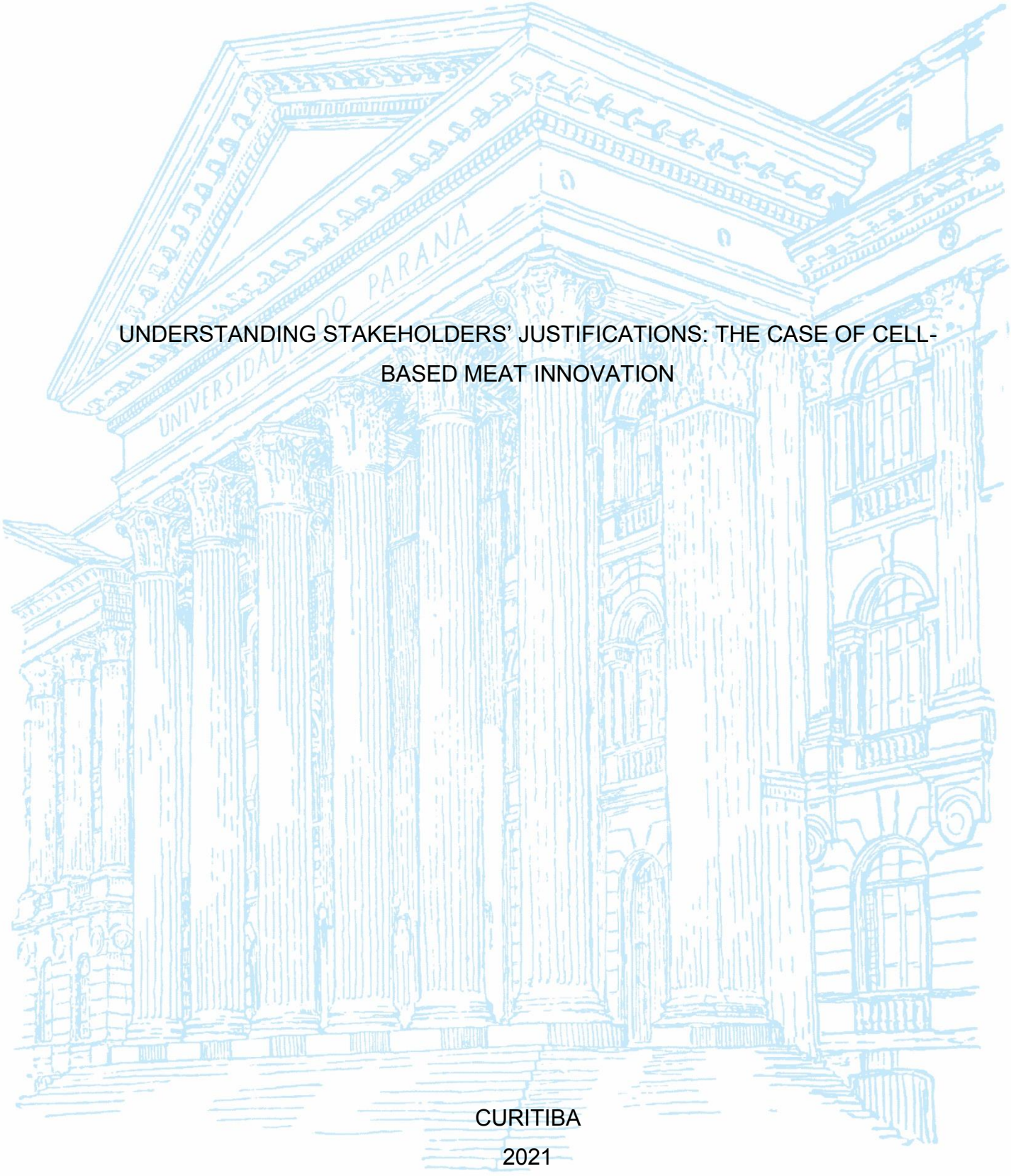
UNIVERSIDADE FEDERAL DO PARANÁ

HELNA ALMEIDA DE ARAUJO GÓES



UNDERSTANDING STAKEHOLDERS' JUSTIFICATIONS: THE CASE OF CELL-BASED MEAT INNOVATION

CURITIBA

2021

HELNA ALMEIDA DE ARAUJO GÓES

UNDERSTANDING STAKEHOLDERS' JUSTIFICATIONS: THE CASE OF CELL-BASED MEAT INNOVATION

Dissertação apresentada ao curso de Pós-Graduação em Administração, Linha de Pesquisa de Estratégia e Análise Organizacional, Setor de Ciências Sociais Aplicadas, Universidade Federal do Paraná, como requisito parcial à obtenção do título de Mestre em Administração.

Orientador: Prof. Dr. Germano Glufke Reis

CURITIBA

2021

FICHA CATALOGRÁFICA ELABORADA PELA BIBLIOTECA DE CIÊNCIAS SOCIAIS APLICADAS – SIBI/UFPR COM DADOS FORNECIDOS PELO(A) AUTOR(A) Bibliotecário: Eduardo Silveira – CRB 9/1921

Góes, Helna Almeida de Araujo
Understanding stakeholders' justifications: the case of cell – based meat innovation / Helna Almeida de Araujo Góes.- 2021.
113 p.

Dissertação (Mestrado) - Universidade Federal do Paraná. Programa de Pós-Graduação em Administração, do Setor de Ciências Sociais Aplicadas.

Orientador: Germano Glufke Reis.
Defesa: Curitiba, 2021.

1. Administração. 2. Stakeholder. 3. Justificação. 4. Carne celular. 5. Tecnologia. I. Universidade Federal do Paraná. Setor de Ciências Sociais Aplicadas. Programa de Pós-Graduação em Administração. II. Reis, Germano Glufke. III. Título.

CDD 658

MINISTÉRIO DA EDUCAÇÃO
SETOR DE CIÊNCIAS SOCIAIS E APLICADAS
UNIVERSIDADE FEDERAL DO PARANÁ
PRÓ-REITORIA DE PESQUISA E PÓS-GRADUAÇÃO
PROGRAMA DE PÓS-GRADUAÇÃO ADMINISTRAÇÃO - 40001016025P6

TERMO DE APROVAÇÃO

Os membros da Banca Examinadora designada pelo Colegiado do Programa de Pós-Graduação em ADMINISTRAÇÃO da Universidade Federal do Paraná foram convocados para realizar a arguição da dissertação de Mestrado de **HELNA ALMEIDA DE ARAUJO GOES** intitulada: ***UNDERSTANDING STAKEHOLDERS' JUSTIFICATIONS: THE CASE OF CELL-BASED MEAT INNOVATION***, sob orientação do Prof. Dr. GERMANO GLUFKE REIS, que após terem inquirido a aluna e realizada a avaliação do trabalho, são de parecer pela sua APROVAÇÃO no rito de defesa.

A outorga do título de mestre está sujeita à homologação pelo colegiado, ao atendimento de todas as indicações e correções solicitadas pela banca e ao pleno atendimento das demandas regimentais do Programa de Pós-Graduação.

Curitiba, 25 de Janeiro de 2021.

Assinatura Eletrônica
25/01/2021 15:45:59.0
GERMANO GLUFKE REIS
Presidente da Banca Examinadora (UNIVERSIDADE FEDERAL DO PARANÁ)

Assinatura Eletrônica
26/01/2021 09:46:25.0
GUSTAVO ABIB
Avaliador Interno (UNIVERSIDADE FEDERAL DO PARANÁ)

Assinatura Eletrônica
26/01/2021 14:06:18.0
FELIPE MENDES BORINI
Avaliador Externo (UNIVERSIDADE DE SÃO PAULO)

This work has been developed with the support of the coordination for the improvement of higher education personnel (CAPES) – Brazil, financing code 001.

To my remarkable parents
who support and encourage me in all things,
great and small.

ACKNOWLEDGEMENTS

I would like to praise and thank God, who has granted me countless blessings, knowledge, and opportunities. In helping me along this part of my journey I have many people to thank.

First, my supervisor, Dr. Germano Glufke Reis for his guidance over the past two years, for his patience, insights, and encouragement while consistently reading all my drafts. You have set an example of excellence as a researcher and mentor, providing a role model for future aspirations.

A special thanks are due to the professors of the Business Management Graduate program of the Universidade Federal do Paraná, who introduced me to new perspectives and approaches, and broadened my horizons. I am also grateful for the financial support I received over the past two years from the coordination for the improvement of higher education personnel (CAPES) – Brazil.

Writing a dissertation is both an intellectual as it is an emotional effort. I would have not been able to complete such efforts without the constant support of my family members, friends, and colleagues. First and foremost, I have to thank my parents, Ivanda Santos and Helmo Góes, for their love and support throughout my life, without whom I would never have enjoyed so many opportunities. My little brothers, Helton Góes and Guilherme Góes deserve my wholehearted thanks as well.

To all of my friends, especially, Artur, David, Paco, Sara, Ronaldo, Elaine, Sérgio, Ítalo, Renata, Marcos, you put up with me missing many events. I am forever grateful for your patience and kind words in moments of need, constantly showing me that distance is overcome by true friendship. I am also grateful to my colleagues, André Contani (buddy), Rafa, Fabi, Mário, Simone, André, Jéssica, Pri, and Miriane, who had to put up with my stresses and moans for the past two years of study and for keeping me company during this path.

Lastly, unconditional thanks are saved to two individuals for whom I have the deepest gratitude, Daiane Cordeiro (*minha duplinha*) and Nicolas Daher. You have measured no efforts to look after me, always supporting me in whatever way you could. You had to put with my fits of stress and impatience and had constantly encouraged me when the tasks seemed arduous and insurmountable. I shall miss you both more than I could ever hope to express in words.

I am immensely blessed for having all of you on board with me on this journey.

“An explanation of cause is not a justification by reason.”

(C.S. Lewis)

RESUMO

A carne celular (CBM) é uma inovação emergente que cultiva células animais em um biorreator, sem recorrer ao abate de animais. Tal inovação disruptiva está embutida em um contexto de incerteza e ambiguidade onde as perspectivas dos *stakeholders* moldam sua legitimidade e desenvolvimento. Ao enfrentar situações de incerteza e novidade, as partes interessadas mostram e/ou tentam estabelecer seus valores empregando justificativas. Assim, este estudo se baseia na Teoria dos *Stakeholders* (ST) e na Teoria da Justificação (JT) para analisar o caso da inovação da carne celular ao responder à seguinte pergunta: quais são as justificativas empregadas pelos *stakeholders* dentro da indústria emergente da CBM? Analisando como os stakeholders primários e secundários justificam - ou não - a legitimidade da CBM e suas interações - convergência ou divergência - é possível ilustrar a convenção - valores e práticas compartilhados - da futura indústria de CBM. Para este fim, foram coletadas entrevistas com representantes de cinco grupos de *stakeholders* recorrentes na literatura da CBM - *startups*, investidores, multinacionais de carne convencional, ONGs e pesquisadores - e trianguladas com dados secundários, a partir de websites e notícias de 2019 e 2020. A Análise de Justificativa Pública foi aplicada para analisar os dados coletados à luz do modelo da JT para identificar as justificativas priorizadas e para fornecer uma ilustração das convenções de CBM. Os resultados demonstram que as ordens de valor priorizadas entre as partes interessadas foram do mundo verde, de mercado e industriais. Embora tenham sido observadas ambiguidades - por exemplo, o mundo verde usado com propósitos de mercado, os s*takeholders* analisados convergem para a legitimidade e desenvolvimento da CBM, compartilhando propósitos e valores semelhantes. Além disso, verificou-se também que disputas e justificativas contrárias à legitimidade da CBM estão principalmente relacionadas ao mundo doméstico. As conclusões também indicam que existe uma hierarquia dentro de ordens de valor priorizadas e dentro de tópicos da mesma ordem de valor - por exemplo, em relação ao mundo verde, os impactos ambientais são priorizados quando comparados aos benefícios de bem-estar animal. Assim, este estudo mapeia os principais tópicos relacionados a cada ordem de valor em um estudo de caso de uma inovação; argumentando a favor da aplicação da teoria da justificação em estudos de estratégia. Além disso, a representação das convenções predominantes pode ser usada para influenciar comportamentos e as decisões entre os *stakeholders*.

Palavras-chave: *Stakeholders*. Teoria da justificação. Inovação da carne celular.

ABSTRACT

Cell-based meat (CBM) is an emerging innovation that cultivates animal cells in a bioreactor, without resourcing to the slaughter of animals. Such a disruptive innovation is embedded in a context of uncertainty and ambiguity wherein stakeholders' perspectives shape its legitimacy and development. When facing situations of uncertainty and novelty, stakeholders show and/or attempt to establish their values by employing justifications. Thus, this study builds on Stakeholder Theory (ST) and Justification theory (JT) to analyze the case of the cell-based innovation by answering the following question: what are the justifications employed by stakeholders within the upcoming CBM industry? By analyzing how primary and secondary stakeholders justify – or not – the legitimacy of CBM and their interactions – convergence or divergence – it is possible to illustrate the resulting convention – shared values and practices – of the forthcoming CBM industry. To this end, interviews with representatives of five recurrent stakeholder groups in CBM literature were collected – startups, investors, conventional meat processing multinationals, NGOs, and researchers – and triangulated with secondary data, from websites and news from 2019 and 2020. Public Justification Analysis was applied to analyze the collected data in light of the JT framework to identify the prioritized justifications and to provide an illustration of CBM conventions. The results demonstrate that prioritized orders of worth among stakeholders were green, market, and industrial. Although ambiguities were observed – for instance, the green world used with market purposes, the analyzed stakeholders converge towards CBM legitimacy and development by sharing similar purposes and values. Moreover, it was also found that disputes and justifications contrary to CBM legitimacy are mainly related to the domestic world. The findings also indicate that there is a hierarchy within prioritized orders of worth and within topics from the same order of worth – for instance, regarding the green world, environmental impacts are prioritized when compared to animal welfare benefits. Hence, this study maps the main topics related to each order of worth in a case study of an innovation; thus, arguing for the application of JT in strategy studies. Furthermore, the illustration of predominant conventions may be used to influence future behavior and decisions among stakeholders.

Keywords*:* Stakeholders. Justification theory. Cell-based meat innovation.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CBM	–	CBM
GMOs	–	Genetically modified organisms
JT	–	Justification theory
NGOs	–	Non-governmental organizations
PJA	–	Public Justification Analysis
ST	–	Stakeholder theory
WEF	–	World Economic Forum

TABLE OF CONTENTS

1 INTRODUCTION

Cell-based meat (CBM) is an emerging food innovation that cultivates animal cells in a bioreactor, without resourcing to the slaughter of animals (TUOMISTO; TEIXEIRA DE MATTOS, 2011; STEPHENS; KING; LYALL, 2018; STEPHENS; SEXTON; DRIESSEN, 2019; HEIDEMANN et al., 2020) that has been gathering attention as a sustainable alternative to conventional meat (ONG; CHOUDHURY; NAING, 2020). Such a disruptive innovation is embedded in a context of uncertainty and ambiguity; therefore, stakeholders' perspectives shape its legitimacy and development. When facing situations of uncertainty and novelty, stakeholders show and/or attempt to establish their values by employing justifications and engaging in negotiations.

Alternative sources to conventional meat protein may promote technological and environmental improvements to issues that underpin today's livestock production, mitigating the tradeoffs of conventional animal-based meat production (TUOMISTO; TEIXEIRA DE MATTOS, 2011; POST, 2014), such as extensive land and water use, deforestation, animal suffering, greenhouse gas (GHG) emissions and spread of diseases pandemics such as the bird flu and the swine flu (BRYANT; BARNETT, 2018).

Furthermore, CBM is argued to be an ecologically-friendly alternative that would significantly impact the current livestock production (SAAVOSS, 2019; WEF, 2019; HEIDEMANN et al., 2020; REIS et al., 2020). As animal-based meat consumption has significantly increased worldwide in recent years (GODFRAY et al., 2018), it has urged the search for alternative sources of protein that simultaneously address environmental issues and consumer demands (BRYANT et al., 2019a; WEF, 2019; BRYANT; BARNETT, 2020).

However, environmental benefits are not yet guaranteed. There is some controversy regarding the reduction of GHG emissions – it may be beneficial in the short-term, however, in the long term it may be more hazardous than conventional livestock production (LYNCH; PIERREHUMBERT, 2019). As conventional meat processing multinationals and other major food conglomerates are increasingly investing in CBM innovation, startups are competing to reach the market, thus a new industry is burgeoning (WEF, 2019; REIS et al., 2020). Moreover, little is known about

how stakeholders strategically justify innovation legitimacy and engage in negotiations whilst the new industry is being shaped.

Within strategy studies, there is a growing concern regarding environment-related debates and the impacts (positive and negative) that organizations have on society, particularly in stakeholder theory research (HÖRISCH; SCHALTEGGER, 2019). Environmental debates, which are in constant processes of (re) negotiation of diverse interests among stakeholders, are increasingly being promoted, especially societal debates on issues associated with livestock production had increased because of its impacts on the environment and animal welfare (SCOLLAN et al., 2011).

Stakeholder theory (ST) is applied to theorize on the relation between an organization and its stakeholders – herein, a new industry and its stakeholders – to create value for both parties without resourcing to tradeoffs (PARMAR et al., 2010; PHILLIPS et al., 2019).

ST highlights the interactions among different groups within a specific context that directly influence the achievements of organizational goals (PHILLIPS et al., 2019). However, it does not address how several stakeholders employ justifications to achieve their goals; nor it explores analytical thinking on how organizations and their stakeholders account for and negotiate behaviors and conventions during disagreement situations.

To better understand how such interactions are made and conflicts therefrom unfold; this study builds on Justification theory (JT) (BOLTANSKI; THÉVENOT, 2006) to account for how stakeholders are embedded in a constant context of (re) negotiation of conflicting interests in the process of value creation (DOROBANTU, 2019).

The JT framework (BOLTANSKI; THÉVENOT, 2006) was chosen because it carefully examines the interactions between actors starting from the premise that such interactions require the use of justifications. Such justifications are embedded and aim to reinforce actors´ points of view (often conflicting) of what the “common good” is supposed to be and how it may be achieved (ARTS; BUIJS; VERSCHOOR, 2018).

Thus, the herein proposed approach fits the analysis of how actors interact and negotiate arguments and narratives to develop and define CBM’s meaning and purposes to achieve a higher common principle. It also enables the identification of dominant justifications that eventually turn into socially accepted conventions.

The context in which CBM’s stakeholders are inserted is a critical aspect that has shaped the development of its innovation (STEPHENS; KING; LYALL, 2018).

Therefore, it is justifiable the intent to provide an interpretation for emergent conventions of this blossoming industry. Although entrepreneurs, researchers, and even the media have claimed that developing CBM is legitimate due to its potential benefits (POST, 2014; BRYANT; BARNETT, 2018), it is less clear whether the views of primary and secondary stakeholders are aligned (BRYANT; BARNETT, 2018; HENKE, 2018; STEPHENS; SEXTON; DRIESSEN, 2019) and what is (are) the resulting convention (s) regarding CBM.

In addition, when facing situations of uncertainty and novelty, stakeholders engage in negotiations to establish their values by employing justifications, influencing the spread of CBM legitimacy and development. The context in which the analyzed case – the CBM innovation– is embedded features a fruitful opportunity for analysis since it provides multiple stakeholder groups with distinct and unique points of view and interests regarding the development of CBM innovation. In light of this contextualization, the research question that guides this study is: what are the justifications employed by stakeholders within the upcoming CBM industry?

This study builds on Yin's (2003) recommendations on case study design were followed. Interviews with representatives of five recurrent stakeholder groups in CBM literature were collected – startups, investors, conventional meat processing multinationals, NGOs, and researchers – and triangulated with secondary data, from websites and news from 2019 and 2020. In total, 15 interviews were collected. The interviewees had different areas of expertise, for instance, biomedical engineering, veterinary medicine, high-performance computing, and project management. The interviewees are from six countries: Israel, The Netherlands, The United States of America, Brazil, France, and Belgium.

The Public Justification Analysis (PJA) (YLÄ-ANTTILA; LUHTAKALLIO, 2016), a method developed for analyzing public data in light of BOLTANSKI; THÉVENOT's framework (2006) was applied to analyze the collected data. Data was gathered from multiple sources – interviews, news, official websites, and reports – that enabled the interpretation of patterns of prioritized justifications.

This research contributes to the field of strategy studies by moving forward and deepening its understanding of justifications used during situations embedded in uncertain, and ambiguous contexts by stakeholders (QIU; DONALDSON; LUO, 2012). In other words, it contributes to ST by providing a complementarity opportunity to

provide an in-depth analysis of conflicting interests and conventions among stakeholders.

Besides, it contributes to the increasing corpus of literature within management studies that applies JT framework (DEQUECH, 2008; JAGD, 2011; PATRIOTTA; GOND; SCHULTZ, 2011; CLOUTIER; GOND; LECA, 2017; GOND; DEMERS; MICHAUD, 2017; ARTS; BUIJS; VERSCHOOR, 2018; IGNATIUS; HAAPASAARI, 2018). By applying PJA, this study also contributes to an increasing corpus of literature that has been developing such a methodology in light of Boltanski and Thévenot ‘s framework (GLADAREV; LONKILA, 2013; YLÄ-ANTTILA; LUHTAKALLIO, 2016).

This study is divided into six sections. The first contains the introduction, the outline of the research question, the purpose statement, the objectives, and the theoretical and practical justifications. The following section addresses the theories that constitute the theoretical foundations for this study. Thus, ST and JT are discussed, as well as intersections whereas both theories dialogue. Such dialogues are discussed in a paper by this author in collaboration with Dr. Germano Glufke Reis and Dr. Gustavo Abib. The paper was accepted for publication on December 8, 2020, and should be published at Cadernos Ebape in 2021. In addition, innovation perspectives that are related to the selected case (the CBM innovation) are also addressed.

Then, the third section provides an overview regarding the methods, illustrating and contextualizing the object of study, the research design and, the data collection, and analysis strategies. The fourth section describes the selected case. Followed by a section that analyzes the results and highlights the findings. Then, the discussion section emphasizes the answers to this study’s research question and objectives, while also indicating the study’s limitations and, through some propositions, providing opportunities for future studies. Next, concluding remarks on this study’s findings and contributions are discussed. Lastly, a list of references analyzed in this study is listed, followed by appendices.

1.1 RESEARCH QUESTION

The research question guides the direction of the study by aligning it with the other elements of scientific work. It is the research problem that identifies which type of method is most adequate given the purpose of the study and also provides analysis

and discussion of the data (SALDAÑA; OMASTA, 2016; CRESWELL; CRESWELL, 2017). This considered, regarding this study, a question arises: what are the justifications employed by stakeholders within the upcoming CBM industry?

1.1.1 Purpose statement

The purpose of this study is to analyze what are the justifications employed by primary and secondary stakeholders within the upcoming CBM industry. To this end, four specific actions were outlined.

1.1.2 Objectives

a) To identify the orders of worth employed by stakeholders of the upcoming CBM industry;
b) To evaluate the orders of worth that were prioritized by analyzing whether the orders of worth converge – or not – investigating similarities and differences among the stakeholders;
c) To analyze the topics that emerged from the prioritized orders of worth;
d) To illustrate and provide an analysis of the conventions regarding the upcoming CBM industry.

1.2 THEORETICAL AND PRACTICAL JUSTIFICATIONS

Previous literature on CBM addresses consumer acceptance, media coverage in specific countries, scenarios of how the CBM value chain will be configurated, technological research breakthroughs (HOCQUETTE, 2015; BRYANT; BARNETT, 2018; BRYANT et al., 2019a, 2019b; WEINRICH; STRACK; NEUGEBAUER, 2019; PAINTER; BRENNEN; KRISTIANSEN, 2020; REIS et al., 2020). However, to the best of the author's knowledge, none attempt to illustrate how stakeholders interact and share values and practices, arguing for – or against – CBM legitimacy from the management (strategy) perspective, – as it is herein proposed.

This study aims at contributing to a richer understanding of the interaction among stakeholders in the upcoming CBM industry, in particular, specifying how stakeholders engage with a plurality of orders of worth to argue for – or against– CBM

development and legitimacy. Thus, providing an interdisciplinary understanding of the infant CBM industry (STEPHENS; SEXTON; DRIESSEN, 2019).

In addition, by combining the ST and JT frameworks, it is expected to contribute to both theories as it follows: to the ST's research corpus since it enables an in-depth analysis of plural points of view embedded in situations of uncertainty and ambiguity and one hopes that the deepening of such understanding can illustrate opportunities of ways the JT's may be applied in management studies and ways of how it may be extended to the development of future studies (JAGD, 2011).

Based on such aspects, it is possible to draw an insight from the interplay between ST and JT in the following ways: it can be used to provide better, in-depth descriptions of cases, it enables the analysis of justifications employed in situations of dispute and its impact on the (non) achievement of goals, and lastly, it promotes the interpretation of moral principles that emerge from management practices.

Moreover, the selected case constitutes a fruitful opportunity to demonstrate that under situations of uncertainty – as it happens in cases of disruptive innovation – stakeholders interaction and engagement in negotiations are critical because it impacts (positively or negatively) in promoting opportunities and associations to advance a given endeavor (ALVAREZ; YOUNG; WOOLLEY, 2020).

The analysis of justifications employed regarding an upcoming innovation reaching the market may be a tool used to enhance the accurate identification and analysis of stakeholders' interests. Thus, it is a tool that may leverage negotiations, impacting the alignment of interests. Noteworthy to mention that alignment of value (or the obstacle to reaching it) among parties constitutes one of the key questions that ST seeks to answer (FREEMAN; PHILLIPS; SISODIA, 2020). It is also a fruitful tool for scholars as it provides an interpretation of moral principles and conventions that emerge from this upcoming industry.

The herein proposed theoretical combination may be used to underpin empirical research in other cases and social fields. By applying PJA, this study also contributes to an increasing corpus of literature that has been developing such a methodology in light of Boltanski and Thévenot's framework (GLADAREV; LONKILA, 2013; YLÄ-ANTTILA; LUHTAKALLIO, 2016).

Regarding the practical contribution, the identification and analysis of predominant justifications indicate the emergent topics and conventions related to CBM, which in turn may influence future behavior and decisions among different

stakeholders (BÉNATOUÏL, 1999; WAGNER, 1999). Such knowledge of conflicting justifications may be used to promote strategies that seek to align the interests of the upcoming CBM industry.

In other words, CBM is considered to be an emergent technological innovation in the way meat is produced that is widely related to environment and health benefits (CHILES, 2013). Its context is embedded in uncertainty since it is an emergent type of innovation; risk, due to its consideration as a radical innovation; and plurality, because different stakeholders act within it, each being influenced by different points of view. Therefrom, disputes among actors arise and different justifications are employed as a way to account for or/and negotiate decisions or actions. Understanding the predominant justifications, and therefore, the conventions related to CBM may indicate the way main actors justify their actions and decisions; which in turn, may influence decisions or/and behaviors related to the legitimacy and development of CBM innovation.

The following section addresses the theories that constitute the theoretical foundations for this study. Thus, ST and JT are discussed, highlighting the debates whereas both theories dialogue, as well as innovation perspectives that characterize the selected case.

2 THEORETICAL FOUNDATION

This section discusses stakeholder theory, justification theory, intersections which both theories dialogue as well as innovation approaches that are related to the selected case.

2.1 STAKEHOLDER THEORY – MAIN ASSUMPTIONS

The purpose of this section is to discuss the main insights of ST, highlighting the ST topics relevant to this study.

The ST focuses on the influence that stakeholders – groups or individuals that can affect or be affected by the organization's activities – may have on the achievement of the firm's goals. Hence, managers need to consider stakeholders' interests when making strategic decisions, more specifically, how to identify who they are, accurately analyze their interests and engage in negotiations with them (FREEMAN, 2010). Stakeholders' interests have intrinsic value which means that each group must be taken into account in ethical management practices (DONALDSON; PRESTON, 1995; DONALDSON, 2002; HARRISON; FREEMAN; DE ABREU, 2015).

Stakeholders and the organization are interdependent. This directly impacts the strategy formulation process, as it allows managers to incorporate values and principles to give (temporary) stability to relations with stakeholders. Alignment among – often conflicting – interests may (in)directly, lead to better organizational performance because it may promote cooperation among different parties towards a common goal (FREEMAN, 2004; HARRISON; FREEMAN; DE ABREU, 2015; BARNEY; HARRISON, 2020b; CRANE, 2020).

