies. There are also environmental benefits from sustainably farmed animal systems. A reasoned and informed approach needs to be taken that considers the complexity of meat consumption and addresses and acknowledges both the negative and positive impacts of eating meat. This research is designed to understand how does the sector itself perceives the issues and what options might be considered in the future to help navigate responses to how the meat sector responds to concerns about the role of meat as part of a healthy and sustainable diet.

Why have I been invited?
You have been identified as a thought-leader in the industry who has experience in sustainability and/or strategy.

What will happen if I take part in this study?
You will participate in a 40-minute interview. The questions will be semi-structured with some broad questions related to sustainable consumption. A list of 5 guiding questions is attached to this information sheet to give you some time to reflect on the topic before the interview. I may ask you follow-up questions as the interview proceeds so I can best understand your thoughts. Your response will be confidential.

Recoding and Note-taking
I will take notes of the discussion and a recording will also be made using a digital voice recorder, if your permission is granted. The recording is only so I can capture all your reflections accurately and transcribe the interview. It will not be shared with anyone else and will be destroyed at the completion of the research. All information gathered will be treated as confidential. No personal identification information such as names will be used in any reports arising out of this research without your express approval. An identification number will be allocated to those being interviewed and all records will be labelled with that number rather than any name to ensure your confidentiality. The master list contain names and corresponding numbers will be held by me on a password protected database.

How long will the interview last?
The interview will last about 40 minutes.

Can I stop the interview?
You can decide to stop participating at any time. Just tell the me right away if you wish to stop the interview.

What risks can I expect from being in the study?
Your name will not be used in any reports of the information. All information will be aggregated and no individual identified. No quotes or other results arising from your participation in this study will be included in any reports, even anonymously, without your agreement.

Are there benefits to taking part in the study?
There will be no direct benefit to you from participating in this study. However, the information that you provide will help me to research how the meat sector understands the challenges of sustainable consumption, what this means to business and this might translate into future action in the sector to help respond to future challenges. The results of the study will be provided to the sector, and yourself, if you are interested.

Do I have to take part in this Interview?
You are free to choose not to participate in the study.

What are the costs of taking part in this study? Will I be paid for taking part in this study?
There are no costs to you for taking part in this study. You will not be paid for taking part in this study.

Is the researcher being paid by someone for this research?

This research is being carried out as part of independent doctoral studies. There is no contract or payment for the work with any organisation.

What are my rights if I take part in this survey?

Taking part in this study is your choice. You may choose either to take part or not to take part in the survey. If you decide to take part in this study, you may change your mind at any time. No matter what decision you take, there will be no penalty to you in any way.

Who can answer my questions about the study?

If you have any questions, comments or concerns about taking part in this study, first talk to me. My contact email is alisonwatsonnz@gmail.com. If for any reason, you have concerns about doing so, you may contact my supervisor Dr Olivier Deshutter at olivier.deschutter@uclouvain.be

Giving consent to participate in the study

If you do wish to participate in this survey, please tell me as soon as possible so I can organise a time to interview you that best suits your availability. You will also need to sign and send the attached consent form. If you do not agree to quotes or other results arising from your participation in the study being included, even anonymously, in any reports about the study, please indicate this on the consent form in the space provided.

Guiding Interview Questions

1. What does sustainable meat consumption mean to you, your company, the meat sector?
2. How do you believe the company/sector is currently responding to criticisms or challenges to meat consumption?
3. How can the industry best respond to criticisms about meat consumption? Health concerns? Animal welfare? Environmental concerns?
4. Reflecting on any cases where people overconsume meat products, is this a problem for industry? How can industry respond to this? Can industry do anything, or should they?
5. What is the role of other stakeholders in addressing overconsumption? Government? NGOs? Researchers?

Attachment 3   Consent form

CONSENT FORM
Study Title: Sustainable Consumption in the Meat Sector Researcher: Alison Watson

- The study has been explained to me in a language that I understand. All the questions I had about the study have been answered. I understand what will happen during the interview and what is expected of me.

- I have been informed that it is my right to refuse to take part in the interview today and that if I choose to refuse I do not have to give a reason.

- I have been informed that anything I say during the interview today will remain completely confidential: my name will not be used nor any other information that could be used to identify me without my express permission.

- It has been explained that sometimes the researchers find it helpful to use my own words when writing up the findings of this research. I understand that any use of my words would be completely anonymous (without my name). I have been told that I can decide whether I permit my words to be used in this way.

Circle response:

I agree to take part in the study:	Yes	No
I agree that my own words may be used anonymously in the report	Yes	No
I would like to receive a copy of the final results	Yes	No

Signature of participant:

NAME (in capital letters)	SIGNATURE	DATE OF SIGNATURE (in DD/MM/YYYY)

Participant IDNO |__|__|__|__| Gender   Male / Female
Date |__|__/__|__/__|__| Time of Interview: |__|__|__|__| Length of Interview: |__|__|__|__|

Introduction

- ✓   General purpose of the study

- ✓   Aims of the interview and expected duration

- ✓   Who is involved in the process (other participants)

- ✓   Why the participant's cooperation is important

- ✓   What will happen with the collected information and how the participant/target group will benefit

- ✓   Any questions?

- ✓   Consent

Firstly, I want to thank you for taking the time to meet with me today. My name is Alison Watson and I would like to talk to you today about yours experiences and views on sustainable consumption in the meat sector. Specifically, I am interested in what role you believe meat companies and the sector should play in responding to concerns over the overconsumption of meat products and how you the think the sector can best support sustainable meat consumption. The research is part of my doctoral studies at the Université Paris-Dauphine, Paris, France and the results will also be presented at the World Meat Congress in November 2016.

The interview should take less than an hour. I will be taping the session because I don't want to miss any of your comments. The reason I make a recording of the session is that I can't write fast enough to get it all your response down. And I want to ensure that I get an accurate recording of your views. I will also be taking some notes during the session, so I can write down any points that would be useful to clarify as we talk.

All your responses will be kept confidential. This means that your interview responses will only be shared with my supervisor and any information included in the report will not identify you as the respondent. Remember, you don't have to talk about anything you don't want to and you may end the interview at any time.

Are there any questions about what I have just explained?

Are you willing to participate in this interview?

Warm up [demographic]
To start with can I ask some details about you and your job?
Job Title _____
Years worked at this facility |__|__|yrs.|__|__|mths
What is the title of your current role?
Would you describe this as a junior/senior/executive role in your organisation?
Do you have some responsibility on sustainability issues in your role?   □

_____

Now I am going to ask you some questions about your views on sustainable meat consumption

Domain	Topic and Probes
Awareness of sustainable consumption	What does sustainable meat consumption mean to you, your company, the meat sector? How would you describe that?

	Probes: Can you give some examples of actions by your company or the industry that support sustainable meat consumption? Does your company/organisation discuss this internally? In what ways? (opportunity, threat, strength, weakness?).
Perceptions of Challenges and Criticisms	How would you describe the key challenges or criticisms that the industry is confronted with relating to concerns around meat consumption? Probes: In your opinion, how serious are these challenges or criticisms to the industry? Do they impact on how you do business – now, in the future? In what ways?
Experiences of challenges	What is your experience of responding to criticisms or challenges in the industry related to a sustainability issue? Probes: Can you give an example of such an issue that is relevant to you and/or the sector and describe how your company and/or sector responded? Why was the issue important to your company/sector? What were the strengths and limitations of these response/s?
Responding to criticisms and challenges	Thinking about the future, how do you believe the industry can best respond to criticisms about meat consumption? Health concerns? Animal welfare? Environmental concerns? Probes: What problems could you foresee with the way the industry might respond to criticisms or challenges and what ways do you think these might be solved?
Role of industry	Reflecting on any cases where people overconsume meat products (i.e. eat too much), is this a problem? for industry? Probes: Does you company or organisation discuss this issue? Can industry do anything, or should they? Can you suggest ways the industry can respond to this?
Social-economic/Political environment	In your opinion, who is best placed in society to address issues related to when people overconsume meat products? Prompts: What is the role of other stakeholders in addressing overconsumption? Government? NGOs? Researchers? Consumers? How would you describe the level of involvement needed, if needed, from industry to engage with other stakeholders on this issue?

Closing

Is there anything else you think is important that we have not talked about?

✓ Summarise

✓ Thank participant

✓ Provide extra information and contacts to participants

This is the end of the interview questions. Is there anything more you would like to add? I'll be analysing the

information you and others give me and submitting a draft report to my Research Supervisor in one month. I'll be

happy to send you a copy to review at that time, if you are interested? Thank you for your time. I really appreciate it.

Summary form for each in-depth interview

IDI NO: #06PL0410

Participant sub-group type (*circle*): female   **Participant title** (*circle*): Industry Association

Audio file #: |_N/_A|__|__|__| **Date:** |_0_|_4_|/|_1_|0__|/|__1|_6_|

Today's date: |_0_|_4_|/|_1_|0__|/|_1_|_6_|

1. **How would you describe the atmosphere and context of the interview?**

Excellent atmosphere. Easy to talk and generate free-flowing conversation. Difficult to make best use of silence over the phone however. And recoding was impossible.

2. **What were the main points made by the respondent during this interview?**

Key focus now emerging on ethical/animal welfare issues due to public attention increasing because of sustained campaigns by CSO lately.
Internal analysis showing increasing interest in moderation of meat message with weak market signals showing consumers care about sustainability and ethical issues concerning meat.
Studies show average adult meat consumption at around 300gm per week in X. Overconsumption is NOT an issue in this country according to interviewee.

3. **What new information did you gain through this interview compared to previous interviews?**

Focus on ethical concerns which was not so prevalent in another interview. Emphasis on these issues appears to be somewhat country-specific. The rise in 'no killing' attitude amongst some consumers. Interviewee could describe a wealth of research looking as sustainability and meat and was well across the topic in a deep and meaningful way
The importance of "natural systems" description of farming in this country. This was described as a natural, healthy way to produce meat compared to other systems and even some meat alternative production systems which were described as artificial and potential not so healthy.