In addition, the organization should create value for its stakeholders without resourcing to tradeoffs, envisioning a sustainable relationship. In other words, the ST seeks to satisfy several stakeholders' demands simultaneously without compromising the organizational interests (STOCKER; DE MASCENA, 2019; MASCENA; STOCKER, 2020). Value creation means to generate benefits and gains that encourages or facilitates sustainable relationships among the parties involved. (ARGANDOÑA, 2011).

Thus, ST is a theory that addresses morals and values in managerial practices (PHILLIPS; FREEMAN; WICKS, 2003). Herein, value creation is directly related to the

development of CBM innovation as the selected groups employ justifications towards this end as is demonstrated in the results section.

Previous literature classifies stakeholders in diverse ways. Different approaches address how managers can identify and prioritize stakeholders in a given situation. Some address stakeholder salience (see DRISCOLL; STARIK, 2004; MAGNESS, 2008; CRANE, 2020), more specifically, focusing on identifying the salience of stakeholders according to three attributes – power, legitimacy, and urgency (MITCHELL; AGLE; WOOD, 1997; WOOD et al., 2018).

Freeman (2010), for instance, differentiates internal (owners, customers, employees, and suppliers) from external stakeholders (governments, competitors, groups that advocate for consumer rights, environmentalists, and the media. Clarkson(1995), in turn, classify them as primary (those that directly impact the survival of the organization, such as shareholders, investors, employees, customers, and suppliers) and secondary (those that are engaged with the organization but do not directly influence its survival) stakeholders. However, tools for accurately account for stakeholders' interests remain obscure.

Although such classifications had influenced previous studies, this study adopts Clarkson's (1995) classification to categorize primary and secondary stakeholders of the upcoming CBM industry. Six distinguished groups are focused based on their identification of the CBM's literature: CBM startups, CBM investors, conventional meat processing multinationals, NGOs, researchers, and the media, since they were directly involved in the selected phenomenon and are widely mentioned in CBM's literature (CHILES, 2013; BRYANT; BARNETT, 2018; HENKE, 2018; SEXTON; GARNETT; LORIMER, 2019; STEPHENS; SEXTON; DRIESSEN, 2019; REIS et al., 2020).

This study argues that CBM startups, CBM investors, and conventional meat processing multinationals are primary stakeholders (those that directly impact the development of the industry), while NGOs, researchers, and the media are secondary stakeholders (those that are engaged with the innovation but do not directly influence its development). Since CBM is an industry in its infancy, it is difficult to assess the extent of their future role, thus, previous literature on CBM was used as a parameter to classify the herein selected stakeholders (for instance, see REIS et al., 2020).

Besides, ST has three aspects: descriptive (when used to describe organizational behavior), instrumental (when used as a tool to analyze the alignment

among actors and its influence on the achievement of goals), and normative (when used to analyze corporate behavior in light of moral guidelines) (DONALDSON; PRESTON, 1995).

ST approaches several interactions among different groups which are based on the principles of **trust**, **reciprocity**, and **fairness** (BOSSE; PHILLIPS; HARRISON, 2009; BUNDY; VOGEL; ZACHARY, 2018; CRANE, 2020) and that it provides means by which ethics may be employed in a business context (ARGANDOÑA, 1998; DONALDSON, 2002; PHILLIPS; FREEMAN; WICKS, 2003; PARMAR et al., 2010; FONTRODONA; RICART; BERRONE, 2018; BARNEY; HARRISON, 2020a).

Previous literature has found that stakeholders' perception of **justice** within management practices are linked to reciprocity, and thus enables sustainable relationships among parties, and has performance implications (BOSSE; PHILLIPS; HARRISON, 2009; HARRISON; BOSSE; PHILLIPS, 2010; BOSSE; COUGHLAN, 2016; SCHNEIDER; SACHS, 2017; BUNDY; VOGEL; ZACHARY, 2018).

In summary, the main assumptions of ST can be listed as follows: i) stakeholders influence and are influenced by the objectives of the organization; ii) managers need to take into account the effects of the interests and actions of stakeholders, as well as their context, to be successful; iii) for this relationship with stakeholders to be better understood, the theory recommends attitudes and practices that advocate for the moral responsibility of managers; iv) such actions may lead indirectly to better performance (DONALDSON; PRESTON, 1995; HARRISON; FREEMAN; DE ABREU, 2015; GODFREY; LEWIS, 2019).

Stakeholder theory has benefitted from having contributions from other fields of knowledge such as sociology (HARRISON; FREEMAN; DE ABREU, 2015; WOOD et al., 2018; PHILLIPS et al., 2019; BARNEY; HARRISON, 2020b). Furthermore, an interplay with sociology demonstrates that "[…] people tend to accept the beliefs of people who are personally known and trust, people who are trusted by those other, and people in positions of great authority." (WOOD et al., 2018, p.38).

Thence, **trust** and **fairness** provide conditions for **reciprocity** and it may hinder opportunistic behavior in managing multiple expectations and enable sustainable relations among different parties (BOSSE; PHILLIPS; HARRISON, 2009; BUNDY; VOGEL; ZACHARY, 2018; CRANE, 2020), impacting on the development of an innovation. Such principles unfold into conventions of the innovation as they demonstrate whether stakeholders trust in its potential benefits.

Therefore, there is a common ground between ST and JT since both address debates on social reality anchored on **moral principles** (GLADAREV; LONKILA, 2013; BARNEY; HARRISON, 2020b), both emphasize the **human agency** towards promoting cooperation/situations of agreement reflecting a higher common principle/higher common consciousness about organization's impacts on society (ARGANDOÑA, 1998; DONALDSON, 2002; CLOUTIER; GOND; LECA, 2017; THÉVENOT, 2019; BARNEY; HARRISON, 2020a). This common ground is further elaborated subsequently.

Based on such aspects, it is possible to draw an insight from the interplay with JT in the following way: the descriptive feature of ST would benefit from JT, once it can be used to provide better, in-depth descriptions of cases, the instrumental, from analysis of justifications employed in situations of dispute and its impact on the (non) achievement of goals, and lastly, the normative, by the interpretation of moral principles that emerge from management practices.

It is herein proposed an interplay with the JT in the following way: the analysis of justifications employed regarding an upcoming innovation reaching the market may be a tool used to enhance the accurate identification and analysis of stakeholders' interests. Thus, it is a tool that may leverage negotiations, impacting the alignment of interests.

Noteworthy to mention that alignment of value (or the obstacle to reaching it) among parties constitutes one of the key questions that ST seeks to answer. (FREEMAN; PHILLIPS; SISODIA, 2020) It is also a fruitful tool for scholars as it provides an interpretation of moral principles and conventions that emerge from this upcoming industry.

The JT framework is based on the premise of the inclusion of moral values within sociological studies by arguing that agreement is reached when justice among different parties is observed (BOLTANSKI; THÉVENOT, 2006). The analysis of justifications was selected for this study, because " […] language is taken by other persons as an indicator of future actions." (MILLS, 1940, p.940). Thus, by combining both theories, this study provides tools for managers to accurately perceive who are their stakeholders, to assess their salience, and interpret their interests in a given situation.

2.2 JUSTIFICATION THEORY – MAIN ASSUMPTIONS

The purpose of this section is to discuss the main assumptions and concepts of the JT as well as to provide insights on how it can be used in strategy studies. Also, some tables are provided to illustrate central information.

The JT framework analyzes the interactions among human and non-human beings; those interactions are called situations, and it constitutes the theory's object of study, specifically situations of dispute; wherein justifications are employed in order to reach an agreement among different actors. The agreement is possible because beings evoke what is called *the higher common principle*, which relates to the ideals of justness[1] and the **common good**, that is superior to individuals and institutionalizes concordances between them, bringing disputes to an end; wherein those forms of common good are called **worth** (BOLTANSKI; THÉVENOT, 2006).

In other words, the framework is based on the analysis of situations built on the relation between agreement and discord in non-violent and legitimate ways, thus providing a model to analyze people's behaviors, particularly discourses and actions (BOLTANSKI; THÉVENOT, 2006). It aims to put forward a model that provides methods for analyzing people's behaviors, particularly discourses and actions in situations of dispute (MILLS, 1940; BOLTANSKI; THÉVENOT, 2000, 2006; DEQUECH, 2008; ERANTI, 2018). For the purpose of this study, drawing a relation with the organizational lexicon, there is an understanding that beings may also be called stakeholders (FREEMAN, 2010).

Such situations of agreement and disagreement are not static; they are dynamic and alternate, sometimes there are situations of group acquiescence, sometimes of non-conformity. It is from each type of moment that several types of behaviors for this oscillation are evidenced.

Justifications are the "[…] act of providing reasons for validity, legitimacy, and defensibility of an action, a belief or a social arrangement." (SUSEN, 2017, p.350). The reasons that motivate the employment of justifications connect the actions of actors are bound to a given situation, to a specific context, and resort to norms, herein, **principles of justice** and the **common good**, to establish an outcome (MILLS, 1940).

---

[1] The term of j*ustifications* originates from this concept.

Thus, justifications must be recognizable by others and are mainly employed when critical capacities are demanded, especially when disputes arise (ERANTI, 2018). Moreover, social life is a context that demands the coordination of behavior. As Stark (2017, P. 387) states: “In Sociology, coordination is made possible by what is shared by the members of a group or organization – shared values, shared norms, shared expectations, shared understandings”. Coordination is based on the imperative of human beings to justify their actions and to be held accountable for them (DEQUECH, 2008; REINECKE; VAN BOMMEL; SPICER, 2017) since there is an understanding that human beings have the competence to engage in critique, justification, and evaluation (CLOUTIER; GOND; LECA, 2017).

Since organizations are composed of individuals, this model may also be used for the analysis of organizational management practices, since “ […] the study of organizations arguably is, in its essence, the study of coordination” (CLOUTIER; GOND; LECA, 2017, p.6). The JT is grounded in studying how organizations and businesses function to further a particular point of view into a generalizable “common good” (BOLTANSKI; THÉVENOT, 2006; Eranti, 2018; Thévenot et al., 2000).

In summary, the main assumptions of the JT are that agreement and/or end of a dispute is reached by evoking justifications grounded on higher common principles. These principles relate to the ideals of **justice** and the **common good**, superior to individuals, and that enables concordances between them. Those forms of the common good are called **worths**, and they are used to evaluated greater or lesser capacity to attribute value to these situations by individuals. Situations of agreement and disagreement are not static; they are dynamic and alternate. Sometimes there are situations of group acquiescence, sometimes of non-conformity (BOLTANSKI; THÉVENOT, 2006).

Interactions between actors require the use of justifications to coordinate actions in non-violent ways in social life. The “common good” principles are the tool that enables coordination in social life. Actors engage in public spaces to negotiate and/or defend socially accepted definitions of “the common good” (PATRIOTTA; GOND; SCHULTZ, 2011). Thus, reaching an agreement or a compromise is a dynamic process in which often competing rationales are continuously (re)evaluated (BOLTANSKI; THÉVENOT, 2000).

2.2.1 How can the Justification theory framework be used in management studies?

It is possible to apply it to management studies, as some studies have already used it (JAGD, 2011; PATRIOTTA; GOND; SCHULTZ, 2011; ARTS; BUIJS; VERSCHOOR, 2018; IGNATIUS; HAAPASAARI, 2018). Boltanski and Thévenot (2006) state that the framework was coined from an analysis of the organizational decision and action phenomena since it is within this reality that a plurality of activities, actors, and interests are manifested and which constitutes a field for analysis of justifications, as exposed in the following quotation:

> The evidence we accumulated opened the way to a new a systematic approach to organizations, construed not as unified entities characterized in terms of spheres of activity, systems of actors, or fields, but as composite assemblages that include arrangements deriving from different worlds […] The diversity in question is not projected onto differences in activity or milieu; instead throughout an organization. No organization can survive, however industrial it may be if it does not tolerate situations of different natures. It is precisely the plurality of the mechanisms deriving from the various worlds that accounts for the tensions that pervade these organizations (BOLTANSKI; THÉVENOT, 2006, p. 18).

Its main contribution to this study is the mapping and categorization of orders of worth, which are differentiated by a higher common principle that bond beings in the social context. Legitimate, i.e. non-violent forms, of these principles, are called “worth”. Each sphere has different types of judgment and actions that are ranked according to their value. Value is a feature that assesses the qualification of beings in situations of dispute. Seeking legitimate, i.e. non-violent, ways to reach an outcome requires that qualified beings engage in fair negotiations.

Each order of worth has its higher common principle that values the qualification of involved beings. It should be emphasized that each category is tested in different ways, and it is at these disruptive moments of testing that the analysis of justifications occurs (THÉVENOT, 2002; BOLTANSKI; THÉVENOT, 2006).

Such worlds emerged from ethnographic fieldwork and interviews, compared with historical and canonical philosophical classics (ERANTI, 2018). To live within these worlds, individuals and organizations must use justifications. Each world is defined by characteristics regarding the higher common principle, subjects, and objects of value, value relations, tests, forms of evidence, and failures (BOLTANSKI;

THÉVENOT, 2000, 2006; GLADAREV; LONKILA, 2013; THÉVENOT ET AL., 2000). Each world manifests itself after the occurrence of disruptive moments and presents the subsequent attributes.

The **inspired world** is unstable and fragile, in which inspiration is motivated by deep emotions whose main subjects are the visionaries, in which moments of tests such as adventures or trips can produce uncertain paths that can culminate in the failure evidenced by individuals when they lose their originality and "return to the earth" (BOLTANSKI; THÉVENOT, 2006).

The **domestic world** is based on tradition and hierarchy, in which the hierarchically superior individuals have more value than the subordinates. Whose analogy that most resemble this world is the family led by patriarchal figures, observing rules of good manners, honor, and respect, in which the moments of peaks are the family ceremonies as marriages and, finally, their failures are shown when individuals become indiscreet, rude or treacherous (BOLTANSKI; THÉVENOT, 2006).

The **world of fame**, according to Boltanski and Thévenot (2006), is defined by public opinion, in which the individuals with greater value require recognition made publicly, by the media, whose testing moments comprise the moments when individuals are immersed in their public roles and whose failures occur when they lose their image and fall into obscurity.

The **civic world** is based on collectivity and the common good in which laws and rights unify individuals and are better represented in democracies and republics, whose peak moments are expressed in situations that involve the collective will around a just cause in assemblies, congresses, and meetings, in which voting plays an important role. Its flaws are pointed out when the collectivity is fragmented, when elections are invalidated or when individual interests or inspirations stand out (BOLTANSKI; THÉVENOT, 2006).

Featured by competition and rivalry, the **market world** attributes more significant value to those who are winners and who have greater wealth. Moments of testing occur when there is a mercantile exchange whose failures are associated with financial losses, poverty, and slavery to money. In turn, the **industrial world** is defined by science and innovation where the main attributes that give value to the individual are efficiency, productivity, and reliability. Labor is; therefore, a natural condition and investments involve commitments related to development. Its main moments of testing occur when performances are measured and its failures are presented when there is

the objectification of people, seen as instruments for an end (BOLTANSKI; THÉVENOT, 2006).

The **green world** is related to environmental arguments. This world focuses on principles concerning harmony with nature, considering that environmental-friendly actions are related to the general good of humankind and its development. Generally, this word is used in combination with one of the other six and it addresses clean or non-polluting, renewable, recyclable sustainable issues. A distinct feature is that the green world is bounded with time and space concerns since it directly mentions problems that future generations might face (THÉVENOT; MOODY; LAFAYE, 2000; GIULIANOTTI; LANGSETH, 2016).

The **project-oriented world** emphasizes flexibility, mobility, availability, and social network. The highest value attributed to this world is the activity, wherein the beings are always involved with projects and connected among themselves by networks. The most praised individuals are the ones who are always driven by a spirit of constant work-related autonomous involvement, starting and adapting to new and different projects. Social networks are highly hailed in this world since connections able to multiply involvement in projects. Repetition must be avoided (BOLTANSKI; CHIAPELLO, 2005). Table 1 summarizes the key points of the eight worlds considered in this study.

In situations of dispute, it is not possible only to select one world since in reality the worlds are situated in dynamic interactions. Such dynamic ways of dealing with different orders of justification in a situation are majorly classified as compromising and relativizing. Both forms comprehend types of avoidance of testes, wherein the former occurs due to the participants' will to reconcile a higher common principle and the latter due to the concordance by the ones involved that nothing matters and thus, evading disagreements (BOLTANSKI; THÉVENOT, 2006).

Within situations is not possible to select only one world since in reality the worlds are situated in dynamic interactions. Dynamic ways of dealing with different beings from several worlds, i.e., different orders of justification in a situation are majorly classified as compromising and relativizing. Both forms comprehend types of avoidance of tests, wherein the former occurs due to the will of the participants to reconcile a higher common principle and the latter due to the concordance by the ones involved that nothing matters and thus, evading disagreements (BOLTANSKI;

THÉVENOT, 2006). Moreover, the worlds co-exist because there is a compromise between divergent orders of worth (DENIS; LANGLEY; ROULEAU, 2007).

Nonetheless, it is noteworthy to mention some limitations of the JT framework, the main ones being: i) JT is considered to be western-centric due to its classical references and focus on modern societies (CLOUTIER; GOND; LECA, 2017), ii) there are some critics related to the number of worlds and whether they are sufficient to capture the complexity and dynamism of current social context and, iii) there is some criticism regarding a lack of historical perspective since the worlds are based on philosophical writings (WAGNER, 1999).

Herein, stakeholders justify their perspectives regarding CBM innovation by drawing upon the worlds of justifications (SALMINEN, 2018). By combining both theories makes it is possible to compare different stakeholder groups while accounting for the particularities from a given context. An interplay with JT enables the analysis of what regimes of justification were mainly employed, indicating what were the prioritized stakeholders and values regarding the upcoming CBM industry.

As it includes one of the objectives of this study – to illustrate the conventions of the upcoming CBM industry – it is important to emphasize its definition. Conventions are a key concept within JT that refers to the logic of qualification of beings and thus, to their coordination. Conventions are shared and legitimized guiding interpretations and actions in organizational activity. Conventions involve indirect and informal mechanisms of coordination of inter-stakeholder relationships, describing the dissemination of legitimized patterns, norms, and assumptions (BIGGART; BEAMISH, 2003).

In interactions, especially the ones that involve disputes, actors employ justifications to interpret and account for their actions. In turn, the justifications are based on principles, i.e., higher common principles, allowing the classification of their practices in “orders of worth”. Those beings, both human and non-human, are also qualified according to those principles. Such qualification is visible in Table 1 in the lines corresponding to “worthy human beings” and “worth objects”.

The qualification of beings is made possible only through evaluation and valorization. It is this logic of valuation, evaluation, and coordination found in justifications that are conceptualized as a convention. Therefore, convention in JT enables beings to be compared as equal or unequal regarding the world involved in the dispute, i.e., is put to test (DIAZ-BONE, 2017; THÉVENOT, 2019).

TABLE 1 – EIGHT ORDERS OF WORTH IN JUSTIFICATION THEORY

	Inspired World	**Domestic World**	**World of Fame**	**Market World**	**Industrial World**	**Civic World**	**Green World**	**Project-oriented World**
Higher common principle	Inspiration	Tradition	Public opinion	Competition	Efficiency	Collective will	Environmental friendliness	Activity
States of worthiness	Spontaneity, emotion	Hierarchical superiority	Fame	Value, winning	Efficient, reliable	Representation	Wildness, nature	Flexibility, Meritocracy, Polivalence
Human dignity	Creativity	Habit	Desire recognition	Interest, selfishness	Work	Civil rights	Greenness	Project initiation, self-management
Worthy humans	Visionaries	Superiors, inferiors	Stars, fans	Competitors	Professionals, experts	Collectives	Environmenta-lists	Network Mediators, Managers, Investors
Worthy objects	Waking dreams	Etiquette	Named in media	Wealth, luxury	Means, tools	Laws, rights	Pristine wilderness, healthy environment, natural habitat	Networks, Projects
Relations of Worth	Uniqueness, genius	Respect, responsibility	Recognition	Possession	Control	Membership	Harmony with nature	Coordination in Project
Test, peak moment	Adventures, voyages	Family ceremonies	Presentation to the audience	Deals	Trial	Demonstration for just cause	Sustainability, renewability	End of a project
Modes of judgment	Stroke of genius	Trust	Public opinion	Price	Effectiveness	Vote	Wise use of natural resources	Permanent change
Forms of evidence	Intuition	Anecdotes	Being known	Money	Measurement	Laws, rules	Ecological, ecosystemic	Alliances, social networks,
Falls	Come back to Earth	Impolite	Obscurity	Enslavement to Money	Instrumentality, ‘treat people as things’	Divisions, individualism	Prevalence of unsustainable practices	Unable to adapt, intolerant

SOURCE: Adapted from GIULIANOTTI and LANGSETH (2016, p.24), THÉVENOT, MOODY and LAFAYE (2000, APPENDIX), BOLTANSKI and CHIAPELLO (2005) and REINECKE, VAN BOMMEL and SPICER (2017, p.31).

The **higher common principle** refers to the principle that enables coordination and equivalence for each world. The **state of worthiness** grants that the features that consider beings are qualified to engage in justifications. **Human dignity** expresses the common capacity for people to rise to occasions of observance of the common good. **Worthy humans and objects** are features that qualified people and objects hold for each world (BOLTANSKI; THÉVENOT, 2006, p.140-144).

The **relations of worth** manifest the qualified relations among beings – humans and objects- for each world. **Tests or peak moments** are situations where the higher common principle is criticized and put to the test. **Modes of judgments** are related to the means and features in which the worlds are tested and characterized by how the higher common principle is manifested. **Forms of evidence** are how the appropriate form of each world is manifested. And **falls,** characterize situations wherein the higher common principles are denounced and denigrated, and when failures are manifested by its criticisms, beholding the higher common principle as unqualified (BOLTANSKI; THÉVENOT, 2006, p.140-144).

In other words, "**orders of worth**" are based on conventions that are related to principles of common good that grounds both justifications and critiques (DIAZ-BONE, 2017). Conventions are not merely rules, as they are somewhat arbitrary while also being normatively somehow: it binds common values and practices, enabling and constraining perspectives and behaviors (AL-AMOUDI; LATSIS, 2014).

Thus, by exploring the conventions of CBM, it is possible to explore the shared values of stakeholders engaged with this industry that enables and constrains its legitimacy and development. Table 2 summarizes the main assumptions of the Justification theory.

TABLE 2 – MAIN ASSUMPTIONS OF JUSTIFICATION THEORY

Topics	Justification Theory
Central theoretical foundations	• Boltanski and Thévenot (2006) • Lafaye, Moody and Thévenot (2000) • Boltanski and Chiapello (2005)
Central theoretical questions	• How can actors reach agreement, given the existence of multiple representations of the common world? • What worlds do actors draw upon to express their disagreement and to justify their perspective?
Core premise	• Pluralism: Multiples worlds coexist in the form of arrangements and compromises

(to be continued)

TABLE 2 – MAIN ASSUMPTIONS OF JUSTIFICATION THEORY

(continuing)

Agency and mindset of beings (human and non-human)	• Actors mobilize social cognitive competences • Common humanity makes it possible to sincerely search for agreements for the common good (Moral dimension)
Central Concepts	• Orders of worth: higher-order normative principles that can be used by beings to evaluate things and justify a perspective in public disputes • Test: a mechanism to solve disputes by evaluating the worth of a situation, a being, or an object • Compromise: new arrangement combining multiple worlds
Conceptualization of tensions	• Normative tensions result from the confrontation of different orders of worth in the context of disputes

SOURCE: Adapted from GOND, DEMERS, and MICHAUD (2017, p. 244 - 245).

As previously mentioned, there is a common ground between ST and JT as both address debates on social reality anchored on **moral principles** (GLADAREV; LONKILA, 2013; BARNEY; HARRISON, 2020b), both emphasize the **human agency** towards promoting cooperation/situations of agreement (ARGANDOÑA, 1998; DONALDSON, 2002; CLOUTIER; GOND; LECA, 2017; THÉVENOT, 2019; BARNEY; HARRISON, 2020a). Following, intersections wherein the theories dialogue is further discussed.

2.3 WHEN ST MEETS JT

The purpose of this section is to explore debates on legitimacy, environment, pragmatism, and pluralism, wherein ST and JT dialogue. Such dialogues are discussed in a paper by this author in collaboration with Dr. Germano Glufke Reis and Dr. Gustavo Abib. The paper was accepted for publication on December 8, 2020, and should be published at Cadernos Ebape in 2021. Thus, the details of its references are incomplete in the reference list.

Stakeholder theory's contributions to this study can be summarized as enriching the understanding of the strategies and behaviors adopted by organizations when considering the importance and influence that stakeholders exert on the formulation and execution of the strategy (PARMAR et al., 2010). JT's main contribution, in turn, is to deepen the analysis of understanding the interactions among the organizations and their stakeholders, by categorizing types of justifications

employed in situations of dispute and uncertainty (THÉVENOT, 2002). **Uncertainty**, **plurality**, and **ambiguity** were the main features that influenced this study.

Such an intersection is proposed due to critics regarding management theories and research addressing a gap between theory and practice (BANSAL et al., 2012). Such a gap is also outlined in Boltanski and Thévenot's framework (2006), once the authors discuss the critics concerning the lack of realism within sociological studies and how they attempt to overcome it by reconciling common elements of different methodologies (BOLTANSKI; THÉVENOT, 2006). Moreover, as Cloutier et al. (2017, p.6) highlight "the study of organizations arguably is, in its essence, the study of coordination".

There is an increasing corpus of literature within management studies. applying the JT framework (DEQUECH, 2008; JAGD, 2011; PATRIOTTA; GOND; SCHULTZ, 2011; CLOUTIER; GOND; LECA, 2017; GOND; DEMERS; MICHAUD, 2017; ARTS; BUIJS; VERSCHOOR, 2018; IGNATIUS; HAAPASAARI, 2018). Is it usually applied in combination with well-established theories (CLOUTIER; GOND; LECA, 2017), such as the Institutional view or the Actor-Network perspective or the strategy-as-practice framework (DENIS; LANGLEY; ROULEAU, 2007); additionally, some studies that apply the JT framework in the context of organizations, do it so by directly or indirectly analyzing stakeholders (JAGD, 2011; PATRIOTTA; GOND; SCHULTZ, 2011; ARTS; BUIJS; VERSCHOOR, 2018; IGNATIUS; HAAPASAARI, 2018).

Herein, it is combined with ST to provide an alternative lens of a fruitful application of JT in strategy studies as well as addressing the neglect of its application in the field of strategy studies (CLOUTIER; LANGLEY, 2007; JAGD, 2011).

2.3.1 Legitimacy

Legitimacy underpins JT. JT is concerned to analyze how moral legitimacy is established in pluralistic contexts. From this gap, applying Reinecke, Bommel, and Spicer's (2017) discussion, this study draws some parallels between ST and JT.

An organization must be seen as legitimate to assure its survival. This also true for industry. Such legitimacy is created from an alignment, a dialogue among stakeholders, who in turn, employ justification to (re) arrange moral legitimacy of the

organization in situations of uncertainty (REINECKE; VAN BOMMEL; SPICER, 2017), herein the legitimacy of an innovation, CBM.

Moreover, ST argues that actors engage themselves in cooperative action towards value creation by aligning values, norms, and ethics as a tool to produce benefits/gains, reflecting a consciousness on the impacts that businesses have on society (BARNEY; HARRISON, 2020b).

The JT framework on the idea of legitimacy states that moral legitimacy is based on orders of worth grounded on principles of the common good which provide its normative basis, which may be achieved when beings show their worth by employing justifications for their actions when facing uncertainty (REINECKE; VAN BOMMEL; SPICER, 2017). Therefore, both ST and JT regard legitimacy as an important concept, and even though it is not the purpose of this study to answer legitimacy questions on CBM, one may not prevent taking into consideration the questioning of is it moral/just to produce CBM?

This study attempts to study the justifications that stakeholders employ to (de) legitimize the innovation, as such arguments directly impact its further development. Regarding a new venture, embedded in uncertain and complex contexts, justifications may shed light on reasons for some stakeholders engaging in creating value towards innovation while others are influenced by risk aversion to it.

Also, collected data from the selected stakeholders were compared to verify arguments that are held as legitimate, and those that are not.

2.3.2 Pragmatism and Pluralism

It is possible to feature ST as a moral paradigm if its pragmatism pillar is considered. Godfrey and Lewis (2019) argue for a moral foundation of ST and this study builds on their insights to display the intersection of the two main theories herein applied. They argue that pragmatism constitutes a moral tool to construct a political philosophy, pluralism. **Pragmatism** transcends utilitarian views and addresses multiples desires and moral views of what constitutes moral action. **Pluralism** addresses diverse actors, “each seeking the morally good life” (GODFREY; LEWIS, 2019, p.20).

Concerning JT, pragmatism relates to the idea of ways that actors engage in actions in social reality. Thévenot classified that actors that engage in 3 different ways:

one based on public justifications – herein selected approach –, one based on family bonds and another based on interests. Hence, JT's efforts towards promoting an understanding of how actors – who have a plurality of values and opinion – coordinate their actions and resolve disputes in uncertain and complex social reality (ERANTI, 2018).

Some linkages may be sketched between ST and JT from Godfrey and Lewis (2019). Both theories delineate on moral groundings; (i) both focus on problem-solving/end of disputes; for ST, by reaching ethical solutions and for JT, by reaching agreement though the observance of justice; (ii) both of them address the agency of actors; for ST, it is related to the cognitive capacity of managers to address moral challenging problems, grounding it on facilitating both the welfare of the organizations and its stakeholders, and consequently, the society's welfare, and for JT, it is related to the cognitive capacity of beings in situations of disputes, wherein the justifications observe principles of the common good – that benefits all. Table 3 highlights topics whereby ST and JT dialogue.

TABLE 3 – ST AND JT INTERSECTIONS

Topics	Stakeholder Theory	Justification Theory
Theoretical foundations	• FREEMAN (2010) • FREEMAN; PHILLIPS and SISODIA. (2020) • DONALDSON and PRESTON (1995) • CLARKSON (1995) • MITCHEL; AGLE and WOOD (1997)	• BOLTANSKI AND THÉVENOT (2006) • LAFAYE; MOODY AND THÉVENOT (2000) • BOLTANSKI and CHIAPELLO (2005)
Central theoretical questions	• What is the relationship between the organization and its external environment? • What is the organization's behavior towards its external environment?	• How can actors reach agreement, given the existence of multiple representations of the common world? • What worlds do actors draw upon to express their disagreement and to justify their perspective?
Premises	• Pluralism: Multiple interests are observed in organizational reality	• Pluralism: Multiples worlds coexist in the form of arrangements and compromises
Agency and mindset of beings	• Actors mobilize social cognitive competences • Moral and ethical groundings make it possible to achieve beneficial outcomes for both the organization and its stakeholders	• Actors mobilize social cognitive competences • Common humanity makes it possible to sincerely search for agreements for the common good (Moral dimension)
Stakeholder salience	• Some stakeholders have more power and legitimacy than others and may, therefore, have more "voice" and be more influential regarding decision and action outcomes	• Assumptions and values toward the common good (orders of worth) may vary among stakeholders • In the search of agreement, some orders of worth may prevail against others

(to be continued)

TABLE 3 – ST AND JT INTERSECTIONS

(continuing)

Dispute	• Disputes arise and are negotiated since many actors are involved, and thus many divergent interests compete for attention • The goal: reaching a solution without resourcing to tradeoffs	• Disputes result in the confrontation of different orders of worth in the context of disputes since beings evaluate things and justify a perspective in public disputes • It may be resolved through a test (evaluating the worth of a situation, a being, or an object), or a compromise (new arrangement combining multiple worlds)

SOURCE: GÓES; REIS and ABIB (2021)[2]

2.3.3 Environmental debates

Both the organization and stakeholders depend on the natural environment for existence and survival (FREEMAN et al., 2010). Therefore, a dependence relation is drawn, since to achieve the organization's goals, and thus, creating value for stakeholders, it is mandatory to observe its relationship with the environment. Regardless of the type of organization, all are dependent on natural resources. Therefrom, debates on business sustainability are fruitful (HÖRISCH; SCHALTEGGER, 2019).

Hörisch and Schaltegger (2019) approach this discussion and this study builds on their insights to strengthen the intersection argument. There are two main ways when considering the natural environment on ST debates: i) it may be considered as an additional stakeholder or, ii) it may be considered as a shared concern among stakeholders. The former describes the natural environment as one of the stakeholders by itself since it abides by Freeman's (2010) definition; the natural environment is affected and influences organizational decisions and actions. Some authors claim that it should be considered as the most important stakeholder of an organization (DRISCOLL; STARIK, 2004). The latter regards a view wherein the natural environment does not meet the human agency criteria, embedded in Freeman's (2010) definition, nonetheless, it must be considered as a primary concern amongst organizations and stakeholders. This study adheres to this perception.

[2] Paper accepted for publication on December 08, 2020.

Regardless of the perception adopted, there are benefits of including the natural environment in ST debates since both of them are related to environmental improvement applying the ST principle of not resorting to tradeoffs. In other words, stakeholders influence sustainability measures and may promote solutions to environmental problems. Lastly, the authors state that this approach might be positively enhanced by transdisciplinary approaches (HÖRISCH; SCHALTEGGER, 2019).

For this purpose, this study draws on JT, once the theory advocates that beings, human and non-humans, hereof, stakeholders and the natural environment, in situations of dispute, governed by the observance of a higher common principle, herein, sustainability, employ justifications in negotiations to reach a situation of agreement (BOLTANSKI; THÉVENOT, 2006). It is also fruitful to observe that a latter added world, i.e., the green world, focuses on environmental conventions (THÉVENOT; MOODY; LAFAYE, 2000).

Furthermore, innovation perspectives used to explain the selected case is discussed subsequently.

2.4 INNOVATION PERSPECTIVES RELATED TO CBM

The upcoming section briefly contextualizes the innovation theories that explain the selected phenomenon. Innovation is one of the main sources of firms' development and growth, *"*by innovating products, services, production processes, organizational forms, and routines, firms generate economic and social value, thus legitimizing their role in the economy and society*"* (COLOMBO et al., 2017, p.1).

Although there are several forms of innovation, the phenomenon studied is focused on radical innovation. As stated by Murmann and Frenken (2006), radical innovation involves completely new expertise and, it simultaneously generates execution improvements. It involves the commercialization of an entirely novel product or service, new not only to the company but also to the market (AHUJA; LAMPERT, 2001).

Dahlin and Behrens (2005) argue that three criteria distinguish radical innovation from other types of innovations: (i) originality, (ii) exclusiveness, and (iii) impact. The originality and exclusiveness are characteristics that potentially indicate a radical invention before entering the market; whereas the last one, identify if an

invention is a game-changer after introduced into the market. Moreover, it should be completely different from currently available products. Radical innovations are not limited to technological innovations it encompasses other types of innovations namely those that produce disruptive social changes (VERGANTI, 2011; MANZINI, 2014).

Companies that pursue radical innovation are surrounded by high unpredictability. Even though radical innovation might generate new opportunities and foster development, it generates concomitant risks and uncertainties (O'CONNOR; DEMARTINO, 2006). High-tech startups are inclined to be creative, agile, and adaptable organizations (COLOMBO et al., 2017), which potentially makes them powerful radical innovation engines in comparison with established firms (SCHNEIDER; VEUGELERS, 2010). These positive characteristics do not detract from the fact that there are obstacles to these companies that can establish themselves.

Startups have often no access to traditional financial sources. One of the most important financial intermediaries for young and risky high-tech ventures are venture capital funds. These funds foster new entrants' chances of success, which would otherwise experience difficulties in attracting alternative sources of capital (GOMPERS; LERNER, 2001; GOMPERS et al., 2006).

Of equal importance, the perspective of responsible innovation addresses the concern of the tradeoff between development through innovation and the sustainable use of natural resources. It aims to provide an alternative in which innovation is used to mitigate problems related to the environment.

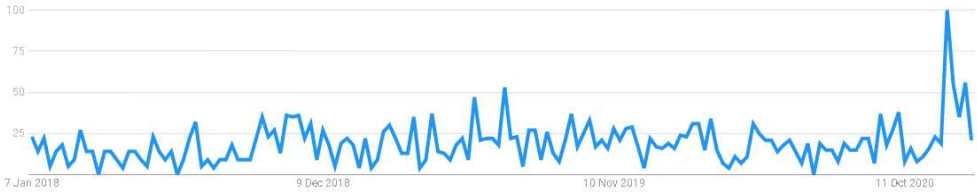
Voegtlin and Scherer (2017) consider that such a solution is divided into three dimensions: "first, innovations must avoid harming people and the planet as a whole; second, innovations need to 'do good' to improve the Earth's life-support system; third, responsible global governance is necessary for achieving the first two requirements." (VOEGTLIN, CHRISTIAN; SCHERER, 2017, p.33).

The case analyzed in the present study, the CBM innovation, is considered to fit in the second category since it aims to provide an alternative to meat consumption that addresses a public that does not wish to replace animal protein for vegetal protein and that does not bear the negative environmental consequences of livestock production (POST, 2014). Therefore, it is a type of innovation, strongly featured by its corporate social responsibility (AGUILERA et al., 2007) that seeks to do "good" to environmental resources as well as to human and non-human animals.

As aforementioned CBM is expected to bring several benefits; it may decrease: GHG emissions, land and water use, animal suffering, deforestation, among others. Moreover, is less exposed to pathogen contamination such as Salmonella (BRYANT; BARNETT, 2018; GASTERATOS, 2019). Hence, CBM is considered in this study as both a radical and also a responsible type of innovation.

Furthermore, the CBM innovation has increasingly attracted the attention of the public. For instance, the Google trends engine enables to observe the main topics related to the innovation were “Memphis meat - food innovation company”, “protein - topic”, “Mark post – Dutch pharmacologist”, “stem cell- topic”, “Halal – topic”. And the reported related query was “what is cultured meat” (GOOGLE, 2020). It was chosen to demonstrate the search related to “cultured meat” because when the search was done using “clean meat”, most of the results were related to hunting practices and when the search was done using “cell-based meat”, the results were not significant. Figure 1 presents the popularity of “cultured meat” from 2018 to 2020. From October 2020, the popularity had increased significantly.

FIGURE 1 – GOOGLE WEB SEARCH WORLDWIDE POPULARITY FOR “CULTURED MEAT” FROM 2018 TO 2020.



SOURCE: Extracted from Google Trends (2021).

Efforts regarding mapping its upcoming industry have already been made by NGOs and consultancy firms. For instance, considering the most recent report on CBM by the Good Food Institute, 27 cell-based meat and seafood companies had publicly announced themselves (in 2018); from these 27, 15 were able to publicly raise funding and were located in the United States, Israel, the Netherlands, Spain, and Japan. Other countries are also joining the conversation around CBM, such as Canada, China, France, India, Turkey, and the U.K. (CAMERON ET AL., 2019). Singapore is currently in the spotlight, as at the moment of the writing of this dissertation, it had approved the first CBM products nuggets to be sold (FORGRIEVE, 2020).

The GFI report also emphasizes the massive investments that are being made within this industry, regarding the public available information, $73.3 million were invested, with the biggest deal reaching $ 117 million in 2019 (CAMERON ET AL., 2019). The news analyzed in this research corroborates such massive investments and it emphasizes that investments in 2020 had only increased.

Lists of the CBM innovation startups, investors, and researchers are available in appendices 2 and 4. Further information on the innovation is addressed in the fourth section.

3 METHOD

This study follows Patriotta, Gond, and Schultz (2011) and Ignatius and Haapasaari (2018), who have previously studied justifications in other contexts, and also applied a case study design. Patriotta, Gond, and Schultz (2011) analyzed the nuclear accident that occurred in Germany involving the Swedish company Vattenfall. They used JT to analyze how different stakeholder groups act through speeches to maintain the legitimacy of institutions that are relevant to their interests. The study of Ignatious and Haapasaari (2018) used the JT to identify the socio-cultural values related to the case study of Baltic salmon providing a discussion with the governance and management of fisheries.

Hence, this study builds on Yin's (2003) recommendations on case study design, more specifically, following a descriptive case study methodology, since the purpose of this study is to describe a phenomenon and its real-life context (YIN, 2003) by analyzing what are the justifications employed by stakeholders within the CBM upcoming industry.

The rationale applied in this study is the qualitative pragmatic research (CRESWELL; CRESWELL, 2018) since it is focused in a pluralistic context and it is also real-world practice-oriented once insights on stakeholders' cognitive capacity are needed to understand the justifications employed in the upcoming CBM industry.

The research design applied is the descriptive case study (YIN, 2003) once it is sought to develop an in-depth analysis of the justifications employed in the upcoming CBM industry. The research methods included gathering data from interviews of primary and secondary stakeholders – triangulating the findings with secondary source data – to enable the interpretation of patterns (CRESWELL; CRESWELL, 2018), herein, justifications.

To ensure the trustworthiness of the herein research endeavor, some validity and reliability techniques were adopted. By recording and transcribing the collected interviews, describing the applied codes, by checking the accuracy of the results triangulating data sources, the validity of the analysis was sought. Reliability was also sought by choosing an appropriate methodological approach, observing rigor in its application, and providing lists of the used sources (see Appendices) (ROSE; JOHNSON, 2020). Table 4 summarizes the methodological description of this research.

TABLE 4 – METHODOLOGICAL DESCRIPTION

Components	Description
Rationale	Qualitative
Philosophical Worldview	Pragmatic
Research Design	Descriptive case study
Unit of analysis	Selected CBM stakeholders
Data Collection Procedures	Interviews
Data analysis	Public Justification Analysis
Validity and Trustworthiness	Sources and secondary data triangulation Recording and transcript

SOURCE: The author (2021).

Data saturation was achieved as this research aimed to illustrate the applicability of JT's orders of worth in strategy studies. Thus, sufficient data – both from interviews and secondary sources – were collected to illustrate to orders of worth typology (SAUNDERS et al., 2018).

The analysis level of this research is the stakeholders engaged in the CBM industry, once the analyzed justifications were related to groups or organizations' perspectives on CBM. The Atlas. ti software was used to analyze different patterns using the orders of worth as a framework. The strategies for data collection and sampling are described subsequently.

3.1 DATA COLLECTION AND SAMPLING

Primary data was collected through semi-structured interviews applying the internet protocol (CRESWELL; CRESWELL, 2018). This method was chosen because it provides an opportunity for an investigation related to this study's research problem – as the interviewees are from different nationalities and data collection would not be possible otherwise. Semi-structured interviews enabled the understanding of experiences, opinions, and values (ROWLEY, 2012), herein identifying the employed justifications. Also, previous studies that applied JT in management studies applied this strategy (JAGD, 2011; IGNATIUS; HAAPASAARI, 2018).

Nine interviews were recorded and transcribed for analysis while six others, the interviewees provided written answers by email. This was necessary because some of the interviewees were not available to participate in video conference calls – using Zoom or Skype. The interviews were somewhat structured, however, they admitted some adjustment, if necessary (SALDAÑA; OMASTA, 2018). The lengths of

the interviews varied; however, the average duration was about 30 minutes. The interview script applied is attached in Appendix 1.

Both contexts of inserting JT and CBM in strategy studies are emergent and are under development, therefore there is not available guidance on selecting the entities to be analyzed. For this reason, the lists of selected stakeholders provided in this section were indirectly reviewed during the interviews to assure their validity.

The interviewees comprehend the representants of the selected primary stakeholders – startups, investors, and conventional meat processing multinationals as well as the selected secondary stakeholders – NGOs, researchers, and the media. Since CBM is an industry in its infancy, it is difficult to identify all the involved stakeholders, thus, the literature on CBM (discussed in the previous chapter) was used as a parameter to guide the selections of stakeholders who would most likely provide insights into the upcoming CBM industry (for instance, see REIS et al., 2020).

The reasons for selecting these groups are the following: there is an expansion of CBM startups and venture capitalists investing in them (STEPHENS; KING; LYALL, 2018; FROGGATT; WELLESLEY, 2019) and their role of the private sector in advancing solutions and products that may help to leverage social and environmental improvement (AGUILERA et al., 2007), is evident since startups are leading the research and technological development of CBM (STEPHENS; KING; LYALL, 2018).

Furthermore, CBM startups are in the hall of eco-innovative companies (KARAKAYA; HIDALGO; NUUR, 2014) since they intend to significantly decrease environmental and animal welfare impacts (TUOMISTO; TEIXEIRA DE MATTOS, 2011). As companies inserted in high technological and risky environments, they might have few possibilities to acquire traditional financial incentives.

While major meat-processing firms – such as Tyson, Cargill, and Migros – are also investing in CBM innovation (FROGGATT; WELLESLEY, 2019). Such companies will probably incorporate CBM products in their portfolio if a market niche is presented.

Media was included because its coverage of emerging technologies may positively or negatively contribute to the public perception; whilst spreading the main public debates about it (PAINTER; BRENNEN; KRISTIANSEN, 2020).

Government, suppliers, and consumers were disregarded due to the reasons: i) there is still a high level of ambiguity about the role to be performed by the government on CBM, regulation is not clear until the moment and it constitutes one of the barriers to CBM's products reaching the market (STEPHENS; SEXTON; DRIESSEN, 2019), ii)

up until now, there is not a large-scale production of CBM, thus, it is not possible to account for suppliers' justifications and, iii) there is a wide corpus of research approach consumer views and acceptance of CBM (HOCQUETTE, 2015; VITAL et al., 2017; BRYANT; BARNETT, 2018, 2019, 2020; STEPHENS; KING; LYALL, 2018; BRYANT et al., 2019a, 2019b; WEINRICH; STRACK; NEUGEBAUER, 2019), and it is not what is intended in this study.

The listing of CBM startups and their investors was crafted by triangulating previous lists provided by CAMERON et al. (2019), FROGGATT; WELLESLEY (2019), SEXTON; GARNETT; LORIMER (2019) and Crunchbase, a platform that gathers information of more than 490.000 companies in approximately 190 nations (DALLE, JEAN-MICHEL; DEN BESTEN, MATTHIJS; MENON, 2017).

The information available at Crunchbase is related to companies' " […] location (city and region), its primary role (firms, group, investor, or school), its status (operating, acquired, IPO, or closed), its founding date, and the dates on which the record was created and updated, respectively" (DALLE, JEAN-MICHEL; DEN BESTEN, MATTHIJS; MENON, 2017, p. 9). In addition, it collects information about risk financing, investment types (angel investments, private equity, venture capital, etc.), and the amount of funding (DALLE, JEAN-MICHEL; DEN BESTEN, MATTHIJS; MENON, 2017).

The search terms: "cell-based meat", "in vitro meat", "cultured meat", "clean meat", "cellular meat" and "lab-grown meat", (STEPHENS et al., 2018; BRYANT; BARNETT, 2019; ONG; CHOUDHURY; NAING, 2020). and companies that produce exclusively plant-based meat were excluded from the search. This resulted in the listing of 22 startups alongside 118 investors – available in Appendix 2.

All listed startups and investors from Appendix 2 were contacted by e-mail. Whenever possible, some of them were also contacted by the Linkedin social media platform (https://www.linkedin.com/). From the listed 22 startups, 2 agreed to be interviewed and herein are named as Startup A and Startup B. From the listed 118 investors, 2 agreed to be interviewed and herein are named as Investor A and Investor B.

Regarding the conventional meat processing multinationals, the literature on CBM (discussed in the previous chapter) was used to select major players. Thus, 5 conventional meat processing multinationals were contacted, one of the largest meat processing multinationals agreed to be interviewed, and herein is named as

Conventional meat processing multinational A.

Concerning the NGOs, 3 major players were contacted, 3 agreed to be interviewed, and herein is named as NGO A, NGO B, and NGO C. Selecting the NGOs was also based on recurrence on the previously discussed literature on CBM (SEXTON; GARNETT; LORIMER, 2019). The list of NGOs is not going to be provided to preserve the anonymity of the interviewed NGOs.

Furthermore, 35 researchers were selected from the Good Food Institute (GFI)'s database on CBM research groups (see Appendix 4) and were contacted by e-mail, 7 agreed to be interviewed and herein is named as Researcher A, Researcher B, Researcher C, Researcher D, Researcher E, Researcher F, and Researcher G.

The group of researchers that agreed to participate in this study comes from different countries – the U.S., Brazil, and France – and areas of expertise – biomedical engineering, veterinary medicine, high-performance computing, mechanical engineering, zootecnia (animal science), agronomic engineering, and agroecology and environment. This was intended to obtain varied perspectives on the development of CBM as it follows. The interviewed researchers are from the GFI's list of research groups on CBM – provided in Appendix 4.

In total, 15 interviews were collected. This amount of collected interviews provided information redundancy, i.e., the justifications started to repeat, thus it was focused on analyzing what was collected (SAUNDERS et al., 2018). The profiles and main characteristics of interviewees are summarized in Table 5.

Following previous studies that applied JT and analyzed media data (for instance, PATRIOTTA; GOND; SCHULTZ, 2011), media data were collected using the search engine "Google News". The search terms were: "Cell-based meat", "Cultivated meat" and "Clean meat " (BRYANT; BARNETT, 2019; ONG; CHOUDHURY; NAING, 2020) and included news from 2019 and 2020. Duplicates were hidden, blogs were excluded. Leading newspapers' articles – such as The Guardian, The New York Times, The Financial Times, and Forbes – are somewhat scarce on the topic, the majority of news related to the topic are from newspapers focused on investments, innovation, or food alternatives. The list of analyzed news is provided in Appendix 5.

The analysis of the justifications from this news was used to triangulate the findings collected from the interviews. In other words, the newspaper articles were used to establish a pattern of the main topics discussed in the media and to compare those with the primary data's justification patterns. Comparing stakeholders'

justifications to the patterns that emerged from media coverage is essential because it provides clues of what are the main CBM's conventions. The strategies for data analysis are described subsequently.

TABLE 5 – PROFILES AND MAIN CHARACTERISTICS OF THE INTERVIEWEES

Organization	Overview	Interviewee's area of expertise	Country	Duration
Startup A	A prominent Startup that researches and develops CBM products uses 3D bioprinting innovation. Aims to be a CBM producer and supplier. Founded in 2017.	Products and market development	Israel	25 minutes
Startup B	A prominent Startup that researches and develops CBM products. As a pioneer in the industry was one of the first startups to show cell-based hamburgers. Founded in 2013.	Media and communication	The Netherlands	Written
Investor A	This is a venture capital fund that invests in alternative protein firms.	Investing, business management in alternative proteins	USA	Written
Investor B	Invests in plant-based and cultured meat (it is publicly funded).	Management	USA	15 minutes
Conventional meat processing multinational A	One of the largest meat processing multinationals	Innovation director	Brazil	45 minutes
NGO A	NGO that focuses on promoting the advancement of cellular agriculture technologies, which includes CBM innovation	Founder and President	USA	20 minutes
NGO B	NGO that campaigns for the reduction of abuse and organized cruelty against animals	Consultant and former member of Belgium's parliament	Belgium	15 minutes
NGO C	A prominent NGO that works with scientists, investors, and entrepreneurs to make groundbreaking good food a reality.	Project Manager	USA	40 minutes
Researcher A	Ph.D. student that has a professional background in startups that develop CBM.	Biomedical engineering	USA	15 minutes
Researcher B	University/research institution	Veterinary medicine	Brazil	60 minutes
Researcher C	A principal investigator that develops modeling and simulation tools regarding CBM.	High-performance computing	USA	Written
Researcher D	Student Researcher that works with the manufacturing of CBM.	Mechanical engineering	USA	Written
Researcher E	Researcher at a Brazilian Agricultural Research Corporation affiliated with the Brazilian Ministry of Agriculture.	Zootecnia (Animal Science)	Brazil	30 minutes
Researcher F	Research director at a prominent French institute of agronomy.	Agronomic engineering	France	Written
Researcher G	Research professor in a French graduate college specialized in agricultural, food, and environmental science, recognized by the French Ministry of Agriculture.	Agroecology & Environment	France	Written

SOURCE: The author (2021).

3.2 DATA ANALYSIS

Public Justification Analysis (PJA) (YLÄ-ANTTILA; LUHTAKALLIO, 2016), a method developed for analyzing public data in light of BOLTANSKI; THÉVENOT's framework (2006) was applied to analyze the collected data. Data was gathered from multiple sources – interviews, news, official websites, and reports – that enabled the interpretation of patterns of prioritized justifications.

To analyze the collected data, PJA was chosen because it is "[…] an approach for studying moral evaluations made in public debates." (YLÄ-ANTTILA; LUHTAKALLIO, 2016, p.1). It starts by identifying instances of moral claims in public texts, correlating them with JT's orders of worth, and then comparing the prioritized values for each stakeholder group involved, separating the aligned justifications from the dissonant ones (GLADAREV; LONKILA, 2013). Hence, it enabled the illustration of the typology of justifications that emerged from the data.

By applying PJA, this study also contributes to an increasing corpus of literature that has been developing such methodology in light of Boltanski and Thévenot 's framework (GLADAREV; LONKILA, 2013; YLÄ-ANTTILA; LUHTAKALLIO, 2016).

Previous studies about actors' justifications are used as parameters regarding data analysis (see PATRIOTTA; GOND; SCHULTZ, 2011; GLADAREV; LONKILA, 2013; IGNATIUS; HAAPASAARI, 2018; IGNATIUS; DELANEY; HAAPASAARI, 2019; PERKISS; MOERMAN, 2020). The proposed strategy was based on interpretative methodology analyzing the phenomenon with its context. The case studied was selected due to its emergence as a disruptive innovation; however, it is herein proposed that this study's findings may be replicated to the understanding of other cases, whereas strategy studies may benefit from interdisciplinary perspective and methodology.

Once the data was gathered, both interviews and secondary sources were analyzed based on coding categories. Initially, this study followed the deductive analysis procedure (MAYRING, 2014) since the coding categories were previously established based on a theoretical framework. Coding was chosen since it enables the condensation of a large amount of data focused on specific meaning (SALDAÑA; OMASTA, 2018), herein, orders of worth. However, during the analysis, it was observed that the categories needed to be adapted and that PJA would better suit this

research's goals. Thus, the categories were previously defined as follows:

i. **Inspired:** Focuses on inspirational attributes of the innovation (unique, visionary, transformative, world-changing, creative, etc.) and emphasizes its emotional appeal;
ii. **Domestic:** Addresses traditional values that usually counterweight the positive impacts of the innovation;
iii. **Fame**: Highlights the exposition of the innovation to the public in general (and media) as being the first, the best, the better solution, etc. Emphasizes that innovation is largely accepted, recognized;
iv. **Market:** Focuses on market size and growth, consumer needs, sales, and revenue potential of the innovation. It also highlights marketable product attributes (taste, texture, and palatability);
v. **Industrial**: Addresses the value of the innovation concerning gains in process efficiency, decreasing costs, reliability, improvements in production processes and chains, control, product security, etc;
vi. **Civic**: Regards the values related to the collective will and also the ones related to the regulation of the innovation;
vii. **Green:** Emphasizes the environmental and social benefits of innovation.
viii. **Project-oriented:** Emphasizes flexibility, network, and constant involvement in projects of innovation.

These initial definitions were based on a previous study on the topic presented at the 36th EGOS Colloquium in Hamburg by this author and colleagues (2020)[3]. However, during the analysis, it was observed that the categories needed to be modified to account for the issues that interviewees reported. Noteworthy to mention that the original framework (see Table 1) was helpful but it needed to be adapted to the herein studied case. The resulting definitions are shown in Table 6 and were used in the analysis process.

---

[3] GÓES, H. A. A.; ZENY, G. C.; REIS, G. G. When justification theory meets organizational practice: A study of CBM startups. To be presented at **36th Egos Colloquium 2020**, 2020.