4. **Was there anything surprising to you personally? Or that made you think differently?**

Description of the industry feeling 'hurt'. Very personal response. Also, the emphasis on natural farming and challenge to soy products as not being necessarily natural.

5. **What messages did you take from this interview for consideration in the research findings?**
Conversations with CSOs is very important as part of a constructive ongoing process. It appears to help with developing greater trust and support for actions (internally and externally.
Concerns around the meat moderation message if not well managed. It needs to be less but better and support local production in a sustainable manner otherwise cheaper meat that is less sustainable may be imported. Unintended impacts of moderating meat need careful consideration.

6. Were there any problems with the topic guide (e.g. wording, order of topics, missing topics) you experienced in this interview?

Need practice at keeping questions simple when following up points raised in the interview.

Supervisor debriefing

Date: |_2_|4__/_1_|_1_/_1_|_6_| (In-person)

Interviews discussed: IDI NOs: #03MI2809, #04MI2809, #07PL0610, #06PL0410

1. Were all the interviews planned for this period completed? If not, what were the reasons for incompletion?
Not all interviews completed as planned due to issues of timing. Some people were unavailable. The World Meat Congress (WMC) was also scheduled in November which created difficulties in scheduling. However, good material was also obtained at the WMC.

2. What were the main points made by the respondents during these interviews?
Feeling of being attacked as an industry, ongoing sustained pressure across diverse issues. Many activities instigated at the production stage yet respondents found it difficult to talk in detail about sustainable meat consumption and what this meant for the industry.
Suspicion that groups/people demanding meat moderation are fuelled by desire for 'no meat' mandate and want the industry out of business for mainly ethical reasons.
Unable to define exactly what a 'balanced diet' inclusive of meat actually means.

3. What information or ideas were new in these interviews compared with previous interviews?
This was the first tranche of interviews.

4. Discuss the impact of the findings so far on intervention design and note ideas arising.
Need to find out more regarding what work has been done around consumption of meat (actual numbers) in different countries. Is meat overconsumption even a problem? What is the difference between health and environment drivers for meat reduction. Mention of legitimacy by several respondents and social contract. This appears to raise cognisance of a legitimacy challenge for the industry.

5. Going through each domain, are there still new ideas emerging of interest to the study objective? If no, consider whether saturation is complete?
Still ideas emerging about the future role of the meat industry. For example, to what degree the industry might consider more diversified protein strategies. The different roles of industry versus consumers in helping to moderate consumption (when overconsuming). Different ways to communicate positive messages about meat sustainability.

6. Discuss any problems:
Need to add in questions around amount of meat which is considered as healthy consumption as well as thoughts on diversified protein strategies. Need to challenge the thinking behind defensive orientation – why do they feel so attacked and powerless to respond in a better way? Need to check statistics.

Attachment 7   Proposed Timeline

Action	Method	Due date (2016/2017)	Notes
Identifying potential interview subjects	Purposeful, snowball sampling	19 Sep	Easy to identify key policy leaders not so easy to identify industry subjects
Approaching and inviting participants to interviews	Email, telephone, LinkedIn, online survey	21 Sep	Not significant participation in online survey. Easier to approach interested participants and then ask for help with more names.
Giving information and getting consent (interviews)	Email, consent form	As relevant	
Carrying out the interview	Phone, Skype	28th Sep – 7th Feb	Interview problems with recoding skype interviews as sound quality poor. Need to make detailed notes.
Follow up thank you email	Email	As relevant	
• Data Coding • Quantitative data entered into an Excel spreadsheet and uploaded into a new NVivo file as a casebook • All data files – the final edited versions of translated transcriptions, as Word documents, typed up contact summary forms, and the audio files imported into a new QSR NVivo 11 workbook • Two or three transcripts selected at random to be used to develop an initial coding structure via line by line coding • A 'memo' will record what has been coded, and any reflections on that process. • As coding progresses, new categories, ideas or themes may emerge causing new nodes to be developed, existing ones to be modified or 'parent nodes' to be rearranged • All transcripts have been coded, the coding structure, themes and any constructs finalised • Coded project explored for theoretical constructs.	Excel, QSR NVIVO11, Constant comparative analysis, Grounded Theory techniques as set out by Charmaz (2004)	28th Sep – 19th Feb.	Common themes emerging relatively early. Lot's of great examples of work at production level but limited examples at consumption stage. Too many themes? Good to try to describe all and not drop any emerging themes too soon.
• Draft results • Draft set of findings and conclusions sent to supervisor.		January – February 2017	Sent copy of key themes to two participants Good feedback on themes.
• Incorporation in broader thesis project • Final copy included in broader thesis study and submitted for review.		Late February 2017	Interesting overlap between themes or frames in media analysis and sensemaking.

References

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