TABLE 6 – CATEGORIES OF ANALYSIS BASED ON ORDERS OF WORTH TYPOLOGY

Orders of worth	First Definitions (C.D.[4])	Modified Definitions (O.D.[5])	Examples of textual units
Inspired	Focuses on inspirational attributes of the innovation (unique, visionary, transformative, world-changing, creative, etc.) and emphasizes its emotional appeal.	Focuses on inspirational attributes of the innovation (unique, visionary, transformative, world-changing, creative, etc.) and emphasizes the innovation's emotional appeal regarding individuals' or groups' feelings.	"We're inspired by passion […]", "This technology has the capability to transform how we view our world."
Fame	Highlights the exposition of the innovation to the public in general (and media) as being the first, the best, the better solution, etc. Emphasizes that innovation is largely accepted, recognized.	Highlights the exposition of the stakeholder related to the development of the innovation to the public in general as being the first or the best and emphasize public recognition of the innovation.	"We were the first fund in the US to […]"," Our team was the first to unveil cultured meat […]", "[…], is considered the leading scientist globally on this topic".
Market	Focuses on market size and growth, consumer needs, sales, and revenue potential of the innovation. It also highlights marketable product attributes (taste, texture, and palatability).	Focuses on market opportunities and investments such as growth, consumer needs, and profits, of the innovation. It also addresses cost barriers to commercialization. Addresses the role of CBM products as an alternative or a replacement for conventional meat.	"It's a massive market. A company that develops […], will be sitting on a goldmine", "One major obstacle is the cost. Cost cutting will greatly benefit this industry." and "[…] we are not perceiving ourselves as a replacement of their meats but as an extension […]"
Industrial	Addresses the value of the innovation concerning gains in process efficiency, decreasing costs, reliability, improvements in production processes and chains, control, product security, etc.	Addresses the value of the innovation concerning gains in process efficiency, reliability, improvements in production processes, facilities, and chains, product control, product security, and energy efficiency. It also highlights marketable product attributes (taste, texture, and palatability) and technical challenges such as affordability and scaling the production.	"Given its production is more efficient ", "Creating biomass cost-effectively enough to compete with animal products […] a massive obstacle" and "basically it is meat, just produced in other ways […]."

(to be continued)

[4] Constitutive definitions (C.D.): First glimpse of definitions of the categories based on the JT framework.
[5] Operational definitions (O.D.): Definitions of the categories based on the JT framework adapted to the selected case and used to operationalize the coding process.

TABLE 6 – CATEGORIES OF ANALYSIS BASED ON ORDERS OF WORTH TYPOLOGY

(continuing)

Green	Emphasizes the environmental and social benefits of innovation.	Emphasizes the environmental, animal welfare, social and health benefits of innovation, such as sustainable practices.	"Elimination of factory farming and deforestation. […], then society and the planet have a sustainable future.", "[…]is the question of sustainability and zero carbon emission", and "[…] from the cultivated meat companies could be astronomic and helping the environment that you know the issues at the animal suffering, human suffering […]"
Project-oriented	Emphasizes flexibility, network, and constant involvement in projects of the innovation.	Emphasizes flexibility, network, and constant involvement in research projects working towards the development of the innovation.	"[…] there's about 30 plus startups globally […]" and "[…] so our plan is to create joint ventures locally, and to build these bio-Farms locally […]"
Civic	Regards the values related to the collective will and also the ones related to the regulation of the innovation.	Regards the values related to the collective will such as cultural preferences and society's pressures. It also government engagement and issues of animal rights.	"[…] to bring food safety concerns and making sure that that the government is is signed off"
Domestic[6]	Addresses traditional values that usually counterweight the positive impacts of the innovation.	Addresses traditional values of livestock production and delegitimize the innovation, emphasizing traditional values contrary to the innovation.	"[…] the sector is totally averse to this kind of product, and try to label in several ways since the thing of saying that this is not meat […] this is a lie and such, until the sector thinks that this is a fashion, a trend, it won't have any perspective."

SOURCE: Adapted from GOES, ZENY, REIS (2020).

[6] This is the only order of worth that is evoked to demonstrate contrary arguments towards CBM innovation. This is further discussed on the results section.

Such definitions and examples of textual units are meant to illustrate how the coding was carried, based on the literature. This process of adapting orders of worth into categories definition was important because the original definitions of the used theoretical framework are rather broad (see Table 1), therefore such adaption facilitated the analysis of the herein studied context.

All written collected data from primary sources were then analyzed according to the codes presented in Table 6 using Atlas. ti software. The findings are reported below.

4 CELL-BASED MEAT INNOVATION: THE STATE OF ART

This section contextualizes the selected case (CBM), explaining the motivations for developing the innovation, debates, and controversies of several stakeholders involved in the industry of this emerging innovation. This contextualization is relevant to understand the selected case whereas stakeholders' justifications take place.

4.1 WHAT IS CELL-BASED MEAT?

Cell-based meat, clean meat, lab-grown, in vitro, artificial meat, cultured meat (VITAL et al., 2017; BRYANT; BARNETT, 2018, 2019; HENKE, 2018; SCHARF; BREITMAYER; CARUS, 2019; STEPHENS; SEXTON; DRIESSEN, 2019) or cell-cultured meat (MOHORČICH; REESE, 2019) are different terminologies used in the literature to describe an emergent food innovation as an alternative source for meat consumption that does not resort to the slaughtering of animals, thus not infringing animal harm and dignity (CHAUVET, 2018). That is to say, CBM is a type of innovation wherein the meat is grown in a lab through stem cell cultures (CHILES, 2013).

Alternative food sources embrace a range of diversified products, such as soy-based, wheat-based, plant-based, insect products, and CBM as alternatives to livestock meat consumption (HOCQUETTE, 2015; VITAL et al., 2017). CBM is distinct from genetically-modified organisms (GMOs) and plant-based alternatives. The former is food that is genetically modified in a laboratory using genetic engineering techniques to slow its degradation, extending the food's shelf life. The latter is related to protein alternatives using non-animal sources such as fruits, vegetables, nuts, and beans. This is an important distinction because both options faced consumer and regulatory challenges, somewhat similar to the ones that CBM faces (MOHORČICH; REESE, 2019), however, for the purpose of this paper, it is only focused on CBM.

According to a 2011 United Nations Food and Agricultural Organization (FAO) report, by 2050 meat consumption should increase 73%, which is a natural path of an ongoing growing population (FAO, 2011; BRYANT; BARNETT, 2018, 2020). The same institution has reported, in 2009, that the livestock sector consumes about 70% of global agricultural land. Considering livestock production as we know, there is going to be insufficient land available to fulfill the demand for meat (FAO, 2011, 2013). This is

already a concern of countries that face overpopulation problems, such as China (BRYANT; BARNETT, 2018). Furthermore, there are ongoing debates on environmental, ethical, as well as human health impacts of today's livestock production (SCOLLAN et al., 2011; BHAT; KUMAR; FAYAZ, 2015; BRYANT; BARNETT, 2018).

It is within this context that solutions are already available for non-animal protein-based meat consumption. However, there is still a predominance of the desire to consume meat derived from animals and it is this gap that fosters the herein studied phenomenon, the development of CBM. Additionally, there are people who will not reduce or avoid their conventional meat consumption (BRYANT; BARNETT, 2018).

Despite gaining momentum nowadays, this innovation has a two-decade history of laboratory research. A major initial project was conducted by a college-based group funded by NASA (BENJAMINSON; GILCHRIEST; LORENZ, 2002; STEPHENS; SEXTON; DRIESSEN, 2019). Following this first initiative, the government of the Netherlands started research projects to further analyze and test CBM. They cultured the first cell-based beef burger, funded by Google's co-founder, Sergey Brin, in 2013 (O'Riordan, Fotopoulou & Stephens, 2017). In recent years, startups are leading the research and innovation involving CBM (STEPHENS; KING; LYALL, 2018).

It is argued that the CBM innovation has two waves, the first more related to university research that ended around the 2013 cultured burger event, the first public display of an edible CBM product (SCHAEFER; SAVULESCU, 2014; STEPHENS; SEXTON; DRIESSEN, 2019), whereas the second is marked by using venture capital investments to boost cell-based startups (STEPHENS; KING; LYALL, 2018; STEPHENS; SEXTON; DRIESSEN, 2019). Funding was considered to be the greatest challenge of the first wave of CBM, whereas the fulfillment of the transformative promises is considered to be the greatest challenge of the second wave of CBM (STEPHENS; SEXTON; DRIESSEN, 2019).

The context in which CBM companies are inserted is a critical aspect that has shaped the development of the innovation (STEPHENS; KING; LYALL, 2018). Moreover, the selected case constitutes a fruitful opportunity to demonstrate that under situations of uncertainty – as it happens in cases of disruptive innovation –, stakeholders' interactions and engagement in negotiations are critical because it impacts –positively or negatively – in promoting opportunities and associations to advance a given endeavor (ALVAREZ; YOUNG; WOOLLEY, 2020).

4.2 WHAT ARE THE MAIN DEBATES RELATED TO CBM?

There are many debates on CBM, herein, the most recurrent in the literature are discussed. Previous research addresses consumer acceptance, i.e., if the consumer would buy and consume CBM products (HOCQUETTE, 2015; BRYANT; BARNETT, 2018; BRYANT et al., 2019a, 2019b; WEINRICH; STRACK; NEUGEBAUER, 2019). Whilst there are some discrepancies among the studies, some key debates are discussed: What is the role of culture in the acceptance of CBM? Does the educational background influence the acceptance of CBM? Does the level of income rate also play its part? Does gender interfere in CBM acceptance? Does political orientation permeate CBM acceptance? Bryant et al. (2019a) found that there is a higher acceptance of CBM in India and China in comparison with the USA and that the likelihood of acceptance of CBM is significantly higher among urban, well-educated, and high-income consumers. Also, in India and the USA, there was a higher acceptance of CBM among men and that, disregarding China, the acceptance of CBM was higher among liberals.

Besides, a study was conducted to investigate Southern Brazilians perceptions of CBM found that potential consumers held animal welfare as the main benefit of CBM; however, most of the respondents would not stop eating meat but they would add CBM to their diets (VALENTE et al., 2019).

Another relevant debate to this study is the one discussed by Chiles (2013) on the role that political stakeholders perform in the cultural construction of CBM. According to the author, their agency is of central importance once they are considered to be a reference for consumers in framing CBM. The author's gap is based on the ambiguity of the cultural and ideological environment in which CBM is inserted, despite the positive arguments related to its production. Some argue that CBM will not meet the marketplace shelves, whilst others advocate that it will be successful. Before highlighting this study main contribution, Chiles (2013) states that he considers ideology to be:

> […] mental frameworks — the languages, the concepts, categories, imagery of thought, and the systems of representation— which different classes, and social groups deploy to make sense of, define, figure out and render intelligible the way society works (Hall, 1986:25) (CHILES, 2013, p. 474).

After conducting interviews, Chiles (2013) discuss the three ideologies employed by stakeholders regarding CBM. The technopian (technogically utopian) ideology refers to innovation's potential path towards the improvement of society. Its supporters defend the benefits CBM may have such as more efficiency, animal and environment-friendly and healthier product for consumers. The green luddite ideology is featured as a naïve ideology once its adherents, majorly constituted by environmentalists, advocate for more traditional ways of life with less intervention of industrial innovation, thus contrasting with the arguments provided by the technopian ideology. Thirdly, the work machine ideology argues that innovation is a way of improvement and expansion of a business. Drawing a parallel with herein categories of analysis, based on JT's orders of worth, one may relate the technopian ideology with the industrial world; the green luddite ideology with the green world; and the work machine ideology with the market world. Regardless, stakeholders act as interpreters, intermediaries, and communicators that provide clues for consumers regarding making sense of CBM (CHILES, 2013).

An additional study is the one conducted by Stephens, Sexton and Driessen (2019) wherein the authors recap the first twenty years of CBM, by analyzing two themes: the CBM institutional context and the CBM interpretative package. The former concerns events, such as university activities, conferences, third sector groups, funding mechanisms, and the establishment of the startups, one of the stakeholders analyzed in this study, that shaped the CBM field. And the latter, related to discussions on how CBM should be understood, including regulatory discussions, nomenclature, and future promises. Stephens, Sexton and Driessen (2019) focus on how different stakeholders make sense of CBM on accounts of political and cultural aspects. Throughout their discussion, it is evident that ambiguity and uncertainty surround all factors related to CBM, which endorse the choice to study this phenomenon, once JT addresses this type of situation.

Moreover, what are the main barriers that negatively influence CBM acceptance? The main predictors are: i) disgust (BRYANT et al., 2019a), ii) the perceived unnaturalness of CBM (BRYANT; BARNETT, 2018; BRYANT et al., 2019b; MOHORČICH; REESE, 2019), iii) the willingness to pay (BRYANT; BARNETT, 2018; BRYANT et al., 2019b), iv) future promises of what CBM will achieve (STEPHENS; SEXTON; DRIESSEN, 2019) and v) does it endanger human health(HENKE, 2018)?

Dissonant perspectives on the potential benefits of CBM are also present in the literature. The ability to reproduce palatable diverse types of meats poses a major challenge. There is also a concern of the potential impacts on human health as it is still unclear the nutritional composition of CBM. Although it is argued that CBM is focused on a niche of consumers who are not vegetarians, its products will probably compete with other meat substitutes such as plant-based products. There is also a greyer discussion of religious points of view regarding CBM. Also, although CBM is linked with animal welfare benefits, some animals will still need to be used for its production. (CHRIKI; HOCQUETTE, 2020).

Moreover, studies on CBM regulation are still incipient, however, it is known that regulation also constitutes one of the barriers that CBM must face. Every country has different perceptions; however, livestock farmers advocate against CBM products to be labeled as “meat”. France banned the term vegetarian and vegan products in 2018, and U.S. farmers are presenting the same claim to US regulatory agencies. Will other countries follow France’s example? What will be the impact of labeling CBM products? If it cannot be called “meat”, how will CBM products be labeled? (CHRIKI; HOCQUETTE, 2020).

The above-mentioned questions and dissonant perspectives are herein mentioned to compare with the collected data and analyze whether they emerged from it. In other words, if such challenges are mentioned by the interviewees and embedded in their justifications.

In brief, the analysis of such previous research provides an overview of the studied phenomenon, and from it is possible to list some of the core questions related to CBM: i) Will CBM exhibit quality and taste similar to conventional meat? (VITAL et al., 2017), ii) Will CBM ever replace conventional meat? (VITAL et al., 2017), iii) Does CBM respect animal rights? (SCHAEFER; SAVULESCU, 2014; CHAUVET, 2018; HEIDEMANN et al., 2020), iv) Is it ethical to produce CBM? Will it open a door to cannibalism? (SCHAEFER; SAVULESCU, 2014; CHAUVET, 2018), v) How is the regulation of CBM going to be framed? (STEPHENS; SEXTON; DRIESSEN, 2019), vi) Will CBM provide a solution to the world problem of hunger? (BRYANT; BARNETT, 2018), vii) Which markets will CBM be inserted in? (BRYANT; BARNETT, 2018; STEPHENS; SEXTON; DRIESSEN, 2019), viii) Is there going to be a unifying nomenclature for CBM? (STEPHENS; SEXTON; DRIESSEN, 2019), ix) Will the startups be able to deliver the CBM production on a large-scale? (STEPHENS;

SEXTON; DRIESSEN, 2019). These are relevant questions for contextualization and they will be considered during the analysis of the collected data.

Concisely, it is possible to justify the choice to study this phenomenon since it may be considered as a unique situation, a new practices, and innovation, embedded in a context with established industries of conventional meat that ensures the occurrence of uncertainty (REINECKE; VAN BOMMEL; SPICER, 2017). In other words, “The emergence of new practices and markets is a revealing site for the study of establishing moral legitimacy through compromises. New markets often face challenges to moral legitimacy.” (REINECKE; VAN BOMMEL; SPICER, 2017, p.14). Moreover, the study of the CBM convention is a fruitful opportunity to understand how moral legitimacy is co-achieved through justifications in dialogue among stakeholders and thus, applying the orders of worth framework into strategy studies (REINECKE; VAN BOMMEL; SPICER, 2017).

In sum, based on the literature applied in this study, the dominant arguments regarding CBM appear to be related to the environmental and health benefits of CBM production and consumption as well as the challenges associated with its acceptance and large-scale production. Therefore, after considering the arguments and context associated with CBM, the method description follows.

5 RESULTS

This section describes the findings from the collected data, describing and analyzing the employed orders of worth by the selected stakeholders. This section is divided into three subdivisions: CBM's orders of worth, CBM's emergent topics, and synthesis of the findings. The first is related to the stakeholders' justifications in favor of or against the legitimacy and development of CBM. The second addresses the topics that emerged from the findings that are related to the innovation but are not justifications arguing or against legitimacy and development; however, they pinpoint relevant issues related to CBM and may be used as suggestions for future studies endeavors. The last summarizes the findings by providing answers to questions extracted from previous chapters.

5.1 CBM'S ORDERS OF WORTH

Stakeholders' perspectives shape the legitimacy and development of CBM innovation. When facing situations of uncertainty and novelty, stakeholders demonstrate and attempt to establish their values by employing justifications, engaging in interactions and negotiations. Following, the orders of worth that emerged from the collected data are presented and analyzed.

5.1.1 Green worth: The rationale for producing CBM

Green justifications are evoked by primary stakeholders to address the potential environmental and social benefits that this innovation will bring to society. When asked what would be the main benefits of CBM, primary stakeholders stated: "*[…] preserve the environment or help to fix the climate environment in the next decades is a key rationale for all of this."* (Startup A), "*Cultured meat has the potential to have enormous positive impacts on food security, the environment, animal welfare, and human health."* (Startup B)*, "Of course, cultured meat could also have an enormous impact in reducing the suffering of the billions of animals reared for food production each year, the majority in industrial farms where they experience inhumane conditions."* (Startup B), *"[…] and then the sheer amount of animals that would be taken out of the supply chain because of it coming from a CBM company would be at the top of my list*." (Investor B), and *"[…]*

We won't need animals anymore so I think it will probably change the societal conversation around how we think about animals in our world" (Investor A).

Green justifications emerge as a key rationale when arguing reasons for developing and producing CBM; thus, green justifications are primarily used to argue for CBM's legitimacy as it evokes debates on urgent social issues related to the impacts that society has on the environment and animal suffering.

However, hesitant concerns regarding whether such benefits will be observed were also evident, such as:

> Two areas I'm a little more unsure about but there's definitely potential for positive impact:1) Environment: Broadly, we know there's probably going to be benefits from land-use changes and lower water usage but it's unclear (to me at least), what the energy needs and sources will be and the mix of emissions (CO2 vs CH4 for example) will be. When we have a clearer picture of what the bioprocess looks like, we'll be able to make more accurate judgments about the environmental impacts of this new way of producing meat but I suspect that at a scope 3 level, CBM will be better/lower environmental impact than regular/traditional meat, 2) Health: While there's potential to create more custom products that are better for long term health outcomes (and therefore save public health expenditure), it's unclear to me if this will actually happen and if this is something consumers will actually desire (Investor A)."

Such a cautious perception of the potential benefits is also reported by other stakeholders as demonstrated subsequently and has the potential to weaken green justifications if environmental benefits are not met (BRYANT; BARNETT, 2020), corroborating the perspective that the current (second) wave of CBM's main challenges it to fulfill the benefits it has promised (STEPHENS; SEXTON; DRIESSEN, 2019).

Secondary stakeholders – NGOs, researchers, and the media – also evoked environmental and animal welfare benefits in consonance with primary stakeholders, such as:*"[…] I'm definitely not an expert on the animal welfare side but that one's got seems to be sort of the most straightforward to me with [.] just remove the living fish from the equation that I think […]"* (NGO C) *"[…] if you ask people that are positive about cultivated meat, why do you consider it, then the highest-ranking officers are the animal welfare and environment […]"* (NGO B), *"[...] I see cultivated meat in fact, as*

the first time that there is something that can fundamentally reduce suffering and killing of animals." (NGO B).

The interviewed researchers in general held a more optimistic perspective regarding the potential benefits of CBM. Green justifications were broadly evoked to argue for CBM benefits and drives for its development, such as: *"I think CBM would give people better control of what they are eating and reduce the harmful effects of conventional meat farming."* (Researcher D), and *"If instead all food comes from plants and animals are used only to fertilize the land, not as a source of food, then society and the planet have a sustainable future."* (Researcher C). In sum, a quote that summarizes researchers evoking green justifications are:

> *I think the main reasons for having CBM, I think for me, personally are more environmental, in the sense that it seems like the farming industry, the agriculture industry does seem to have a lot of waste, not only in terms of energy but also of course in terms of greenhouse gas emission and that's where I see that the main drive for having CBM* (Researcher A).

Nonetheless, researchers F and G demonstrated dissonant perspectives from others. Thus, green justifications were invoked to counterweight – put to test– optimistic perspectives regarding environmental, health, and animal welfare benefits. For instance: "*Moreover, there is no consensus on the potential advantages in terms of GHG emissions of lab-grown meat compared to conventional meat on a short-term or long-term basis."* (Researcher G), and:

> *Environmental benefits: so far, there is no demonstration that CBM will produce less GHG, will use less water, etc. than conventional meat production. Health benefits: so far, there is no demonstration that CBM will produce healthier or safer meat compared to conventional meat production. Welfare benefits: CBM will theoretically use less animals. So, we will need to kill less animals for sure. This does not mean that animal welfare will be increased during the life of animals (from birth to death). Welfare and slaughtering are two different issues."* (Researcher F).

Such arguments reveal that there is a disagreement among stakeholders regarding if in fact there will be environmental, health and animal welfare benefits from the development of CBM (STEPHENS; SEXTON; DRIESSEN, 2019; CHRIKI;

HOCQUETTE, 2020). In other words, green justifications are evoked as the primary reason for developing CBM, whilst it also demonstrates its *Achilles heel* – if the promised potential environmental benefits are not met, CBM's legitimacy would be put to test.

Green justifications were not directly found in the interviewed conventional meat processing multinational A. When the interviewee referred to energy efficiency, for example, its goal was not to address the environmental benefits but to address technical hurdles and financial gains.

Moreover, from the collected news, green arguments were used to counterweight the environmental impact of today's livestock (and poultry) production while advocating for the potential environmental benefits of CBM products. Therefore, the green world is used to put to test the domestic world. For instance: *"[…] as people around the world wake up to the devastating environmental impact of consuming meat and dairy in recent years.", "Producing real meat without harming animals or the environment is no fantasy.", "[…] damage that animal agriculture has done to the environment, and we also see that the quality of beef today is not good enough."* and *"[…] it could solve many of the environmental, animal welfare and public health issues of animal agriculture while giving consumers exactly what they're used to eating.".*

Moreover, potential benefits related to health were often found in the news, e.g*., "[…] focused on growing healthy and sustainable meat from cells in a cost-effective manner and bringing that meat to the world […]"* and "*There doesn't seem to be any evidence that lab-grown meat is damaging to human health (compared to conventional meat) and, in fact, the risk of disease is likely to be lower under sterile lab conditions.".* These textual units substantiate a facet that green justifications are deeply intertwined with market purposes.

Furthermore, data collected from news and secondary stakeholders shed light on hierarchy nuances within green justifications when comparing environmental impact concerns and animal welfare issues. The former is employed almost 8 times more than the latter. To illustrate, NGO C reported that *"[…] focused on environmental issues in that like I definitely think I hear more about the environmental issues than Animal Welfare benefits […]*". Thus, it seems that there are hierarchy nuances regarding green justifications. This evidence sheds light that stakeholders may hold environmental benefits as more important than animal welfare issues – this is further discussed in the discussion section. Future studies should further investigate this nuance.

5.1.2 Market worth: The potential financial windfall of CBM

Market justifications were highly evoked by stakeholders. Primary stakeholders evoked it when addressing market drives such as opportunities, and potential profits when the product reaches the market. This was evident in textual units such as: *"[…] very large market that hasn't changed in a very long time. The market is larger than a trillion dollars globally so the payoff if this is successful, will be very large as well"* (Investor A), "*The first cultured meat products are likely to be ground products, which make up approximately 50% of the global meat market, and other cuts of meat will follow*." (Startup B), and *"[…] as they promise it can be up to 10% of the meat market, which will be 1.4 tri, is a lot."* (Conventional meat processing multinational A).

When asked to comment on the financial barriers concerning the development of CBM products, startups emphasized*: "Given its production is more efficient, we expect cultured meat to eventually be as affordable as livestock meat."* (Startup B), "*The next big scientific and engineering challenge is creating a scalable production system."* (Startup B) and *"Taste, otherwise people won't eat it […]"* (Startup A). This is corroborated by the interviewed conventional meat processing multinational *"There will be a huge price barrier […]".*

Thus, as previously mentioned in the literature, some of the core market issues that must be overcome related to CBM products reaching the market are corroborated by the interviewees, such as reproducing similar quality and taste and scale-up – see page 31 – (VITAL et al., 2017; STEPHENS; SEXTON; DRIESSEN, 2019).

The conventional meat processing multinational A sheds light on some of the reasons driving food multinationals investing in CBM. It is argued that CBM products will be an alternative to conventional meat products, such as plant-based products nowadays. However, there is still a lot of speculation concerning its commercialization, but the cost is a fundamental issue. The interviewee argues that CBM will be a niche that few people will be able to afford in the short term. There is also a piece of additional information of why multinationals are investing in CBM startups as a way to be in contact with such innovation and yet protecting themselves in reputational and institutional ways, featuring an observant and somewhat distant role of the forthcoming developments. In the interviewee's words:

> *It is a protein [...] that will compete in some way, either with traditional production models or even with a restaurant. We know that this will happen in a 5 years horizon. And as we tend to be short-sighted, if we talk about 5 it can happen in 2, 3 years. Because, what happens is, the return of this is directly proportional to the level of investment it is receiving. [...] you have global food conglomerates investing in startups, that is, protecting themselves in a reputational, institutional way, doing it a little far from the core, but doing it with attention, and this is a path that we will take this year as well* (Conventional meat processing multinational A).

The evidence that major food conglomerates are investing in CBM innovation is also reinforced by NGOs, as it follows:

> *[…] that's why these big groups like (Food conglomerate X) and others that they know meat comes from as long as it's at a low cost in a high-volume. And on top of that even though it's produced with more ethical concerns, even better for them, so they that's why they are investing in these cultivated meat companies"* (NGO B).

Moreover, market justifications are deeply interwoven with industrial challenges such as improvement of attributes such as taste and texture, affordability, and improvements in the supply chain to scale-up its future production. This is reported by all the interviewed stakeholders and it is also observed in the collected news. Market justifications were also interplayed with other orders of worth: project-oriented, civic, and fame arguments, when addressing cost, scale-up, accessibility, and regulatory challenges as well as addressing investments and draws of upcoming networks. This is further presented in the ambiguities section.

Secondary stakeholders address features of the investments that are being made in this industry, such as: *"Investing in this market could potentially lead to huge future profits."* (Researcher D) and "*This innovation is driven only or mainly by private companies and private investors. Therefore, it is anticipated that people are first interested by money (i.e., how to earn money by creating a new market)."* (Researcher F).

Researcher F also emphasizes that CBM products will face arduous competition from other alternatives to conventional meat already available at the

market, thus counterweighting the encouraging perspectives of the market share (financial windfalls) that CBM products may have:

> *The CBM market worldwide will face a high competition from conventional meat and from any existing or future meat substitute: plant-based meat and also proteins from insects, mushrooms, algae, etc. and the competition will be so tough that it might be very difficult for CBM to be successful* (Researcher F).

Thus, while market justifications are mostly optimistic about the potential financial gains, they are also employed (by secondary stakeholders) to illustrate a more moderate positioning regarding its potential market-share, e.g.: *"One major obstacle is the cost. Cost-cutting will greatly benefit this industry."* (Researcher D). This quote ascertains that the high cost is a key challenge to be overcome for CBM products to be able to compete with other protein alternatives to conventional meat.

Concerning the news, market justifications were mainly employed to report on investments, such as*: "The cultured protein sector has enjoyed an increase in investment flows this year.", "Early-stage investors have been attracted to the proposition of real meat without slaughter or environmental damage.", "These rounds won investment from institutional meat giants such as Tyson Foods and Cargill, as well as individual celebrities including Bill Gates and Richard Branson.", "Before today, the total invested in cultivated meat companies was $155 million. For the entire industry, an investment of this size strengthens confidence that this innovation is here today rather than some far-off future endeavor.", and "Investors are also betting on the longer-term prospect that lab-grown meat can capture the hearts and dollars of carnivores worried about the ethics and environmental sustainability of killing animals."*

The previously selected quotes reassure what was evidenced in the interviews. There have been increasing investment rounds on startups, including the ones made by major conventional meat processing multinationals, which indicate that there is a significant expectation (and trust) of financial windfall.

5.1.3 Industrial worth: The world of challenges

Industrial justifications were related to the technical challenges concerning potential attributes of CBM products *"[…] that in the case of CBM, it can deliver all properties, including it can be manipulated to deliver more adequate nutrition than the naturally obtained meat […]"* (Conventional meat processing multinational A).

Primary stakeholders address a common challenge regarding plant-based products, that also attempt to reproduce existing products related to conventional meat but are limited because of the use of vegetal and natural (slaughter-free) ingredients, which compromises, to some extent, its taste and texture. If such challenges are not overcome, it can put the industrial attributes of CBM to test – see page 31.

Technical challenges related to future technological developments reflect the stakeholders' concerns regarding increasing energy efficiency, intertwining with market arguments. For instance, the conventional meat processing multinational A states that: *"So we have a lot of doubts about which is the way (regarding genetic modification and cellular multiplication)", "[…] as a national agroindustry even is energy efficiency that means (energy) conversion well done. So, if really cellular meat reaches the model of optimal conversion, it becomes very difficult for you not to invest […]", and "[…] soon if everything proves as it has been said, more sustainable, using less energy, less resources, being a more efficient production process, we can have a law to increase meat production […]".*

Technical drives of reducing waste, improving energy efficiency, and manipulating nutrients are drivers for developing CBM – industrial world –were also evoked by secondary stakeholders. To illustrate, researcher E argues that *"You will have an aspect, a nutritional profile very similar to conventional meat and you wouldn't have anything there that would harm humans […]"*.

Challenges related to scale-ups, reproducing taste, and texture were also frequently evoked. For instance, researcher A stated that: "*I think that the main challenges with CBM, I think first and foremost is going to be scale up, producing enough protein in tissue to feed just to make it cost competitive […]".* Overcoming such challenges is of fundamental importance to reduce its high cost. Also, the possibility to produce it locally was held as a positive technical drive for producing CBM products, with market impacts on the upcoming CBM value chain: *"[…] you can produce it in a*

local way, not having a global transit of products, from importers to exporters […]" (Researcher E).

Furthermore, such developments were used to argue that CBM has the potential to eradicate hunger, for instance: *"I think establishing CBM production facilities is going to be a lot easier than establishing tons and tons of farmland. So, I do think that this could be a viable strategy towards eradicating hunger."* (Researcher A). The potential to eradicate hunger issues arose dissonant perspectives among the interviewees, as it is addressed subsequently.

Primary stakeholders interplayed industrial and green justifications when addressing the environmental benefits that may result from technological improvements, for instance: *"CBM would solve that problem and leave us far less susceptible to the health and environmental implications of excess animal waste.",* and *"[…] from a climate adaptation perspective, likely to be a more economical method of meat production if yields of key feed crops such as maize fall globally as a result of rising temperatures."* (Investor A).

Secondary stakeholders also address further improvements regarding CBM potential attributes of reproducing conventional meat: *"[…] so if this laboratory meat, it is not very similar in terms of texture, softness, taste to conventional meat, naturally, you will already cause consumers' aversion […]"* (Researcher E) and "*Development mass production techniques efficient and cheaper (than conventional meat), produce meat and not only steak but a real piece of beef, control the nutritional quality of cell-based meat, reduce the cost of this novel food, already very expensive and replace the current fetal bovine serum (FBS)."* (Researcher G).

Moreover, the development of CBM innovation will also have an impact on benefitting high-skilled professionals from multiple areas: *"[…] the possibility of employment for new positions. You have a series of professionals there, from more emerging professions, who will benefit from this new kind of product."* (Researcher E).

As demonstrated, industrial justifications were deeply associated with other orders of worth because the challenges and improvements from the technical perspective will have financial and societal impacts, thus influencing both optimistic and moderate perspectives on CBM's legitimacy. This is the main focus of startups and researchers' endeavors, as demonstrated in the analysis of news.

Furthermore, regarding the analyzed news, market and industrial justifications were interplayed to address challenges related to cost and scale-up challenges that

must be addressed for CBM products to reach the market. To illustrate: *"Investment in the CBM sector has helped lower production costs, one of the biggest barriers to commercialization.",* and *"Current production methods for cultured animal cells still only exist at a small scale and reaching commercial scale will require time and investment into equipment development […]".*

In the news, industrial justifications were evoked to address technical challenges of the innovation such as safety concerns, reproducing taste and texture, developing future facilities, for instance: *"It is critical for cultivated meat companies to be over-abundantly careful and to go beyond consumer expectations in ensuring the safety of cultivated meat[…]", "The big challenge is making meat that looks, feels and tastes like the real thing.", "Because lab-grown meat is meat, it should theoretically share the same taste and texture as conventional meat, if formulated correctly.",* and *"Develop additional requirements necessary for cell bank and cell culturing facilities to ensure the cell culture process is safe and produces unadulterated products."*

These quotes reflect that all these (industrial) challenges have market implications. Moreover, no textual units from the secondary data were found to address the potential of CBM products as a solution to eradicate hunger in the world.

5.1.4 Domestic worth: A world of drawbacks to CBM legitimacy

Dispute nuances were evident in the sample, coming from one type of stakeholder – cattle ranchers' associations/ unions – who evoked domestic justifications to express their opposite perspective regarding CBM innovation and to put its legitimacy to test. Despite not being included in the selected stakeholders to be analyzed in this study, this group was often mentioned in the interviews and it employs arguments in the public space in an attempt to discredit CBM products, especially regarding labeling and unnatural features, thus, secondary data was used to analyze this group. For instance, *"[…] which represents the meat, livestock and poultry industries, over 30 US states have considered or are considering so-called "truth in labeling" laws aimed at preventing words such as "meat", "beef" or "pork" being used to describe cultured meat […].", "Clear prohibitions on the labeling of lab-grown meat as "meat" are likely to appeal to many sides, except perhaps the lab-grown meat companies themselves […]", "For some, synthetic meat falls decidedly into the "frankenfood" column, and mainstream media coverage strongly plays into these*

feelings.", and *"[…] cultured meat is that it's unnatural. This argument relies on the premise that natural things are better than unnatural things.".*

It is possible to observe that those who are against it combines domestic and inspired appeals to criticize the innovation as something **unnatural** and therefore, disgusting. Disputes involving regulatory issues are currently unfolding, thus it is not possible to know the outcome that these associations are exerting. Hence, future studies on this topic are encouraged. Also, future studies should attempt to analyze interviews from this stakeholder group, as the herein analysis was obtained from secondary data.

Websites from cattle ranchers' associations from different countries were analyzed searching from textual units related to "lab meat", "cultivated meat", "in vitro meat", "cell-based meat" and "cultured meat" (BRYANT; BARNETT, 2019; ONG; CHOUDHURY; NAING, 2020). The list of additional analyzed secondary data is listed in Appendix 3, and they were selected due to their reference to the collected interviews or from the collected news.

The Canadian cattlemen's association's website exhibits a video addressing myths and misconceptions related to livestock – animal welfare and environmental impacts. The video display textual units that mainly evoke industrial and green justifications by exploring that the animals are well treated with the lasted innovation and thus producing high-quality beef. As for CBM, the Canadian association address it under the tab "Lobbying Issues, Other priorities issues" mainly evoking market justifications – stating that it will be another alternative as happened with plant-based products, reporting the label issues arguing that CBM and other meat alternatives should not be labeled as "meat" as it would be misleading to consumers.

Such label issue is often reported in the National cattlemen's beef association, presenting evidence that American cattlemen are actively engaged in delegitimizing CBM by arguing that it is not real meat, that it is not "what consumers deserve", to be misled by an incorrect label and that it should abide by the same regulation as conventional meat products.

The cattle council of Australia does not directly address CBM on its website. However, there are many tabs related to "animal health, welfare and biosecurity" and "environmental committee ", presenting evidence that the Australian association is aligned with the Canadian association by displaying industrial and green justifications – the animals are well treated following the last technical measures, ensuring product

safety, producing high-quality beef in an environment-friendly way. Moreover, the European Livestock and Meat Trades Union's – a key actor within this group - website and reports were unavailable at the moment of the gathering of secondary data; thus, it could not be analyzed.

Regarding the Brazilian associations listed in appendix 3, no textual units were found on the Brazilian Association of Animal Protein's website or in its report regarding market projection for 2021. However, concerning the Brazilian Association of Breeders, it was possible to find two pieces of news – both from 2019 – that addressed CBM. These pieces of news were extracted form Brazilian newspapers and mainly reported the green (environmental) potential benefits associated with CBM – e.g., reduction of GHG emissions and less land and water use – counterweight with the high cost and technical challenges of CBM – market and industrial worlds combined; but both of them favor CBM. This is a thorny finding, as Brazil is the world's second-largest beef producer (ZU ERMGASSEN et al., 2020), thus, it was expected to find some textual units contrary to CBM – this could also be addressed in future studies. However, evidence shows that CBM is not yet addressed in the listed Brazilian associations.

As already explored, there is enough evidence that food multinationals, including conventional meat processing multinationals, are embracing this type of innovation as they are investing in startups, perceiving it to be another alternative, another niche that will bring profit. However, there is also evidence that some types of associations that are contrary to it engage in public debate attempting to delegitimate the CBM innovation, as argued by researcher E:

> *A barrier, perhaps the first, will be the conventional meat sector, it will be very reactive to it. But not the conventional meat sector […], in this sector you have the agroindustry, (mentions multinationals) already produces the plant-based hamburger, so it has already assimilated this. (the researcher mentions food conglomerates that embraced plant-based alternatives). So, when I talk about the sector, they are not these entities […], because they are open, and everything indicates that they are assimilating this and will invest (in CBM). When I speak about the sector, it is more the sector of class representation, producers associations, unions, the national confederation of agriculture, which will try to protect themselves, because they will see this as a threat, an unfair competition and so on and will make a campaign against it, saying that this is a lot of chemistry that harms the consumer and so on. As it already happens in other countries, it won't be different here.*

Moreover, domestic justifications are also used to emphasize the traditional benefits of the livestock and poultry production system, because they are perceived to be the natural and traditional way of the animals' role in our society. This is evident in these quotes extracted from the news*: "It rails against cultured meat on the grounds that it still suggests that meat is desirable and that animals are a resource people can draw on.", "[…] any product labeled as 'beef' come from cattle that have been born, raised and harvested in the traditional manner […]"* and "*They argued that "meat" wasn't just bits of an animal—it was a brand. "I believe it is wrong to label lab-cultured tissue as meat, because I understand the investment of time and labor that goes into raising cattle.".*

A quote that summarizes the dispute that is currently occurring regarding CBM's legitimacy is summarized in the following passage:

> *Steered by the so called "barnyard lobby", which represents the meat, livestock and poultry industries, over 30 US states have considered or are considering so-called "truth in labeling" laws aimed at preventing words such as "meat", "beef" or "pork" being used to describe cultured meat (the laws often also target plant-based products). So far, laws have been passed in 12 states. Under Louisiana's new law, which takes effect later this year, "meat" would specifically exclude anything that was a "cell-cultured food product grown in a laboratory from animal cells".*

Domestics justifications are therefore used to delegitimize CBM innovation by evoking values related to the benefits and values of traditional livestock production, e.g*.: "'My family and I raise beef cattle from birth through the feedlot. We care for them each and every day until we sell them to be harvested,' […] "The term meat is our brand, applied to a product that livestock producers, like me, my father, grandfather and great-grandfather worked for generations to perfect."* (News). Domestic justifications are also used to approach the negative effects that CBM is leveraging on people related to conventional livestock, e.g.: *"[…] that the term is inherently offensive to traditional-meat producers, as if real meat is somehow dirty."* Hence, future research could address power asymmetries among stakeholders arguing for and against CBM's legitimacy.

5.1.5 Obscured orders of worth

The remaining orders of worth were less evoked by stakeholders, thus remaining in the "obscurity" arguing for or against CBM's legitimacy and development. These are reported in this section.

Before analyzing the data, it was expected that the inspired world would be one of the most evoked worlds since it is related to inspirational attributes of the innovation (unique, visionary, transformative, world-changing, creative, etc.) and emphasizes its emotional appeal, however, few text units were found evoked by stakeholders that addressed the inspired reasons for developing CBM innovation, e.g.: *"I really believe in this. I really think it has the potential to change the world, and that is the optimistic side of me and of course."* (NGO B).

Stakeholders evoked fame justifications either to emphasized a distinct feature concerning public recognition, such as "*The (Startup A) is, to the best of my knowledge, the only one developing what we call whole muscle meat" (Startup A) and "Our team was the first to unveil cultured meat, and our Chief Scientific Officer, […], is considered the leading scientist globally on this topic*." (Startup B), or to emphasize public recognition of the innovation *"[…] as I said cultivated meat is the first alternative to conventional meat that really the potential is the compete because yeah, basically it is meat, just produced in other ways […]"* (NGO B).

Fame justifications were evoked more often in the news, similarly from what was found from the interviews, either to emphasize distinct features of stakeholders – startups, investors, and entrepreneurs– or features of the innovation. Some examples of textual units that evoked public breakthroughs are: *"[…] the scientist who created the first lab-grown burger.", "(Startup X) produced the world's first cultivated beef meatball, chicken and duck.", and "(Fast Food chain X) is the first restaurant brand in the world to cast its lot with cultivated meat, and the chain is all in, promising a cultivated meat prototype this year."*

Project-oriented justifications – the last added world to the JT – were somewhat employed to refer to project involvements and investments networks focused on moving forward CBM's development, e.g.: *"Our vision is to create joint ventures with companies locally, and to build Bio-farms, that's the term we use, and I think it's only hours so far […]"* (Startup A) and *" […] and (Food conglomerate Y) is that they are investors in cell cultivated meat companies. "(*Startup A).

Project-oriented justifications were also employed to refer to engagement in research activities, and lobbying associations railing against (cattle ranchers associations) and in favor of (startups and researchers) CBM. To illustrate*: "[…] five key players in the nascent industry formed a new industry group called the Alliance for Meat, Poultry and Seafood Innovation"* (News). Also, researcher E highlights that a Brazilian agriculture research corporation:

> *[…] already has products with a vegetal base that are rich in proteins. (Corporation Y) already has a research […] since it already has this line, the cellular meat I think will be a consequence, as soon as we have the investment capacity and intellectual capacity to start researching this, that it must happen."*

Project-oriented textual units found in the collected news were similarly evoked: *"(Food conglomerate X) and (University X) are also working on a project to grow cultivated meat, specifically lab-grown steak within the next five years.",* and *"It saw over 80 scientists, investors, food companies and policymakers come together to discuss […]".*

NGOs addressed their role in the upcoming CBM chain network using project-oriented justifications, such as: "*We see ourselves as facilitators, which means that, well, we try to help cultivated meat companies, we try to enhance the position of cultivated meat in society by doing possible things about it, like going to consumers' attitudes, reasons […]"* (NGO B). In the following quote, it is possible to observe that NGOs are working with startups and the media to positively advocate for the adoption of CBM:

Lastly, it was also expected that civic justifications would be frequently evoked by stakeholders as this worth addresses values related to the collective will such as society's pressures. It also addresses government engagement and issues of animal rights. Such issues are highly evident in the CBM literature discussed in the previous chapter – emphasizing one of the main appeals towards CBM legitimacy, i.e., promoting and advocating for animal rights. However, this is not was found.

To illustrate, the influence that society may exert in regulatory bodies and governments arguing for the development of CBM products: "*[…] groups of young people mixed with more experienced people so they will have a better voice in the*

regulatory agencies that will make this process faster or not." (Conventional meat processing multinational A) and:

> *The ethical implications of producing meat from a cell source of animals have raised concerns on the animals' rights, as the cell harvesting procedures can be invasive, and the nonconsensual extraction and widespread use of these animal cells has been ethically problematic for animal rights groups.* (News).

Thus, instead of advocating for animal welfare, civic justifications were evoked to counterweight animal welfare benefits by highlighting ethical issues regarding CBM production. The frequency of civic justifications was insufficient to determine whether this positioning is prioritized among stakeholders or not. Therefore, the civic worth – as the domestic worth – may be mainly employed to underpin CBM's legitimacy.

As the civic world was one of the least evoked by stakeholders, one question arises: Would be the civic world the missing world? This may be due to sampling selection – profiles of interviewees and types of the source from secondary data. Future studies could include animal rights activists as CBM secondary stakeholders and weight if civic justifications would be then more evoked and/or prioritized.

5.1.6 Worlds of ambiguities

"*Perhaps more than any other food, meat inspires both comfort and discomfort*" (News)

Moreover, ambiguities among orders of worth were observed. Ambiguity is defined by the Oxford dictionary as *"the state of having more than one possible meaning"* (RISCO, 2021). There are many ambiguities reported in previous literature regarding CBM alternatives such as nomenclature and consumer acceptance (CHILES, 2013; ONG; CHOUDHURY; NAING, 2020).

This may be due to stakeholders' ambivalence towards CBM – *"the mental and behavioral attitudes of human beings who holds two opposed mental attitudes toward one and the same object"* (BAGGIO, 2019, p. 2; RAZINSKY, 2017, p.16). Particularly regarding innovations – embedded in uncertain and ambiguous context – stakeholders may be skeptical about CBM potential environmental benefits while publicly arguing that these will be undisputable, for instance.

This study's findings are consonant with these previous observations and add another type of ambiguity regarding CBM – in the form of interwoven orders of worth. The forms herein found were:

i) Green justifications being employed with market purposes: Potential green benefits of CBM such as reduction of animal suffering, GHG emission, and improvement of energy efficiency are employed as drives for developing CBM innovation. Such benefits are usually employed ambiguously with market motivations, i.e., green benefits are being employed to attract investments and appeal to potential consumers, such as: *"This issue of animal ethics also, by not having animal suffering, is a significant appeal […]"* (Researcher E), *"It will taste the same, but has the potential to be healthier, kinder, better for the environment and less expensive. If we can achieve this, we believe most consumers will prefer cultured meat […]"* (News), and *"[…] it could solve many of the environmental, animal welfare and public health issues of animal agriculture while giving consumers exactly what they're used to eating."* (News);

ii) Industrial justifications being employed to argue for potential green benefits: To illustrate, *"It is expected that cultured meat production would use 99% less land, which would mean that land could even potentially be reforested."* (Startup B) and *"So, you're not making hundreds of thousands of tons of meat that you then transported by air or by sea, but local delivery, local supply, local taste and so on, that's the important part of the sustainability."* (Startup A). Thus, green and industrial justifications are interplayed when stakeholders refer to technical improvements in processes, chains, product security that culminates in environmental and social benefits;

iii) Industrial justifications being employed to address challenges related to cost and scale-up that must be overcome for CBM products to be commercialized and profitable. To illustrate, textual units found in the collected news*: "Investment in the CBM sector has helped lower production costs, one of the biggest barriers to commercialization.",* and *"Current production methods for cultured animal cells still only exist at*

a small scale and reaching commercial scale will require time and investment into equipment development […]"; "It's probably going to be a very very capital-intensive industry if they have to build up bioreactor capacity (which seems likely)." (Investor A) and *"When we think about supplies, provisioning, this is the most expensive topic for us. So, all we seek […] is energy efficiency."* (Conventional meat processing multinational A);

iv) Civic justifications being employed sharing market impacts: To discuss the influence that society may exert in regulatory bodies and governments arguing for (and boosting) the development of CBM products: *"[…] groups of young people mixed with more experienced people so they will have a better voice in the regulatory agencies that will make this process faster or not."* (Conventional meat processing multinational A);

v) Fame justifications being employed to evoke market distinctiveness and competition: For instance, *"KFC is the first restaurant brand in the world to cast its lot with cultivated meat, and the chain is all in, promising a cultivated meat prototype this year*." (News), and *"[…] as I said cultivated meat is the first alternative to conventional meat that really the potential is the compete because yeah, basically it is meat, just produced in other ways […]"* (NGO B);

vi) Domestic justifications being evoked to argue for reasons for producing CBM by some stakeholders while others evoked it to delegitimize CBM innovation – a dispute that requires engagement in public debates. NGO B stated that: *"There are a lot of risk factors, also lobbying for politicians and farmer unions against us mean I've seen that myself was kind of lobbying is strong."*. Such groups are advocating that it cannot be labeled "meat" which would have financial implications *"They will say yeah you cannot call it meat because the animal is not slaughtered, so it is gonna get more difficult. So, yeah, it will be a problem in the coming decades for sure."* (NGO B). Domestic justifications are employed to argue for the (green) reasons for investing in CBM *"[…] industrial farming is industrial farming […] especially when you look world-wise […] to produce meat in a total different way, that is why we see such a*

potential in cultivated meat and why we really try to push it." (NGO B) and *"[…] take up some of that share of conventional seafood and we can just play some of the other worst practices in the conventional seafood industry."* (NGO C). Thus, domestic justifications were also evoked to rail for CBM's legitimacy as it would solve livestock damaging practices;

vii) Project-oriented justifications are combined with market arguments when discussing future projects with revenue implications, such as*: "Our vision is to create joint ventures with companies locally and to build Bio-farms, that's the term we use, and I think it's only hours so far […]" (Startup A) and "[…] talented founding teams who could take the industry over the "last mile" in terms of technological hurdles."* (Investor A).

Besides these ambiguities, topics emerged from the primary and secondary data analysis that are relevant to CBM but are not justifications arguing for or against CBM's legitimacy and development.

5.2 CBM'S EMERGING TOPICS

One of the main topics concerning CBM's future is regulation and labeling. Primary stakeholders expressed concerns regarding regulatory, as illustrated by Investor B: *"Well, it's just the flipside to me the biggest challenges are getting the FDA in this country at the FDA and USDA approval to bring food safety concerns […]"*. This corroborates previous literature that emphasizes that regulatory issues are a major barrier that CBM must address (STEPHENS; SEXTON; DRIESSEN, 2019).

Stakeholders share concerns about the impact that regulations will have market-wise. For instance: "*[…] imagine in Europe due to regulation they say you're cannot call it meat for instance. Well, and in fact, makes it harder to sell it, like, this is in fact genuine meat, just produced in a different place."* (NGO B), *"[…] but yeah, just put cost and scale challenges, also regulations to some extent."* (NGO C), and *"[…] the regulatory process (which takes approximately 1.5 years in Europe) will be the next step towards bringing cultured meat to market."* (Startup B).

Labeling issues to put CBM's legitimacy to test by cattle ranchers' unions and associations – the only mapped stakeholder groups who are publicly opposed to it. This dispute is publicly denounced within the domestic order of worth. To illustrate: "

> *The US Cattlemen's Association (USCA) filed a 15-page petition to the USDA asking the agency to strictly define "meat" and "beef" as animals raised and slaughtered. The group argues that displaying plant-based meat products next to traditional meat items could confuse customers, especially when they're labeled as chicken or beef* (News).

Debates on regulation and labeling are uncertain and will financially influence CBM's commercialization. Another coexisting discussion weights the regulatory and naming challenges to be faced that will influence it market-wise: *"[…] but I know that depending on where it's being produced, there is going to be different regulations in place"* and *"I think it could potentially be another challenge just in the sense that are consumer perception, it could be a little bit more confusing but I do think that naming is going to be very important and I know that there are variety of names […]".*

Moreover, the collected news provides evidence that regulatory agencies from a wide range of countries are already debating over these issues regarding CBM products. To illustrate: *"The Singapore Food Agency on Wednesday said the chicken made by US startup Eat Just met its safety standards for use in nuggets, paving the way for a commercial launch in the Asian city-state.", "In the next 3 years, we aim to scale up to one industrial-sized production line, work with regulators to demonstrate the safety of cultivated meat […]", "Japanese authorities are now looking to establish new rules and regulations for meat alternative products developed using new food technologies such as cellular agriculture[…]"* and *"As of 2019, the agencies decided that the FDA would regulate the early stages including cell banks and culturing facilities, and the USDA would inspect production facilities and approve cultivated-meat labels."*

Dissonant perspectives regarding CBM's future market role were observed among both primary and secondary stakeholders. Some stakeholders argued that CBM will be one alternative (among others) to conventional meat whilst others reported that they believe that CBM will eventually replace conventional meat. To illustrate: "*[…] So, there we are not perceiving ourselves as a replacement of their meats but as an*

extension of this core business and these companies are saying the same." (Startup A) and, *"I think that at least the cultivated meat has the potential to become at least a partial replacer of conventional meat […]."* (NGO B).", whilst, *"We think that in time cultured meat can replace all conventional meat."* (Startup B).

Nonetheless, stakeholders stressed that it is difficult to predict what will be the market role of CBM products: *": I think in the short term it'll be an alternative or another option. Long-term I think I don't know how to predict that just because there is so much uncertainty […]"* (Researcher A), *"Well, I am in this because I would like to see it replaced […] not everyone has my outlook on this so, I do think that it can replace, I don't know whether that'll happen in my lifetime or not"* (Investor B) and *"I think that at least the cultivated meat has the potential to become at least a partial replacer of conventional meat […]."* (NGO B).

Some stakeholders advocate for a more active role of governments concerning the development of cell-based meat innovation: *"Governments should be investing in cultivated meat for the same reason they invest in other research that serves the health of their land and population."* (Researcher C) whilst highlighting difficulties regarding profits and revenues:

> *[…] liquidity of your investment is likely many years away unless the company you invest in is swept up by (multinationals). Not only will it be a decade at least before any of these startups are profitable, it will be at least that long before they earn any significant revenue*. (Researcher C).

While Researcher F emphasizes the private investment, surrounds this innovation when stating: "*This innovation is driven only or mainly by private companies and private investors. Therefore, it is anticipated that people are first interested by money (i.e., how to earn money by creating a new market).".* Discussions on the type of funding unfold because some stakeholders argue that CBM innovation must be funded by governments to promote a collective (societal) common good of the innovation; others argue that it should be funded by private investments which rationale is market-driven. Regardless, it was observed that private investments outstand the type of funding, especially the ones from venture capital and major international food conglomerates. This is remarkably evident in the collected news (see Appendix 5).

Concerning claims that the conventional meat production system will not be able to provide enough products to feed the world's population in a few decades, stakeholders also held discordant perspectives. It was argued that this is not a reality in conventional meat processing multinationals' projections while also emphasizing disbelief that CBM innovation will eradicate hunger in the world – illustrated by researcher E following quotes:

> *"[…] we are not hungry in the world for a lack of food. Because if you take the production of food in the world, it would be enough to feed about 10 billion people and today we are about 7 billion."*

> *[…] the projection of the conventional industry, it thinks it will get it, producing what society needs. I don't have knowledge of any study or position of the conventional sector that says that it won't be able to fulfill the projections […]. So today, on the conventional protein sector, still doesn't exist this perception that it won't fulfill it. On the contrary, it argues that it will meet the future need, and that this will happen, okay?*

Moreover, the interviewed expressed that the livestock sector is currently engaged with debates on animal welfare, environmental practices, and impacts on human health – especially after COVID-19 contamination episodes – that is reported in CBM's literature (SCOLLAN et al., 2011; BHAT; KUMAR; FAYAZ, 2015; BRYANT; BARNETT, 2018).

In addition, it is argued that argues that hunger in the world is not a problem where the current industry does not meet the demands, but a social and political problem derived from economic asymmetry: *"So, it's very naive to think that it's only by producing food that the problem of hunger is solved."* (Researcher E). Also, that CBM is not a viable solution to eradicating hunger, e.g.: *"[…] I think that other solutions are more viable to feed the world's population with a lower carbon footprint (improvement of existing farming systems, eat less meat and eat more proteins of plant origins, reduce food wastage…)" (Researcher G).* It is also argued that this is also a problem that could be solved by reducing food waste: *"[…] according to FAO's own data, in global terms, we lose and waste 1/3 of the food we produce every year. So, we only take advantage of 2/3."* (Researcher E).

Researcher E's perspective is shared by some of the interviewees; others argued that future technological developments regarding production chains will enable CBM to play a fundamental role in eradicating hunger, for instance: *" I think establishing CBM production facilities is going to be a lot easier than establishing tons and tons of farmland. So, I do think that this could be a viable strategy towards eradicating hunger."* (Researcher A).

Furthermore, no textual units from the secondary data were found to address the potential of CBM products as a solution to solving hunger in the world. By assessing the collected data, considering issues of affordability and technical challenges, it is unlikely that it will be a solution to eradicate world hunger in the short future.

Some stakeholders argued that that COVID-19 has impacted the debates surrounding alternatives to conventional meat products as the crises exposed several fragilities of the current meat chain. In NGO C's words:

> I've seen definitely more conversation about sort of the role of alternative proteins and preventing come, a lot of the issues […] to the surface and last year but I think that those have been fairly concentrated within you know circles of people who care about the stuff to begin with and I don't know that I am convinced that the general population who maybe isn't thinking about these kinds of issues on a daily basis […] but I'm I'm definitely optimistic, you know. If we get these products to you know, to the scale needed, to delicious, in the next several years that we will see things turn around a lot […]

Other interviewees argued that COVID-19 has not accelerated the race towards producing CBM. When asked i) Do you think that COVID-19 has increased the debates on alternatives to conventional meat products? and ii) Do you think COVID-19's impacts could influence cell-based products reaching the market? researcher F, for instance, answered *"No. However the crisis has clearly favored minced beef, burgers etc as the expense of grilled cuts and other pieces of meat regularly consumed in restaurants*".

Moreover, the impact of the COVID-19 pandemic is addressed in the news, usually in consonance with impacts on to current livestock production – domestic world – and usually, these unit texts emphasize the need and benefits for producing CBM products. To illustrate: *"The pandemic has also hit meatpackers in Australia, Brazil, Canada, France, Germany, Ireland, Spain and the United Kingdom.", "Food security,*

public health and economic worries are other Covid-19 related fuels fanning the fire of alternative proteins […]", "Covid-19 was caused by food practices like the wet markets in Wuhan, and the crisis is driven in part by overreliance on farmed animals […]", and "The current pandemic has put an increased focus on meat production, especially after slaughterhouses around the country began reporting rising numbers of COVID-19 cases".

COVID-19 may have increased the awareness and opportunities regarding alternatives to conventional meat products. Although such influence should be investigated in the following years, it may have accelerated the process of CBM products reaching the market, for instance, Singapore approved cell-based chicken nuggets to be sold in the first days of December 2020 (FORGRIEVE, 2020). Future studies should investigate whether the COVID-19 pandemic had an accelerator factor in CBM products reaching the market, as reported in the news and also by NGO C.

In sum, the most prominent debates surfaced from the collected primary data: debates on CBM's potential to replace conventional meat products, ii) debates on CBM labeling that impacts its legitimacy, iii) debates on types of funding, iv) debates on whether CBM will be able to eradicate hunger in the world and inability of the conventional meat industry to supply the world's future demands, and v) debates on whether the COVID-19 pandemic has further provided reasons for (and fastened the race towards) the development of CBM innovation.

Considering the abovementioned findings, Table 7 summarizes information regarding the prioritized evoked orders of worth that emerged from the data analysis. The synthesis of the findings of how stakeholders shaped orders of worth are presented subsequently.

TABLE 7 – SUMMARY OF THE FINDINGS

Orders of worth	Primary and Secondary Stakeholders	News
Market **(CBM's financial windfall)**	**Alignment** was observed when addressing market drives and opportunities when CBM's products reach the market. **Alignment** was also observed when addressing the financial barriers that must be overcome to commercialize CBM's products. **E.g.:** *"[…] as they promise […] which will be 1.4 tri, is a lot." (Conventional meat processing multinational A).* **E.g.:** *"One major obstacle is the cost. Cost-cutting will greatly benefit this industry." (Researcher D).* **Dissonance** was observed when addressing the market role of CBM's products as a replacement or alternative to conventional meat and **E.g.:** *"The CBM market worldwide will face a high competition from conventional meat and from any existing or future meat substitute […]" (Researcher F).*	Evoked to address market drives and opportunities, such as CBM's future market role as an alternative to conventional meat, emphasizing its market niche. **E.g.:** *"Cultivated meat could therefore take a big bite of a market plagued with supply, ethical and environmental problems."* **E.g.:** *"Multinational management consultancy Kearney estimates that cultivated meat will account for 35% of all meat on the market by 2040".* It also mainly evoked the barriers, such as scale-up and cost-cutting, that the innovation must face before commercializing its products. **E.g.:** *"Investment in the cell-based meat sector has helped lower production costs, one of the biggest barriers to commercialization".*
Industrial **(CBM's challenges)**	**Alignment** was observed regarding what are the challenges that must overcome. However, the prioritization of challenges varied among stakeholders. Thus, **nuances of dissonance** were observed, some stakeholders were more optimistic while others had more moderate perspectives. **E.g.:** *"[…] so, if this laboratory meat, it is not very similar in terms of texture, softness, taste to conventional meat, naturally, you will already cause consumers' aversion […]" (Researcher E)"*	Evoked to address technical challenges of the innovation such as safety concerns, reproducing taste and texture and developing future facilities. **E.g.:** "[…] the most significant challenges lie in designing the right products in a cost-efficient and sustainable manner, directed for different consumers with specific expectations across various geographies"

(to be continued)

TABLE 7 – SUMMARY OF THE FINDINGS

(continuing)

Green **(CBM's key rationale)**	**Alignment** was observed when evoked to address the potential environmental benefits that this innovation will bring to society. Thus, being used as a key rationale for developing and procuring CBM. **E.g.:** "*Cultured meat has the potential to have enormous positive impacts on food security, the environment, animal welfare, and human health."* (Startup B) **Dissonance** was observed when evoked to question of such environmental, health and animal welfare benefits will be met. **E.g.:** "*Environmental benefits: so far, there is no demonstration that CBM will produce less GHG, will use less water, […] This does not mean that animal welfare will be increased during the life of animals (from birth to death). Welfare and slaughtering are two different issues."* (Researcher F).	Evoked to address the appeal of potential environmental benefits that this innovation will bring to society. **E.g.:** *"Producing real meat without harming animals or the environment is no fantasy."* Also evoked to emphasize the environmental problems caused by today's livestock producing, thus, arguing for the legitimacy of CBM. Thus, being used to put the domestic world to test. **E.g.:** *"We realized the damage that animal agriculture has done to the environment, and we also see that the quality of beef today is not good enough."*
Domestic **(Drawbacks to CBM legitimacy)**	The evoked world that expressed opposite justifications towards CBM's development, putting its legitimacy to test. Mainly evoked to discredit CBM products, emphasizing its unnaturalness whilst putting on the spotlight the benefits associated with the traditional values of the livestock production system. **The textual units from this world were obtained only from the selected news.** **E.g.:** *"If farmers aren't keen on competing products called "meat," they are even less enthusiastic about their being called "clean meat." As Sarah Zhang reports for The Atlantic, "'clean meat', not surprisingly, riles up beef producers. Danielle Beck, a lobbyist for the National Cattlemen's Beef Association (NCBA), told me on the phone last week that the term is inherently offensive to traditional-meat producers, as if real meat is somehow dirty".*	

SOURCE: The author (2021).

5.3 SYNTHESIS OF RESULTS: HOW STAKEHOLDERS SHAPED THE ORDERS OF WORTH IN THEIR JUSTIFICATIONS

The analysis of how stakeholders evoked justifications in favor and against CBM innovation enabled the identification of how the eight worlds of worth are evoked to advance prioritized justifications – categorized in three levels – on an issue that has been increasingly debated in the public sphere.

The first level refers to the interplay that occurs between the three most influential worlds found in the collect data, namely green, market, and industrial. These worlds justify the ties that are employed by stakeholders to argue for the drives and legitimacy of CBM innovation.

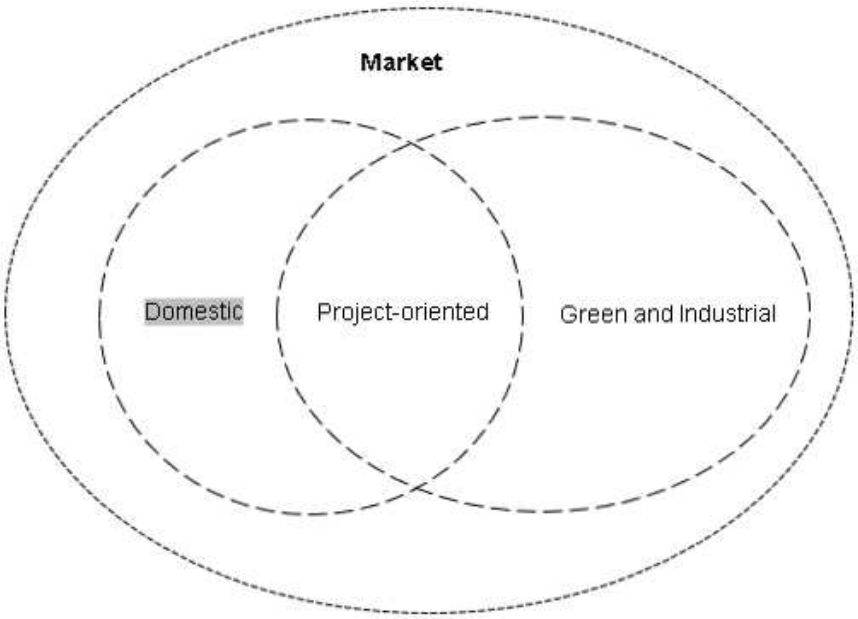
The domestic world represents the second level of justifications employed to argue for reasons for producing CBM by some stakeholders while others evoked it to delegitimize CBM innovation, addressing regulation and labeling barriers which stakeholders must engage in negotiation.

Third, project-oriented justifications occur to address the stakeholders' ongoing efforts in collaboration in networks and engagement in research activities. and lobbying associations railing against (cattle ranchers' associations) and in favor of (startups and researchers) CBM.

These levels refer to stakeholders that argue for the legitimacy of CBM innovation. Moreover, regardless of the positioning of the stakeholders, it was observed that the market order of worth underpins the other worlds. It is for market reasons that CBM has been increasingly being debated in the public sphere and attracted groundbreaking investment rounds – see the news in Appendix 5. These levels are represented in Figure 2.

Furthermore, within orders of worth, nuances of dissonance were observed among stakeholders. For instance, regarding the green world, it was observed when green justifications were used to question of such environmental, health, and animal welfare benefits will be met. The alignment and dissonances are previously described in Table 7.

FIGURE 2 – LEVELS OF JUSTIFICATION OF CELL-BASED MEAT INNOVATION



SOURCE: The author (2021).

Moreover, topics emerged from the analysis – previously discussed – related to the following orders of worth:

i. **Market:** Label issue – the label of the impacts of the products on its revenues –, consumer niche (flexitarians and Generation Z) and investments rounds;
ii. **Industrial**: Design of the upcoming decentralized production facilities;
iii. **Civic**: Society's pressures and animal rights;
iv. **Green:** Potential environmental benefits – such as Zero carbon emission and health concerns;
v. **Project-oriented:** Networks of stakeholders engage in innovation
vi. **Domestic:** Unnaturalness and traditional values – "CBM is not real meat, thus it cannot be labeled as "meat".

Furthermore, concerning the core questions that emerge from CBM's literature, this study found some indications of potential answers. Noteworthy to mention that CBM's context emerges in uncertainty and ambiguity and it is currently unfolding; however, the herein collected data enunciate clues of how such questions may evolve.

i) **Will CBM exhibit quality and taste similar to conventional meat?** (VITAL et al., 2017) – From the analyzed data, startups and investors (including conventional meat processing multinationals) argued that CBM's products will have a high-quality standard presenting a similar taste to conventional meat; however other attributes need further research as they are difficult to reproduce such as reproducing different types of cuts of meat, e.g., "*Picanha*". Currently, CBM's products of ground meat products such as nuggets or hamburgers are already produced, needing further research on reduction of cost and scale-up. As at the moment of the writing of this dissertation, CBM nuggets started to be sold in Singapore (FORGRIEVE, 2020);

ii) **Will CBM ever replace conventional meat?** (VITAL et al., 2017) – From the analyzed data, even though some stakeholders claim that it will eventually replace conventional meat, most of the analyzed data suggest that the involved stakeholders engaged in the development of CBM reasons that CBM will be another alternative to conventional meat focused on a market niche;

iii) **Does CBM respect animal rights? Is it ethical to produce CBM?** (SCHAEFER; SAVULESCU, 2014) – Most of the interviewees argued that CBM is ethical as it will significantly reduce animal suffering; however, two interviewees are less sure about these issues as they argue that using fewer animals to produce meat does not necessarily mean reducing animal suffering. Further research on these questions is needed;

iv) **Will it open a door to cannibalism?** (SCHAEFER; SAVULESCU, 2014; CHAUVET, 2018) – From the analyzed data, no interviewee or secondary textual unit was found to report such concern. Hence, there is no indication that this question poses a threat to the development of CBM;

v) **How is the regulation of CBM going to be framed?** (STEPHENS; SEXTON; DRIESSEN, 2019) – The interviewees often report regulation as one of the urgent issues to be addressed in a short period. The recent approval in Singapore (FORGRIEVE, 2020) may have an impact on other countries. However, cattle ranchers are lobbying against it.

This still needs to be observed since it is difficult to predict as each country has its own reality;

vi) **Will CBM provide a solution to the world problem of hunger?** (BRYANT; BARNETT, 2018) – Before collecting the data, it was expected that this issue was commonly evoked among organizations and stakeholders, however, this was not what was observed. When addressed, stakeholders did not report such an optimistic perspective; due to its high cost, technical challenges, and initial chain distribution, it is unlikely that CBM will provide a solution to world hunger.

vii) **Which markets will CBM be inserted in?** (BRYANT; BARNETT, 2018; STEPHENS; SEXTON; DRIESSEN, 2019) – From the analyzed data, developed and Asian countries are more likely to display CBM's products available at the market, as these countries are the ones currently developing the innovation that also provides a better financial context to its citizens (consumers);

viii) **Is there going to be a unifying nomenclature for CBM?** (STEPHENS; SEXTON; DRIESSEN, 2019) – This is a topic that evokes divergent perspectives. From the analysis of the herein collected data, some argue that it is real meat just produced differently and thus should be called real meat; whilst others argue that it is not real meat and that by calling it meat, companies are misleading consumers. Moreover, some evidence was observed that the term "protein" will be a suitable option to achieve a compromise among parties. This is directly related to regulatory barriers and it still needs some future observation;

ix) **Will the startups be able to deliver the CBM production on a large-scale?** (STEPHENS; SEXTON; DRIESSEN, 2019) – It was observed that CBM has been attracting a significant amount from investors and food conglomerates, thus there is an expectation that startups will be able to scale-up their productions. However, it is uncertain if it will be in short (in 3-5 years) or long-period (in 10 years). The herein analyzed interviewees firmly argued that this will be a reality and recent events supported their justifications (see FORGRIEVE, 2020).

Most of the aforementioned questions and hints are related to the market, industrial and green orders of worth, consonant with the findings of the collected data, grounding the CBM's levels of justifications, illustrated in Figure 1.

Moreover, regarding Chiles' (2013) classification of stakeholders ideology, the herein interviewed stakeholders are classified as it follows: startups and investors' responses are herein classified as technopian ideology (CHILES, 2013), as stakeholders mainly refer to CBM's technological potential to improve some of our society's current issues, as they argue CBM will be more efficient, animal and environmental-friendly.

Although investors' responses are herein classified as technopian ideology (CHILES, 2013), alongside with startups, they mainly refer to CBM's technological potential benefits, investors also displayed a work machine ideology (CHILES, 2013) as they constantly focus on the further improvements of CBM's innovation.

The herein interviewed conventional meat processing multinational is considered to be under the influence of the work machine ideology, as it constantly reports that this innovation is seen as an improvement and expansion of its current business portfolio (CHILES, 2013).

NGOs perceive themselves to be a bridge between startups and investors, whilst they advocate for CBM's potential benefits by publicizing educational material that aims at informing society (consumers). They are also actively engaged with regulation issues, thus providing a space for dialogue for all stakeholders involved. NGOs feature mainly characteristics of a technopian ideology as they constantly refer to CBM's potentials benefits, of how society would benefit from it as a more efficient and ethical way of producing meat (CHILES, 2013).

Researchers mainly argued for CBM's potential benefits and thus are aligned with the other technopian groups except for the conventional meat processing multinational (CHILES, 2013). Moreover, researchers address the majority of issues related to CBM – see page 31 – that has been discussed in this study. Following, after synthesizing the findings, CBM's current context becomes discernable and unfolds into the CBM's emergent convention is discussed.

6 DISCUSSION

This study built on a limited existing number of orders of worth, based on common good values, to account for stakeholders' justifications towards an innovation, CBM, establishing a dialogue (a compromise) that influences its legitimacy. This framework was chosen because stakeholders show or attempt to establish their values by employing justifications when facing situations of uncertainty and novelty (REINECKE; VAN BOMMEL; SPICER, 2017), such as the case herein studied.

While it represented a research opportunity, it also constitutes a limitation, as the herein adopted framework it is still a novel approach in management studies and it may be restrictive regarding other values that may exist in reality. Moreover, another limitation is that the analysis only addressed written textual units – from interviewees triangulated with news articles, and official websites. Thus, images and social media were not analyzed in this study. Nevertheless, the analysis of written data provided an opportunity to apply an interdisciplinary lens to study the context in which CBM is inserted.

This study adopted a broader analysis of CBM innovation, thus it did not focus on one specific type of product, such as beef, pork, or fish. It analyzed CBM innovation as a sum of all its potential products. By doing so, it was possible to examine the upcoming CBM industry as a whole. However, this may be interpreted as a limitation, as different products may present different perspectives and justifications as they have their particularities. For instance, stakeholders related to red meat alternatives, such as beef, possibly have different characteristics than the ones working in the development of fish-alternatives. This also represents a possible revenue for future investigation.

The JT framework emphasizes the temporality of justifications, bounded to a given situation. Since CBM is a recent phenomenon, this may constitute another limitation of the study. However, the possibility to develop further studies that compare whether the herein analyzed stakeholders continued to prioritize the same worlds or whether if their reasoning changed is encouraged.

Despite these limitations, this study's findings shed light on how primary and secondary stakeholders of the upcoming CBM industry interact and evoke justification in an attempt to build an understanding towards advocating for the innovation's legitimacy. These answers are discussed below.

6.1 BUILDING BRIDGES OF UNDERSTANDING: CBM'S WORLDS OF JUSTIFICATION

The analysis of the collected data shed light on significant findings. First, the herein analyzed stakeholders achieve a compromise among different perspectives towards an alignment regarding the prioritized orders of worth – market, industrial, and green. Although dissonant arguments were observed – such as optimistic and moderate views regarding potential environmental benefits –, the herein analyzed stakeholders converge towards CBM development by sharing similar purposes and values. Different perspectives are observed, those are somewhat disregarded and thus relativized, as the stakeholders regard CBM to be a legitimate alternative to conventional meat; thus, working towards its further development.

Second, the findings also indicate that there is a hierarchy regarding prioritized orders of worth. The herein analyzed data demonstrated evidence that market, industrial, green were held as more significant, as they were more frequently evoked by stakeholders, followed by other orders of worth. For instance, before the data gathering, it was expected that the inspired and civic world would be frequently evoked as it relates to the emotional appeal and collective drives of CBM potential benefits to society; however, this was not what was found. Inspired and civic justifications were disregarded as they were the least evoked justifications by stakeholders.

Moreover, emerging from the analysis, it was found that the domestic order of worth is classified as the world that put CBM's legitimacy to test. Contrary groups to CBM, such as cattle ranchers, highly evoke domestic justifications to (attempt) to delegitimize the CBM. It was also observed that domestic justifications were employed by stakeholders to evoke reasons for producing CBM (addressing deficiencies from the current livestock production). This may be due to stakeholders' ambivalence towards CBM – *"the mental and behavioral attitudes of human beings who holds two opposed mental attitudes toward one and the same object"* (BAGGIO, 2019, p. 2; RAZINSKY, 2017, p.16). Particularly regarding innovations – embedded in uncertain and ambiguous context – stakeholders may be skeptical about CBM potential environmental benefits while publicly arguing that these will be undisputable, for instance.

These are significant findings for two reasons. Boltanski and Thévenot' s (2006) framework is critically extended by identifying the hierarchy that takes place

among orders of worth in a given situation – some are more significant while others are disregarded. It is herein argued that orders of worth have hierarchy levels according to stakeholders' perspectives (GIULIANOTTI; LANGSETH, 2016). Furthermore, it was also found that there are nuances of prioritization within topics from the same order of worth. For instance, regarding the green order of worth, environmental impacts are prioritized when compared to animal welfare, and market order of worth, concerns of CBM high cost is prioritized when compared to additional challenges, such as palatability.

Third, by analyzing stakeholders' justifications it was possible to take stock of their perceptions of the innovation legitimacy as well as their perception of other involved stakeholders in the upcoming CBM industry. Investments made on the development of the innovation in the last years, especially from major food conglomerates, contributed to spreading the innovation's legitimacy. It also pushes further the promises of CBM products reaching the market sooner than expected.

Fourth, by analyzing stakeholders' justifications it was possible to observe different interplays among orders of worth and the main topics related to each order of worth – demonstrated subsequently – as well as other topics that are being discussed or that are promoting the discussion on alternatives to conventional meat. To build a bridge of understanding of CBM's orders of worth, the most significant topics and justifications are summarized as follows:

i) Topics related to the domestic world evoked the perceived unnaturalness of the innovation, arguing that it is not real meat, thus highlighting two of the innovation's barriers: labeling and regulation. Domestic justifications were also used to advocate for the reasons for producing CBM, as it emphasizes the deficiencies of today's livestock production;

ii) The main topics related to the market world were: i) energy efficiency, ii) market opportunities (size, profits), iii) labeling and regulation impacts, iv) market niche (flexitarians and generation Z), v) rounds of investments, and vii) potential replacement of conventional meat. Despite different perspectives, the data suggest that CBM will be one option among other protein sources aiming at reducing conventional

meat consumption, but not fully replacing it (BRYANT; BARNETT, 2020);

iii) Green justifications were combined with industrial arguments in the sense that technical improvements are directly related to environmental, animal welfare, and health benefits, thus representing the rationale of producing CBM. However, if such promises are not fulfilled it may put CBM's to test;

iv) Project-oriented justifications regard efforts of stakeholders' networks towards arguing for CBM's legitimacy by furthering its developments endeavors;

v) As the civic world was one of the least evoked by stakeholders it was considered to be "the missing world" that instead of advocating for animal welfare, civic justifications were evoked to counterweight animal welfare benefits by highlighting ethical issues regarding CBM production.

Furthermore, the market world underpins the other orders of worth by stakeholders. More frequently, it was combined with industrial and green justifications to address technical challenges such as increasing energy efficiency, distribution in chains, scale-up, reproduction of taste and texture, and reductions of cost. The analysis suggests that cost-reducing and reproducing scale-up production are the most urgent uncertainties to be addressed (BRYANT; BARNETT, 2020). It was also combined with project-oriented arguments to discuss engagement in future projects, networks of investors, and networks created to overcome challenges of commercializing the innovation.

As demonstrated, justifications from different orders of worth were intrinsically interplayed in the stakeholders' reasoning. This finding contributes to the further understanding of JT's application in strategy-related studies. Even though this research focused on innovation, JT's application in management studies is not limited to this case, it may also be extended to a wide range of issues that address stakeholders' strategy positioning. Endeavors in this direction are encouraged.

Therefore, based on this study's findings and the theoretical fundaments previously discussed, propositions that could enlighten opportunities for future research endeavors using JT in strategy-related studies are suggested.

When facing situations of uncertainty and novelty, such as one that unfolds when dealing with disruptive innovation, stakeholders show and/or attempt to establish their values by employing justifications and engaging in negotiations: This leads to the first proposition:

Proposition 1 In an uncertain and ambiguous context, stakeholders are likely to justify their positions and arguments based on the orders of worth they prioritize. Those orders of worth are presented as a means for achieving the common good.

This proposition was addressed (and confirmed) in this research but it could also be applied in other case studies. Furthermore, to increase the effectiveness of justifications, i.e., to allow the achievement of goals, stakeholders attempt to align their interests with the common good (PATRIOTTA; GOND; SCHULTZ, 2011). Thus, it is proposed:

Proposition 2 In an uncertain and ambiguous context, stakeholders' justifications are likely to achieve greater effectiveness in public negotiations when they are perceived as consonant with higher common principles.

The analyzed case demonstrated that stakeholders mainly resort to green worth to argue for the legitimacy of CBM. Lastly, the alternative lens herein applied aims at assisting the identification and engagement with the stakeholders involved in a given context. By interpreting stakeholders' justifications, it is possible to identify, analyze, and negotiate the interests of these stakeholders. This leads to the final proposition:

Proposition 3 In an uncertain and ambiguous context, by assessing the justifications that emerge, it is possible to identify stakeholders, interpret their interests, and thus, actively engage and negotiate with them.

This study's theoretical approach may also be fruitful to study other organization phenomena, as one of the main purposes of this research was to argue for (and contribute) to the use of JT's framework in strategy-related research – further propositions are suggested subsequently.

By bringing moral claims to analyze stakeholders' value towards innovation, it is possible to visualize the emerging conventions – shared values and practices – that facilitate the coordination of stakeholders towards its development – value creation (AL-AMOUDI; LATSIS, 2014; REINECKE; VAN BOMMEL; SPICER, 2017; THÉVENOT, 2019). After taking stock of CBM' s orders of worth, its emergent conventions that enable coordination among stakeholders are discussed.

6.2 EMERGENT CONVENTIONS

Conventions are a key concept within JT that refers to the logic of qualification of beings and thus, to their coordination. Conventions are shared and legitimized guiding interpretations and actions and involve indirect and informal mechanisms of coordination of relationships, describing the dissemination of legitimized patterns, norms, and assumptions (BIGGART; BEAMISH, 2003). In turn, coordination is based on the imperative of human beings to justify their actions and to be held accountable for them (DEQUECH, 2008; REINECKE; VAN BOMMEL; SPICER, 2017).

From the analysis of the collected data, it was possible to map the main stakeholders involved in the upcoming CBM industry – startups, investors, NGOs, regulatory agencies, researchers, food conglomerates/conventional meat processing multinationals, cattle ranchers' producers' associations/unions, animal right activists and the media.

Interviewees were asked to categorize, according to their opinions, the most relevant reasons or benefits as well as the most relevant barriers or challenges regarding CBM. Startup B provided the following answer regarding the benefits*:*

> *I would put food security at the top of the list […] sustainability and that's also environmental sustainability, […] they don't want to kill animals, so there's an ethical component that is becoming more significant demographically and in therefore, marketing-wise.*

And concerning the challenges, the same startup stated that *"Taste, otherwise people won't eat it […]"*, *"Seconds and especially in our age, globally safety, the products have to be safe and thirdly, it has to be affordable, in our vision at least […]".*

Thus, concerning CBM benefits, green values (sustainability) were prioritized, followed by technical challenges related to the industrial world (safety). Regarding challenges, the three ranked barriers are related to technical and financial issues related to the market world, which corroborates the analysis that the industrial world is interwoven with market drives.

On the other hand, Investor A ranked the benefits as follows: *'a) really large market size […] the potential is massive if a cultivated meat Startup gets to scale, b) Environmentally speaking, definitely less land use c) From a health perspective, potentially the ability to customize the product to be healthier.'*. And concerning the challenges, investor B said that *'[…] the biggest challenges are getting the FDA in this country […] approval to bring food safety concerns […] I think consumer acceptance is a big risk and cost and taste. I mean still we have to get texture […]*'.

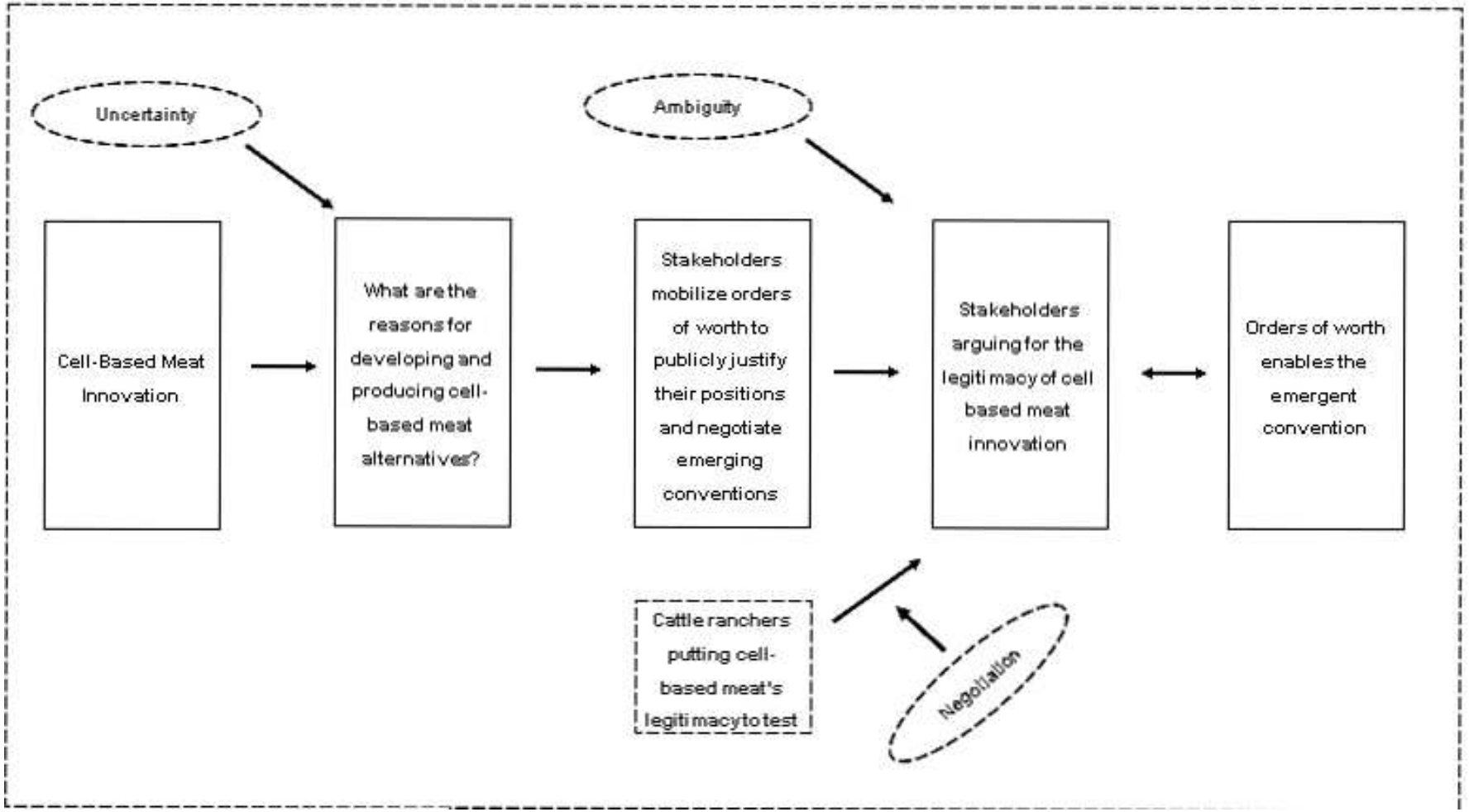
Thus, concerning CBM benefits, investors prioritized market values (possible gains due to market size), followed by green values, such as less land use and health benefits somewhat intertwined with market interests (the ability the customize the product).

Regarding the challenges, regulatory and labeling barriers were prioritized followed by financial and technical barriers (cost, taste, and texture). From the sample, it is possible to conclude that the prioritized orders of worth are similar and aligned for both groups.

In brief, first, relationships among the green, market, and industrial worlds were identified. These worlds usually evoke the environmental, health, and societal benefits associated with CBM innovation. Second, financial and technical challenges from the industrial world are used to i) highlight the efficiency benefits of the innovation such as reduction of animal waste, and ii) highlighting the challenges that must be overcome before the product reach the market.

By analyzing the justifications that emerged, it was possible to establish the prioritized orders of worth for each stakeholder group. Despite nuances in the employed arguments, overall, it was remarkably evident that market, industrial and green justifications were prioritized. Such observations are summarized in Figure 3.

FIGURE 3 – THE DYNAMIC OF CONVENTIONS OF THE UPCOMING CELL-BASED MEAT INDUSTRY



SOURCE: The author (2021).

As previously mentioned, stakeholders displayed their institutional perspective to the public by evoking justifications based on orders of worth. To analyze the collected data, PJA was applied as it is a tool that enables moral evaluations of values from justifications. Thus, it was possible to observe the prioritized values for each stakeholder group involved, separating the aligned justifications from the dissonant ones. Hence, it enabled the illustration of the typology of justifications that emerged from the data, enlightening triggering topics for each of the analyzed stakeholder groups. By interpreting the prioritized justifications and topics, it is possible to understanding stakeholders' reasoning towards CBM, and thus, using this knowledge (to leverage) in negotiations. This information is summarized in Table 8.

Noteworthy to mention that although cattle ranchers' associations are mentioned in the results section, this group was not previously selected to be studied in this research. However, they were included as they emerged from the collected data and constitute the only group that truly advocates against CBM. Thus, all the groups herein studied achieve a compromise, moving towards CBM's development.

TABLE 8 – CBM'S JUSTIFICATIONS ANALYSIS

Who: Stakeholder	Why: Prioritized Justifications	Triggering Topics	Examples of textual units
Startups	Market, green and industrial	CBM as another alternative or replacement of conventional meat	*"So, there we are not perceiving ourselves as a replacement of their meats but as an extension of this core business and these companies are saying the same.",* *"We think that in time cultured meat can replace all conventional meat."*
Investors	Market, green and industrial	Unsure on the CBM potential benefits regarding environmental impacts	*"[…] Broadly, we know there's probably going to be benefits from land use changes and lower water usage but it's unclear (to me at least), what the energy needs and sources will be and the mix of emissions (CO2 vs CH4 for example) will be"*
Conventional meat processing multinational	Market, project-oriented and green	Food conglomerates investing in CBM startups	"[...] you have global food conglomerates investing in startups, that is, protecting themselves in a reputational, institutional way, doing it a little far from the core, but doing it with attention, and this is a path that we will take this year as well."
NGOs	Green, project-oriented and market	Domestic justifications are employed to argue for the (green) reasons for investing in CBM. NGOs perceive themselves to be a bridge between startups and investors, whilst they advocate for CBM's potential benefits by publicizing educational material that aims at informing the society	*"[…] there a lot of concerns we have with the conventional seafood industry so we think that making the same product that consumers like in an better way is a really good solution to that."* *"[…] we focus a lot on you know open access resources to different stakeholders […] just educate in the US policy makers are increasingly working with our international affiliates […]."*

(to be continued)

TABLE 8 – CBM'S JUSTIFICATIONS ANALYSIS

(continuing)

Researchers	Green, industrial and market	CBM as another alternative or replacement of conventional meat. Unsure of the CBM potential to fulfill its promises regarding environmental, health and animal welfare impacts.	*"I think the main reasons for having CBM, I think for me, personally are more environmental, in the sense that it seems like the farming industry, the agriculture industry does seem to have a lot of waste, not only in terms of energy but also of course in terms of greenhouse gas emission and that's where I see that the main drive for having CBM"* *"Environmental benefits: so far, there is no demonstration that CBM will produce less GHG, will use less water, etc. than conventional meat production. Health benefits: so far, there is no demonstration that CBM will produce healthier or safer meat compared to conventional meat production. Welfare benefits: CBM will theoretically use less animals. So, we will need to kill less animals for sure. This does not mean that animal welfare will be increased during the life of animals (from birth to death). Welfare and slaughtering are two different issues."*
Cattle ranchers' Associations	Domestic and market	Attempt to discredit CBM products, especially regarding labeling and unnatural features, arguing that it is not real meat, that it is not "what consumers deserve" (to be misled by an incorrect label) and that it should abide by the same regulation as conventional meat products.	*"[…] that the term is inherently offensive to traditional-meat producers, as if real meat is somehow dirty."* *"They argued that "meat" wasn't just bits of an animal—it was a brand. "I believe it is wrong to label lab-cultured tissue as meat, because I understand the investment of time and labor that goes into raising cattle. ".*

SOURCE: The author (2021).

6.3 TAKING STOCK AND MOVING FORWARD

The JT has already been used in other areas of study such as public health, studies on responsibility, and critical studies. It is noteworthy to mention that such an intersection within stakeholder-related research has already been made in some European studies, strengthening the argument that advantages are arising from this dialogue (JAGD, 2011).

Boltanski and Thévenot's framework (2006) may be applied in the context of disputes. Orders of worth are not static or immutable. They may change while the dispute advances and they are contextually-bound. Hence, power asymmetries may influence the prioritization of orders of worth. Thus, it would also be fruitful for the JT to analyze the influence of power asymmetries and legitimacy tests in public controversies or uncertain and ambiguous context – that somehow impacts organizational strategy (PATRIOTTA; GOND; SCHULTZ, 2011; ARTS; BUIJS; VERSCHOOR, 2018) This leads to propositions 4 and 5:

Proposition 4 In a public controversy or an uncertain and ambiguous context, powerful organizations and/or stakeholders employ justifications attempting to defend its legitimacy and may be held as more important and/or the only one that is legitimate in a controversy.

Proposition 5 In a public dispute or an uncertain and ambiguous context, less powerful organizations and/or stakeholders employ justifications attempting to undermine their opponent's legitimacy and may be held as less important or non-legitimate in a controversy.

Moreover, there are situations that despite the parties involved having different levels of power and influence capacity, stakeholders and organizations can reach an agreement or a compromise built on the negotiation of interests. In such cases, such patterns may lead to more sustainable governance practices among involved actors (IGNATIUS; HAAPASAARI, 2018). This leads to propositions 5:

Proposition 6 When an agreement or a compromise is reached by resorting to the common good, addressing the stakeholders and organizations' interests, the

outcome of a dispute is held as more acceptable and promotes sustainable relationships among organization-stakeholders.

The abovementioned propositions are ramifications of previous suggestions discussed in a paper by this author in collaboration with Dr. Germano Glufke Reis and Dr. Gustavo Abib. The paper was accepted for publication on December 8, 2020, and should be published at Cadernos Ebape in 2021.

The possibilities of studies related to the strategy may happen in varied ways to provide further and insightful explanations. These propositions aim at blossoming future horizons for the application of the JT framework in strategy-related studies. Disciplines have long been able to learn from each other, thus, future developments are encouraged. In addition, suggestions for future studies are presented in the last section of this study.

7 CONCLUDING REMARKS

This study's objectives were to identify the orders of worth employed by selected stakeholders, to verify which were prioritized and if they converged or not, thus providing an analysis of the emergent conventions related to this innovation. These answers are discussed below as well as this research's contributions. Lastly, opportunities for future studies are presented.

7.1 OBJECTIVES AND RESEARCH QUESTION

The research question of this study was: what are the justifications employed by stakeholders within the upcoming CBM industry? To address this question, four objectives were outlined:

a) To identify the orders of worth employed by stakeholders of the upcoming CBM industry;
b) To evaluate the orders of worth that were prioritized by analyzing whether the orders of worth converge – or not – investigating similarities and differences among the stakeholders;
c) To analyze the topics that emerged from the prioritized orders of worth;
d) To illustrate and provide an analysis of the conventions regarding the upcoming CBM industry.

This study found that the prioritized justifications employed by stakeholders within the upcoming CBM industry were related to the green, market, and industrial worlds, converging towards the CBM's legitimacy and further development. However, stakeholders contrary to the innovation evoked domestic and market justifications to argue against CBM's legitimacy. The levels of justifications within the upcoming CBM industry are illustrated in Figure 2.

Regarding the objectives, the identification and evaluation of the orders of worth employed and topics that emerged are illustrated in Table 8. The similarities (alignments) and differences (dissonances) are illustrated in Table 7. In sum, despite nuances of dissonance, the herein studied stakeholder groups achieve a compromise (alignment) – based on market justifications – towards CBM's further development.

Concerning CBM's conventions, its dynamics are illustrated in Figure 3. Justifications from different orders of worth were intrinsically interplayed in the stakeholders' reasoning. In the herein studied case, market justifications underpin the other orders of worth and promote coordination among stakeholders towards CBM's further development.

7.2 CONTRIBUTIONS

The JT has already been used in other areas of study, being indirectly interplayed with stakeholder-related research (JAGD, 2011). However, to the best of the author's knowledge, this framework hasn't been adapted to study an innovation phenomenon. This enlightens the novelty and pioneer feature of this study.

This study contributes to ST by adding a new approach to investigating stakeholders' justifications in a given situation, shedding light on their legitimacy perception and assessing their main interests which may be used (to leverage) in negotiations. Concerning CBM and the public debates that are currently unfolding, stakeholders employ versatile values as they justify their views – mainly legitimizing the innovation and pushing further its development. Besides, by analyzing justifications, this study interprets the diversity of positive and negative values that stakeholders attribute to CBM which contributes to the upcoming emergent shared conventions.

This research also contributes to ST in a way that shared purposes and values among stakeholders augment a positive experience of value creation – herein, the legitimacy of the development of CBM products (FREEMAN; PHILLIPS; SISODIA, 2020).

As it was attempted to demonstrate in this research, Boltanski and Thévenot's framework may be applied and extended to examine public issues in management and strategy studies, more specifically on how different worlds of justification are evoked by stakeholders, and how particular types of interplay arise between these worlds.

By analyzing a disruptive innovation, the prioritized orders of worth, and topics that emerged from stakeholders' justification were identified, unfolding into the conventions that enable interactions and coordination among stakeholders of the upcoming CBM industry.

The analysis of justifications employed regarding an upcoming innovation reaching the market demonstrated to be a tool used to enhance the accurate identification and analysis of stakeholders' interests. Thus, it is a tool that may be used by stakeholders to leverage negotiations, influencing the alignment of interests. For instance, by identifying the cattle ranchers' domestic justifications, stakeholders in favor of CBM may arise strategies of how other justifications could be interplayed in to negotiate with this group. It has also been demonstrated to be a fruitful tool for scholars as it provides an interpretation of moral principles and conventions that emerge from this upcoming industry.

This research also contributed to CBM-related literature, by illustrating how stakeholders interact and share values and practices, arguing for – or against – CBM legitimacy from the management (strategy) perspective. This study aimed at contributing to a richer understanding of the interaction among stakeholders in the upcoming CBM industry, in particular, specifying how stakeholders engage with a plurality of orders of worth to argue for – or against – CBM development and legitimacy. Thus, an interdisciplinary understanding of the infant CBM industry was provided.

Moreover, the analysis of justifications employed regarding an upcoming innovation reaching the market may be a tool used to enhance the accurate identification and analysis of stakeholders' interests. Thus, it is a tool that may leverage negotiations, impacting the alignment of interests. Such knowledge of conflicting justifications may be used to promote strategies that seek to align the interests of the upcoming CBM industry. It also demonstrated to be a useful tool for providing an interpretation of moral principles and conventions that emerge from this upcoming industry.

By applying PJA, this study also contributed to an increasing corpus of literature that has been developing such a methodology in light of Boltanski and Thévenot's framework (GLADAREV; LONKILA, 2013; YLÄ-ANTTILA; LUHTAKALLIO, 2016).

7.3 FUTURE STUDIES OPPORTUNITIES

Although propositions that encourage future applications of JT's framework in strategy-related research were previously topics, some gaps were observed in the findings of this research, thus, providing further opportunities for future studies.

Based on the issues brought to light by the CBM literature, no textual unit related to religious views of CBM was found. At first, it was assumed it could be used as domestic justifications to counterweight the adoption of CBM, however, no interviewee expressed such concern. Thus, future studies should be done to investigate philosophical and religious questions surrounding CBM to further advance our understanding of it, for instance, If CBM is meat but produced differently, is it considered to be Kosher or Halal? (CHRIKI; HOCQUETTE, 2020).

Additionally, regarding the influence that the COVID-19 had on furthering the debates around cell-based meat, this study did not find conclusive primary or secondary data that validates such influence. Some of the herein interviewed participants expressed that they do not believe that the pandemic had a significant impact in increasing debates on cell-based meat, while others expressed that they believe in its effect. To illustrate: *"I don't have idea about this point specifically at this stage […] According to the Startup working on cell-based meat, this COVID-19 pandemic crisis will boost its acceptance and later consumption, because consumers become more interested in food solution as sustainable and safe […]"* (Researcher G).

Thus, this study cannot investigate as it is an event that is currently unfolding and it is a highly ambiguous and uncertain context. Nonetheless, by overlooking news about COVID-19's contamination in conventional meat production plants in different countries in 2020 (see JBS, 2020) and how it has exposed livestock fragilities as it happened the lack or shortage of meat in the first semester of 2020 in the U.S. (see GARCÉS, 2020), and considering Google trends data (see Figure 1), one cannot help but wonder if it had direct influence or not in increasing debates on cell-based meat innovation, shortening the time of its products reaching the market and boosting its acceptance (see FORGRIEVE, 2020).

Before collecting the data, it was expected that conventional meat processing multinationals, food conglomerates, as well as cattle ranchers, would be against CBM innovation as it would be perceived as a threat. However, after analyzing the data, it was evident that only cattle ranchers are lobbying against it – this was also found in a study regarding CBM media coverage in the UK and U.S. (PAINTER; BRENNEN; KRISTIANSEN, 2020). Such findings exemplify that because the other stakeholders have common purposes and values – market justifications – which may seem at first as competing interests is neutralized disputes, enabled them to work together towards a goal (cell-based product reaching the market).

Moreover, conventions are in continuous transformation (AL-AMOUDI; LATSIS, 2014). The herein mapped conventions will not probably be the same found in 5 years. As we chose to study a case embedded in uncertainty and ambiguity context, it is hard to predict for how long the herein mapped convention will continuing to be reproduced and when or how it will change. Future studies are encouraged to investigate CBM's future conventions.

Furthermore, as recently CBM's first products are reaching the market in Singapore, it would be fruitful to observe in a few years if the stakeholders' justifications shifted, and if they did, how it was done and its impacts. Many are the obstacles that the innovation must face; thus, Singapore may serve as a reference to other countries regarding regulation and approaches towards consumer acceptance (FORGRIEVE, 2020). This still needs to be observed since it is difficult to predict as each country has its own reality.

In brief, multiple insights emerge from this research. The author hopes that it may be used as a reference, promoting insights to further apply the JT's framework in strategy-related research, by interplaying it with ST, to study varied cases embedded in uncertain, ambiguous, and complex contexts.

REFERENCES

AGUILERA, R. V. et al. Putting the S Back in Corporate Social Responsibility: A Multilevel Theory of Social Change in Organizations. **The Academy of Management Review**, v. 32, n. 3, p. 836–863, 2007.

AHUJA, G.; LAMPERT, C. M. Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions. **Strategic Management Journal**, v. 22, n. 6–7, p. 521–543, 2001.

AL-AMOUDI, I.; LATSIS, J. The arbitrariness and normativity of social conventions. **British Journal of Sociology**, v. 65, n. 2, p. 358–378, 2014.

ALVAREZ, S. A.; YOUNG, S. L.; WOOLLEY, J. L. Creating the World's Deadliest Catch: The Process of Enrolling Stakeholders in an Uncertain Endeavor. **Business and Society**, v. 59, n. 2, p. 287–321, 2020.

ARGANDOÑA, A. The stakeholder theory and the common good. **Journal of Business Ethics**, v. 17, n. 9–10, p. 1093–1102, 1998.

ARGANDOÑA, A. **Stakeholder theory and value creation.** [s.l: s.n.].

ARTS, I.; BUIJS, A. E.; VERSCHOOR, G. Regimes of justification: competing arguments and the construction of legitimacy in Dutch nature conservation practices. **Journal of Environmental Planning and Management**, v. 61, n. 5–6, p. 1070–1084, 2018. Retrieved from: <http://dx.doi.org/10.1080/09640568.2017.1319346>.

BAGGIO, G. Razinsky Hili, Ambivalence. A Philosophical Exploration. **European Journal of Pragmatism and American Philosophy**, v. XI, n. 2, p. 0–5, 2019.

BANSAL, P. et al. Bridging the research-practice gap. **Academy of Management Perspectives**, p. 73–92, 2012.

BARNEY, J. B. ; HARRISON, J. S. . Stakeholder Theory at the Crossroads. **Business and Society**, v. 59, n. 2, p. 203–212, 2020a.

BARNEY, J. B.; HARRISON, J. S. Stakeholder Theory at the Crossroads. **Business and Society**, v. 59, n. 2, p. 203–212, 2020b.

BÉNATOUÏL, T. A tale of two sociologies: The critical and the pragmatic stance in contemporary French sociology. **European Journal of Social Theory**, v. 2, n. 3, p. 379–396, 1999.

BENJAMINSON, M. A.; GILCHRIEST, J. A. .; LORENZ, M. . In vitro edible muscle protein production system (MPPS): Stage 1, fish. **Acta Astronautica**, v. 51, n. 12, p. 879–889, 2002.

BHAT, Z. F.; KUMAR, S.; FAYAZ, H. In vitro meat production : Challenges and benefits over conventional meat production. **Journal of Integrative Agriculture**, v. 14, n. 2, p. 241–248, 2015. Retrieved from: <http://dx.doi.org/10.1016/S2095-3119(14)60887-X>.

BIGGART, N. W.; BEAMISH, T. D. The Economic Sociology of Conventions: Habit, Custom, Practice, and Routine in Market Order. **Annual Review of Sociology**, v. 29, n. 1, p. 443–464, 2003.

BOLTANSKI, L.; CHIAPELLO, E. The new spirit of capitalism. **International Journal of Politics, Culture and Society**, v. 18, n. 3–4, p. 161–188, 2005.

BOLTANSKI, L.; THÉVENOT, L. The reality of moral expectations: A sociology of situated judgment. **Philosophical Explorations: An International Journal for the Philosophy of Mind and Action**, v. 3, n. 3, p. 208–231, 2000.

BOLTANSKI, L.; THÉVENOT, L. **On Justification: Economies of Worth**. trans. Cat ed. Princeton, NJ: Princeton University Press, 2006.

BOSSE, D. A.; COUGHLAN, R. Stakeholder Relationship Bonds. **Journal of Management Studies**, v. 53, n. 7, p. 1197–1222, 2016.

BOSSE, D. A.; PHILLIPS, R. A.; HARRISON, J. S. Research notes and commentaries stakeholders, reciprocity, and firm performance. **Strategic Management Journal**, v. 30, n. 4, p. 447–456, 2009.

BRYANT, C. et al. A Survey of Consumer Perceptions of Plant-Based and Clean Meat in the USA, India and China. **Frontiers in Sustainable Food Systems**, v. 3, 2019a.

BRYANT, C.; BARNETT, J. Consumer acceptance of cultured meat: A systematic review. **Meat Science**, v. 143, p. 8–17, 2018.

BRYANT, C.; BARNETT, J. Consumer acceptance of cultured meat: An updated review (2018-2020). **Applied Sciences (Switzerland)**, v. 10, n. 15, 2020.

BRYANT, C. J. et al. Strategies for overcoming aversion to unnaturalness : The case of clean meat. **Meat Science**, v. 154, n. March, p. 37–45, 2019b. Retrieved from: <https://doi.org/10.1016/j.meatsci.2019.04.004>.

BRYANT, C. J.; BARNETT, J. C. What's in a name? Consumer perceptions of in vitro meat under different names. **Appetite**, v. 137, p. 104–113, 2019. Retrieved from: <https://doi.org/10.1016/j.appet.2019.02.021>.

BUNDY, J.; VOGEL, R. M.; ZACHARY, M. A. Organization–stakeholder fit: A dynamic theory of cooperation, compromise, and conflict between an organization and its stakeholders. **Strategic Management Journal**, v. 39, n. 2, p. 476–501, 2018. Retrieved from: <https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.25688>.

CAMERON, B. et al. **State of the Industry Report: Cell-based Meat**, 2019. Retrieved from: < https://www.gfi.org/non-cms-pages/splash-sites/soi-reports/files/SOI-Report-Cell-Based.pdf>.

CHAUVET, D. J. Should cultured meat be refused in the name of animal dignity? **Ethical Theory and Moral Practice**, v. 21, n. 2, p. 387–411, 2018.

CHILES, R. M. Intertwined ambiguities: Meat, in vitro meat, and the ideological construction of the marketplace. **Journal of Consumer Behaviour**, v. 12, p. 472–482,

2013.

CHRIKI, S.; HOCQUETTE, J. F. The Myth of Cultured Meat: A Review. **Frontiers in Nutrition**, v. 7, n. February, p. 1–9, 2020.

CLARKSON, M. B. E. A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. **Academy of Management Review**, v. 20, n. 1, p. 92–117, 1995.

CLOUTIER, C.; GOND, J.-P.; LECA, B. Justification, evaluation and critique in the study of organizations: An introduction to the volume. In: **Research in the Sociology of Organizations**. [s.l.] Emerald Publishing Limited, 2017. 52p. 3–29.

CLOUTIER, C.; LANGLEY, A. Competing rationalities in organizations: A theoretical and methodological overview. **Les Cahier de recherche du GéPS**, v. 1, n. 3, p. 1–35, 2007.

COLOMBO, M. G. et al. Organizing for Radical Innovation: Exploring Novel Insights. **Journal of Product Innovation Management**, v. 34, n. 4, p. 394–405, 2017.

CRANE, B. Revisiting who, when, and why stakeholders matter: Trust and stakeholder connectedness. **Business & Society**, v. 59, n. 2, p. 263–286, 2020.

CRESWELL, J. W.; CRESWELL, J. D. **Research Design: Qualitative, Quantitative and Mixed Methods Approaches**. 5. ed. United States of America: Sage Publications, 2018.

CRESWELL, J. W.; CRESWELL, J. D. . Research questions and hypotheses. In: **Research design: qualitative, quantitative and mixed methods**. [s.l.] Sage, 2017. p. 136–146.

DALLE, JEAN-MICHEL; DEN BESTEN, MATTHIJS; MENON, C. Using Crunchbase for economic and managerial research. 2017.

DENIS, J.-L.; LANGLEY, A.; ROULEAU, L. Strategizing in pluralistic contexts: Rethinking theoretical frames. **Human Relations**, v. 60, n. 1, p. 179–215, 2007.

DEQUECH, D. Logics of justification and logics of action. **Journal of Economic Issues**, v. 42, n. 2, p. 527–535, 2008.

DIAZ-BONE, R. Classifications, quantifications and quality conventions in markets - Perspectives of the economics of convention. **Historical Social Research**, v. 42, n. 1, p. 238–262, 2017.

DONALDSON, T. The Stakeholder Revolution and the Clarkson Principles. **Business Ethics Quarterly**, v. 12, n. 2, p. 107–111, 2002.

DONALDSON, T.; PRESTON, L. E. The stakeholder theory of the corporation. **The Academy of Management Review**, v. 20, n. 1, p. 65–91, 1995. Retrieved from: <http://www.jstor.org/stable/10.2307/258887%5Cnpapers3://publication/uuid/D3FB3C33-CA8F-49A1-9051-8B7D202C59F4>.

DOROBANTU, S. Sketches of New and Future Research on Stakeholder Management. In: **The Cambridge Handbook of Stakeholder Theory**. [s.l: s.n.]p. 256–263.

DRISCOLL, C.; STARIK, M. The primordial stakeholder: Advancing the conceptual consideration of stakeholder status for the natural environment. **Journal of Business Ethics**, v. 49, p. 55–73, 2004.

ERANTI, V. Engagements, grammars, and the public: From the liberal grammar to individual interests. **European Journal of Cultural and Political Sociology**, v. 5, n. 1–2, p. 42–65, 2018.

FAO. **World Livestock 2011: Livestock in food security World**, 2011.

FAO. **World Livestock 2013: changing disease landscapes**, 2013.

FONTRODONA, J.; RICART, J. E.; BERRONE, P. Ethical Challenges in Strategic Management: The 19th IESE International Symposium on Ethics, Business and Society. **Journal of Business Ethics**, v. 152, n. 4, p. 887–898, 2018. Retrieved from: <https://doi.org/10.1007/s10551-018-3825-2>.

FORGRIEVE, J. JUST Egg Maker Wins OK To Sell Cell-Based Chicken In Singapore. **Forbes**, 2020. Retrieved from: <https://www.forbes.com/sites/janetforgrieve/2020/12/01/just-egg-maker-wins-ok-to-sell-cell-based-chicken-in-singapore/?sh=2f7e0cdb6e36>.

FREEMAN, R. E. The stakeholder approach revisited. **Zeitschrift für Wirtschafts- und Unternehmensethik**, v. 5, n. 3, p. 228–241, 2004.

FREEMAN, R. E. **Strategic management: A stakeholder approach**. United States of America: Cambridge University Press, 2010.

FREEMAN, R. E. et al. **The Stakeholder Theory: The state of the art**. United States of America: Cambridge University Press, 2010.

FREEMAN, R. E.; PHILLIPS, R.; SISODIA, R. Tensions in Stakeholder Theory. **Business and Society**, v. 59, n. 2, p. 213–231, 2020.

FROGGATT, A.; WELLESLEY, L. Meat Analogues: Considerations for the EU. **Energy, Environment and Resources Department. The Royal Institute of International Affairs Chatham House**, 2019. Retrieved from: <https://www.chathamhouse.org/sites/default/files/2019-02-18MeatAnalogues3.pdf.>.

GARCÉS, L. COVID-19 exposes animal agriculture's vulnerability. **Agriculture and Human Values**, p. 1–2, 2020. Retrieved from: <https://doi.org/10.1007/s10460-020-10099-5>.

GASTERATOS, K. **90 reasons to consider cellular agricultureHarvard University's DASH repository**. [s.l: s.n.]. Retrieved from: <http://nrs.harvard.edu/urn-3:HUL.InstRepos:38573490%0AThis>.

GIULIANOTTI, R.; LANGSETH, T. Justifying the civic interest in sport: Boltanski and

Thévenot, the six worlds of justification, and hosting the Olympic games. **European Journal for Sport and Society**, v. 13, n. 2, p. 133–153, 2016.

GLADAREV, B.; LONKILA, M. Justifying Civic Activism in Russia and Finland. **Journal of Civil Society**, v. 9, n. 4, p. 375–390, 2013. Retrieved from: <http://dx.doi.org/10.1080/17448689.2013.844450>.

GODFRAY, H. C. J. et al. Meat consumption, health, and the environment. **Science**, v. 361, n. 6399, 2018.

GODFREY, P. C.; LEWIS, B. Pragmatism and pluralism: A moral foundation for stakeholder theory in the twenty-first century. In: HARRISON, J. S.; BARNEY, J. B.; FREEMAN, R. E.; PHILLIPS, R. A. . (Ed.). **The Cambridge Handbook of Stakeholder Theory**. United Kingdom: Cambridge University Press, 2019. p. 19–34.

GÓES, H. A. A.; REIS, G. G.; ABIB, G. When stakeholder theory meets justification theory: an intersection proposal. **Cadernos Ebape**, 2021.

GOMPERS, P. et al. Skill vs. Luck in Entrepreneurship and Venture Capital: Evidence from Serial Entrepreneurs. **National bureau of economic research**, v. w12592, 2006. Retrieved from: <http://www.nber.org/papers/w12592>.

GOMPERS, P.; LERNER, J. The venture capital revolution. **Journal of Economic Perspectives**, v. 15, n. 2, p. 145–168, 2001.

GOND, J.-P.; DEMERS, C.; MICHAUD, V. Managing Normative Tensions within and across Organizations: What can the economies of worth and paradox frameworks learn from each other? **The Oxford Handbook of Organizational Paradox**, 2017.

HARRISON, J. S.; FREEMAN, R. E.; DE ABREU, M. C. S. Stakeholder theory as an ethical approach to effective management: Applying the theory to multiple contexts. **Revista Brasileira de Gestao de Negocios**, v. 17, n. 55, p. 858–869, 2015.

HARRISON, J. S.; BOSSE, D. A.; PHILLIPS, R. A. Managing for stakeholders, stakeholder utility functions, and competitive advantage. **Strategic Management Journal**, v. 31, n. 1, p. 58–74, 2010.

HEIDEMANN, M. S. et al. Uncoupling Meat From Animal Slaughter and Its Impacts on Human-Animal Relationships. **Frontiers in Psychology**, v. 11, 2020.

HENKE, S. Cellular Meat, Perspectives on a Growing Industry. 2018.

HOCQUETTE, J.-F. Is it possible to save the environment and satisfy consumers with artificial meat ? **Journal of Integrative Agriculture**, v. 14, n. 2, p. 206–207, 2015.

HÖRISCH, J.; SCHALTEGGER, S. Business, the Natural environment and sustainability: A Stakeholder Theory Perspective. In: **The Cambridge Handbook of Stakeholder Theory**. [s.l: s.n.]p. 132–143.

IGNATIUS, S.; HAAPASAARI, P. Justification theory for the analysis of the socio-cultural value of fish and fisheries: The case of Baltic salmon. **Marine Policy**, v. 88, p. 167–173, 2018.

JAGD, S. Pragmatic sociology and competing orders of worth in organizations. **European Journal of Social Theory**, v. 14, n. 3, p. 343–359, 2011.

JBS, A.; JBS, A. Como a covid-19 varreu instalações brasileiras da JBS , maior produtora de carne do mundo. p. 1–9, 2020.

KARAKAYA, E.; HIDALGO, A.; NUUR, C. Diffusion of eco-innovations: A review. **Renewable and Sustainable Energy Reviews**, v. 33, p. 392–399, 2014.

LYNCH, J.; PIERREHUMBERT, R. Climate Impacts of Cultured Meat and Beef Cattle. **Frontiers in Sustainable Food Systems**, v. 3, n. 5, 2019.

MAGNESS, V. Who are the stakeholders now? An empirical examination of the Mitchell, Agle, and Wood theory of stakeholder salience. **Journal of Business Ethics**, v. 83, n. 2, p. 177–192, 2008.

MANZINI, E. Making Things Happen: Social Innovation and Design. **Design Issues 30**, n. 1, p. 57–66, 2014.

MASCENA, K.; STOCKER, F. Stakeholder Management: State of the Art and Perspectives. **Future Studies Research Journal: Trends and Strategies**, v. 12, n. 1, p. 1–30, 2020.

MAYRING, P. **Qualitative Content Analysis: Theoretical foundation, basic procedures and software solution**. [s.l: s.n.]

MILLS, C. W. Situated actions and vocabularies of motive. **American Sociological Review**, v. 5, n. 6, p. 904–913, 1940.

MITCHELL, R. K. .; AGLE, B. R. .; WOOD, D. J. . Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. **Academy of Management Perspectives**, v. 22, n. 4, p. 853–886, 1997.

MOHORČICH, J.; REESE, J. Cell-cultured meat: Lessons from GMO adoption and resistance. **Appetite**, 2019. Retrieved from: <https://doi.org/10.1016/j.appet.2019.104408>.

O'CONNOR, G. C.; DEMARTINO, R. Organizing for radical innovation: An exploratory study of the structural aspects of RI management systems in large established firms. **Journal of Product Innovation Management**, v. 23, n. 6, p. 475–497, 2006.

O'RIORDAN, K.; FOTOPOULOU, A.; STEPHENS, N. The first bite: Imaginaries, promotional publics and the laboratory grown burger. **Public Understanding of Science**, v. 26, n. 2, p. 148–163, 2017.

ONG, S.; CHOUDHURY, D.; NAING, M. W. Cell-based meat: Current ambiguities with nomenclature. **Trends in Food Science and Technology**, v. 102, n. September 2019, p. 223–231, 2020. Retrieved from: <https://doi.org/10.1016/j.tifs.2020.02.010>.

PAINTER, J.; BRENNEN, J. S.; KRISTIANSEN, S. The coverage of cultured meat in the US and UK traditional media, 2013–2019: drivers, sources, and competing narratives. **Climatic Change**, v. 162, n. 4, p. 2379–2396, 2020.

PARMAR, B. L. et al. Stakeholder Theory: The State of the Art. **The Academy of Management Annals**, v. 4, n. 1, p. 403–445, 2010.

PATRIOTTA, G.; GOND, J.-P.; SCHULTZ, F. Maintaining legitimacy: Controversies, orders of worth, and public justifications. **Journal of Management Studies**, v. 48, n. 8, p. 1804–1836, 2011.

PHILLIPS, R. A. et al. Stakeholder Theory. In: **The Cambridge Handbook of Stakeholder Theory.** Cambridge University Press, 2019.

PHILLIPS, R.; FREEMAN, R. E.; WICKS, A. C. What Stakeholder Theory Is Not. **Business Ethics and Strategy, Volumes I and II**, v. 13, n. 4, p. 479–502, 2003.

POST, M. J. . Cultured beef: medical technology to produce food. **Journal of the Science of Food and Agriculture**, v. 94, n. 6, p. 1039–1041, 2014.

QIU, J.; DONALDSON, L.; LUO, B. N. The benefits of persisting with paradigms in organizational research. **Academy of Management Perspectives**, p. 93–104, 2012.

REINECKE, J.; VAN BOMMEL, K.; SPICER, A. When orders of worth clash: Negotiating legitimacy in situations of moral multiplexity. **Research in the Sociology of Organizations**, v. 52, p. 33–72, 2017.

REIS, G. G. et al. Livestock value chain in transition: Cultivated (cell-based) meat and the need for breakthrough capabilities. **Technology in Society**, 2020. Retrieved from: <https://doi.org/10.1016/j.techsoc.2020.101286>.

ROSE, J.; JOHNSON, C. W. Contextualizing reliability and validity in qualitative research: toward more rigorous and trustworthy qualitative social science in leisure research. **Journal of Leisure Research**, v. 51, n. 4, p. 432–451, 2020. Retrieved from: <https://doi.org/10.1080/00222216.2020.1722042>.

ROWLEY, J. Conducting research interviews. **Management Research Review**, v. 35, n. 3/4, p. 260–271, 2012.

SAAVOSS, M. How might cellular agriculture impact the livestock, dairy, and poultry industries ? **Choices**, v. 34, n. 1, p. 1–6, 2019.

SALDAÑA, J.; OMASTA, M. Qualitative research: analyzing life. In: [s.l.] Sage Publications, 2016. p. 165–188.

SALDAÑA, J.; OMASTA, M. **Qualitative research: Analyzing life**. [s.l.] Sage Publications, 2018.

SALMINEN, J. The spatial logics of justification–the case of a dispute over a car-free street in Tampere, Finland. **European Journal of Cultural and Political Sociology**, v. 5, n. 1–2, p. 66–89, 2018.

SAUNDERS, B. et al. Saturation in qualitative research: exploring its conceptualization and operationalization. **Quality and Quantity**, v. 52, n. 4, p. 1893–1907, 2018.

SCHAEFER, G. O.; SAVULESCU, J. The ethics of producing in vitro meat. **Journal of**

Applied Philosophy, v. 31, n. 2, p. 188–202, 2014.

SCHARF, A.; BREITMAYER, E.; CARUS, M. **Review and gap-analysis of LCA-studies of cultured meat**. [s.l: s.n.].

SCHNEIDER, C.; VEUGELERS, R. On young highly innovative companies: Why they matter and how (not) to policy support them. **Industrial and Corporate Change**, v. 19, n. 4, p. 969–1007, 2010.

SCHNEIDER, T.; SACHS, S. The Impact of Stakeholder Identities on Value Creation in Issue-Based Stakeholder Networks. **Journal of Business Ethics**, v. 144, n. 1, p. 41–57, 2017.

SCOLLAN, N. D. et al. Future research priorities for animal production in a changing world. **Animal Production Science**, v. 51, p. 1–5, 2011.

SEXTON, A. E. ; GARNETT, T.; LORIMER, J. Framing the future of food: The contested promises of alternative proteins. **Environment and Planning E: Nature and Space**, v. 2, n. 1, p. 47–72, 2019.

STARK, D. For what it's worth. **Research in the Sociology of Organizations**, v. 52, p. 383–397, 2017.

STEPHENS, N. et al. Bringing cultured meat to market: Technical , socio-political, and regulatory challenges in cellular agriculture. **Trends in Food Science & Technology**, v. 78, p. 155–166, 2018. Retrieved from: <https://doi.org/10.1016/j.tifs.2018.04.010>.

STEPHENS, N.; KING, E.; LYALL, C. Blood, meat, and upscaling tissue engineering: Promises, anticipated markets, and performativity in the biomedical and agri-food sectors. **BioSocieties**, v. 13, n. 2, p. 368–388, 2018.

STEPHENS, N.; SEXTON, A. E. .; DRIESSEN, C. Making Sense of Making Meat: Key Moments in the First 20 Years of Tissue Engineering Muscle to Make Food. **Frontiers in Sustainable Food Systems**, v. 3, n. 45, 2019.

STOCKER, F.; DE MASCENA, K. M. C. Orientation and managing for stakeholders in the decision-making process. **Revista de Gestao e Secretariado**, v. 10, 2019.

SUSEN, S. Remarks on the nature of justification: A socio-pragmatic perspective. In: **Research in the Sociology of Organizations**. UK: Emerald, 2017. p. 349–381.

THÉVENOT, L. Conventions of co-ordination and the framing of uncertainty. In: **Intersubjectivity in Economics: Agents and Structures**. London: Routledge, 2002. p. 181–197.

THÉVENOT, L. What engages ? The sociology of justifications, conventions, and engagements, meeting norms. **La Revue des droits de l'homme**, n. 16, 2019. Retrieved from: <http://journals.openedition.org/revdh/7114 ; DOI : 10.4000/ revdh.7114%0AThis>.

THÉVENOT, L.; MOODY, M.; LAFAYE, C. Political Practice and Culture in French and American Environmental Disputes. In: **Rethinking comparative cultural sociology:**

repertoires of évaluation in France and the United States. Cambridge: Cambridge University Press, 2000. p. 229–272.

TUOMISTO, H. L. ; TEIXEIRA DE MATTOS, M. J. Environmental Impacts of Cultured Meat Production. **Environ. Sci. Technol.**, v. 45, p. 6117–6123, 2011.

VALENTE, J. P. S. et al. First glimpse on attitudes of highly educated consumers towards cell-based meat and related issues in Brazil. **PLoS one**, v. 14, n. 8, p. e0221129, 2019.

VERGANTI, R. Radical design and technology epiphanies: A new focus for research on design management. **Journal of Product Innovation Management**, v. 28, p. 384–388, 2011.

VITAL, A. C. P. et al. In vitro meat production: New reality of modern society. **PUBVET**, v. 11, p. 840–847, 2017.

VOEGTLIN, C.; SCHERER, A. Responsible Innovation and the Innovation of Responsibility: Governing Sustainable Development in a Globalized World. **Journal of Business Ethics**, v. 143, n. 2, p. 227–243, 2017.

WAGNER, P. After Justification: Repertoires of Evaluation and the Sociology of Modernity. **European Journal of Social Theory**, v. 2, n. 3, p. 341–357, 1999.

WEF. **Meat: The Future Series - Alternative ProteinsWorld Economic Forum (WEF)**. [s.l: s.n.]. Retrieved from: <http://www3.weforum.org/docs/WEF_White_Paper_Alternative_Proteins.pdf>.

WEINRICH, R.; STRACK, M.; NEUGEBAUER, F. Consumer acceptance of cultured meat in Germany. **Meat Science**, 2019. Retrieved from: <https://doi.org/10.1016/j.meatsci.2019.107924>.

WOOD, D. J. et al. Stakeholder Identification and Salience After 20 Years: Progress, Problems, and Prospects. **Business and Society**, p. 1–50, 2018. Retrieved from: <https://doi.org/10.1177/0007650318816522>.

YIN, R. K. **Case study research: Design and methods**. 3. ed. United States of America: Sage Publications, 2003. v. 5

YLÄ-ANTTILA, T.; LUHTAKALLIO, E. Justifications analysis: Understanding moral evaluations in public debates. **Sociological Research Online**, v. 21, n. 4, p. 1–15, 2016.

ZU ERMGASSEN, E. K. H. J. et al. The origin, supply chain, and deforestation risk of Brazil's beef exports. **Proceedings of the National Academy of Sciences**, 2020.

APPENDIX 1

INTERVIEW SCRIPT

This data collection step refers to a study being conducted and the goals are: i) to identify the motivations for developing the CBM innovation, ii) prospects on the new value chain, and iii) to contribute to the understanding of the impacts of this innovation.

The script for the semi-structured interviews was as follows. The purpose of the questions reported below was related to the selected objectives of this research.

1 What is your full name, educational background, and area of expertise?

2 What is your perception of cell-based meat?

3 Do you think this product would benefit society? If yes, how?

4 In your opinion, what are the most relevant reasons/benefits/opportunities concerning cell-based meat? Could you provide a list?

5 In your opinion, what are the most relevant barriers/challenges concerning cell-based meat? Could you provide a list?

6 How would you justify the need for cell-based meat (if any)?

7 Do you think cell-based meat products will be inserted into the market? How do you think the conventional meat chain will change with the introduction of cell-based meat?

8 How do you perceive and project the cell-based meat market worldwide?

9 How do you envision the strategic role of your company/organization in the emerging cell-based meat value chain?

10 In your opinion, as a researcher, do you think that COVID-19 has increased the debates on alternatives to conventional meat products? Did you observe this connection or not? Do you think COVID-19's impacts could influence cell-based products reaching the market?

APPENDIX 2

LIST OF CELL–BASED MEAT STARTUPS AND INVESTORS

Startups	Country	Product Focus	Funding amount	Investors
Aleph Pharms	Israel	Meat – Steak	$14.4M	CPT Capital, Technion Seed, Cargill, M-industry, New Crop Capital, Strauss Group, Jesselson, Capital, VisVires New Protein and Peregrine Ventures.
Balletic Foods	U.S.	Undisclosed	Undisclosed	Undisclosed
BlueNalu	U.S.	Seafood	$24.5M	Nutreco, CPT Capital, KBW Ventures, Stray Dog Capital, New Crop Capital, Agronomics and Clear Current Capital.
Cubiq Foods	Spain	Meat – Chicken	€ 12M	Moira Capital Partners.
Finless Food	U.S.	Seafood – Tuna	$3.5M	Sustainable Ocean Alliance, AKITUA, Social Starts, Joyance Partners, Harrison Blue Ventures, Hemisphere Ventures, StarLightMedia, Olive Tree Capital, Softmatter VC and U-start.
Future Fields	Canada	Serum-free growth media for CBM	Undisclosed	Undisclosed
Future Meat Technologies	Israel	Meat – Chicken	$16.2M	S2G Ventures, Emerald Innovation Ventures, Tyson Ventures, Bits x Bites, Manta Rey Ventures, HB Ventures, The Neto Group, the innovation Transfer Company of The Hebrew University and private investors.
Higher Stakes	UK	Meat	Undisclosed	Undisclosed
Innocent Meat	Germany	Meat	Undisclosed	Undisclosed
Integriculture	Japan	Meat – Chicken	¥300M	Real Tech Fund, Beyond Next Ventures, MTG Co. Ltd., Agriculture, forestry and fisheries Fund corporation for Innovation, Value-chain and Expansion Japan and Hiroaki Kitano.
JUST	U.S.	Meat – Chicken	$220M	Khosla Ventures, Uni-President Enterprises Corporation, BlackPine, Velos Partners, WP Global Partners, OS Fund and private investors.
MeaTech	Israel	Meat	₪7M	Undisclosed

Meatable	Netherlands	Meat – Beef	$13.5M	Backed VC, BlueYard Capital, Eurostars, Future Positive Capital, Atlantic Food Labs and private investors.
Memphis Meats	U.S.	Meat – Beef, Chicken, Duck	$181.1M	CPT Capital, Fifty Years, Cargill Ventures, Threshold, Tyson Foods, Norwest Venture Partners, Temasek Holdings and private investors.
Mission Barns	U.S.	Meat – Pork, Chicken, Duck	$3.5M	Air Street Capital, Lever VC, Tectonic Capital, Cantos, Better Ventures and Purple Orange Ventures.
Mosa Meat	Netherlands	Meat – Beef	€ 7.5M	Nutreco, Lowercase Capital, M Ventures and Bell Food Group.
New Age Meats	U.S.	Meat – Pork	$3M	Agronomics, Sand Hill Angels, Kairos Ventures, Hemisphere Ventures, IndieBio, ff Ventures Capital, SOSV and Supernode Ventures.
Peace of Meat	Germany	Meat – Animal fat and liver	€ 4.3M	Flanders Innovation and Entrepreneurship (VLAIO), Joyance Partners and Food Angels.
SuperMeat	Israel	Meat – Chicken	$4.2M	Good Seed Ventures, Stray Dog Capital, PHW Group, Starlight Group, Seier Capital, New Crop Capital and BackBone Ventures.
Shiok Meats	Singapore	Seafood – Crustacean	$4.8M	Boom Capital, Beyond Impact, Aera VC, Entrepreneur first, Big Idea Ventures, Alpha Impact Investment Management, Y Combinator and private investors.
Wild Earth	U.S.	Meat – Pet food	$12.2M	Purple Orange Ventures, Radical Investments LP, Mars Petcare, Bits x Bites, VegInvest, Vestr, Felicis Ventures, Founders Fund, Pathfinder and private investors.
Wild Type	U.S.	Seafood – Salmon	$16M	Root Ventures, CRV, Spark Capital, Maven Ventures and Mission Bay Capital.

SOURCE: Adapted from FROGGATT & WELLESLEY (2019, p. 39 - 40), SEXTON, GARNETT and LORIMER (2019), CAMERON et al. (2019), and Crunchbase[7] (2020).

[7] Retrieved from Crunchbase. Available on <https://www.crunchbase.com./>. Accessed on March 15th, 2020.

APPENDIX 3

LIST OF ADDITIONAL STAKEHOLDERS OF ANALYZED SECONDARY DATA

Organization / Stakeholder	Country	Website
National Cattlemen's Beef Association	U.S.	https://www.ncba.org/
Cattle Council of Australia	Australia	https://www.cattlecouncil.com.au/links
Brazilian Association of Animal Protein	Brazil	https://abpa-br.org/
Brazilian Association of Breeders[8]	Brazil	http://www.abccriadores.com.br/Default.aspx
Canadian Cattlemen's Association	Canada	https://www.cattle.ca/market-access/market-access-requirements/eu/
The European Livestock and Meat Trades Union (UECBV)	European Union	http://www.uecbv.eu/ - Unavailable

SOURCE: The author (2021)

[8] In Portuguese: Associação Brasileira de Criadores

APPENDIX 4

LIST OF RESEARCH GROUPS ON CELL-BASED MEAT

Lab name	Institution	Country	Innovation Area
The Peeling Lab	University of Ottawa	Canada	Scaffolding
The Gefen Musculoskeletal Biomechanics Lab	Tel Aviv University	Israel	Scaffolding
The Rowat Lab	University of California	U.S.	Scaffolding
The Shimizu Lab	Tokyo Women's Medical University	Japan	Scaffolding and Cell culture media
MicroTissue Lab	Hebrew University	Israel	Scaffolding
The Levenberg Lab	Technion	Israel	Scaffolding
The Hanga Lab	Ashton University	UK	Bioprocess design
The Mozdziak Lab	North Carolina State University	U.S.	Cell lines
The Chen Group	Jiangnan University	China	Bioprocess design
Kim Research Group	Kent State	U.S	Scaffolding
The Post Lab	Maastricht University	Netherlands	Scaffolding, Bioprocess design and Cell lines
Disease Biophysics Group	Harvard	USA	Scaffolding
Mote Marine & Freshwater Aquaculture Program	Mote Marine Laboratory & Aquarium	U.S	Cell lines
The Suzuki Lab	University of Wisconsin—Madison	U.S	Scaffolding, Bioprocess design and Cell lines
The Kaplan Lab	Tufts University	U.S	Scaffolding
The Lab for Cancer Drug Delivery & Cell Based Technologies	Technion	Israel	Scaffolding
The Ovissipour Lab	Virginia Tech	U.S	Cell lines
Protein Structure and Function Lab	University of Toronto	Canada	Cell culture media
The Ellis Lab	University of Bath	UK	Bioprocess and Cell culture media
The Block Lab	University of California, Davis	U.S	Scaffolding, Bioprocess design and Cell lines
Future Sustainable Food Systems	University of Helsinki	Finland	Other
The Myocardial Regeneration Lab	Worcester Polytechnic Institute	U.S	Scaffolding
The Sullivan Group	University of Oslo	Norway	Cell lines
The Mack Lab	University of Washington	U.S	Scaffolding and Cell lines
BioSense: Genetic Research Team	Biosense Institute	Serbia	Cell culture media and Bioprocess design
The Kluger Lab	Reutlingen University	Germany	Scaffolding and Cell culture media
The Savchenko Lab	University of Calgary	Canada	Cell culture media
Biomaterials, Inflammation, and Tissue Engineering (BITE) Lab	University of Kentucky	U.S	Cell lines and Other

Department of Health Sciences and Innovation	ETH Zurich	Switzerland	Cell lines
Institute of Biosciences	Newcastle University	United Kingdom	Cell culture media
Food Processing Research Group	International Iberian Nanoinnovation Laboratory	Portugal	Scaffolding
Cultivated Meat Modeling Consortium	Cultivated Meat Modeling Consortium	U.S	Bioprocess design and Other
The Nachman Lab	Tel Aviv University	Israel	Cell lines
The Selvaganapathy Lab	McMaster University	Canada	Scaffolding and Other
The Thorrez Lab	KU Leuven	Belgium	Scaffolding and Cell lines
The Burridge Lab	Northwestern University	U.S	Cell culture media, Bioprocess design and Cell lines
Biomanufacturing Innovation*	BTI A*STAR	Singapore	Scaffolding, Cell lines and End product formulation & manufacturing
The Zhou Lab*	Nanjing Agricultural University	China	Cell lines, Cell culture media and Bioprocess design
The Shoseyov Lab*	The Hebrew University of Jerusalem	Israel	Ingredient optimization, Scaffolding, Bioprocess design, End product formulation & manufacturing and Other

SOURCE: GFI database (2020). Available on < https://www.gfi.org/researchdatabase>.

NOTE: *Labs that also work with other alternatives such as plant-based and fermentation.

APPENDIX 5

LIST OF ANALYZED NEWS (2019 – 2020)

News Title	Publication/Latest Update Date	Newspaper/ Blog	Source
You Call That Meat? Not So Fast, Cattle Ranchers Say	February 9, 2019	The New York Times	https://www.nytimes.com/2019/02/09/technology/meat-veggie-burgers-lab-produced.html
Cultured lab meat may make climate change worse	February 19, 2019	BBC	https://www.bbc.com/news/science-environment-47283162
Lab-grown meat may be worse for planet: Oxford University study	February 21, 2019	Beef Central	https://www.beefcentral.com/news/lab-grown-meat-could-be-worse-for-the-environment-oxford-university-study/
Cultured meat seems gross? It's much better than animal agriculture	February 27, 2019	The Conversation	https://theconversation.com/cultured-meat-seems-gross-its-much-better-than-animal-agriculture-109706
Don't You Dare Call It Meat	February 28, 2019	Scientific American	https://blogs.scientificamerican.com/observations/dont-you-dare-call-it-meat/
The problem with lab-grown meat	May 07, 2019	Slate	https://slate.com/technology/2019/05/lab-grown-meat-food-agriculture-system.html
To meat or not to meat?	May 30, 2019	Quartz	https://qz.com/1630781/farmers-want-lab-grown-meat-to-get-a-new-name/
Beyond meat? The market for meat substitutes is way overdone	August 1, 2019	Beef Central	https://www.beefcentral.com/news/beyond-meat-the-market-for-meat-substitutes-is-way-overdone/
Out of the lab and into your frying pan: the advance of cultured meat	January 20, 2020	The Guardian	https://www.theguardian.com/food/2020/jan/19/cultured-meat-on-its-way-to-a-table-near-you-cultivated-cells-farming-society-ethics
Memphis Meats on the march	January 22, 2020	Innovators Magazine	https://www.innovatorsmag.com/memphis-meats-on-the-march/
Will Cultured Meat Soon Be A Common Sight in Supermarkets Across the Globe?	February 17, 2020	Forbes	https://www.forbes.com/sites/briankateman/2020/02/17/will-cultured-meat-soon-be-a-common-sight-in-supermarkets-across-the-globe/?sh=71d6a8d77c66
The End of Meat Is Here	May 21, 2020	The New York Times	https://www.nytimes.com/2020/05/21/opinion/coronavirus-meat-vegetarianism.html
5 cultivated meat startups taking off because of corona	June 4, 2020	ISRAEL21C	https://www.israel21c.org/5-israeli-clean-meat-startups-for-post-covid-shortages/
Meat the new space race	July 21, 2020	Innovators Magazine	https://www.innovatorsmag.com/meat-the-new-space-race/
KFC embracing cultured meat is positive for consumer acceptance," say lab-grown pioneers	July 22, 2020	Food Ingredients First	https://www.foodingredientsfirst.com/news/kfc-embracing-cultured-meat-is-positive-for-consumer-acceptance-say-lab-grown-pioneers.html

Is the world getting close to its first taste of cultured meat?	August 3, 2020	SmartBrief	https://www.smartbrief.com/original/2020/08/world-getting-close-its-first-taste-cultured-meat
Younger generation has no appetite for lab-grown meat, study shows	September 8, 2020	Beef Central	https://www.beefcentral.com/news/younger-generation-has-no-appetite-for-lab-grown-meat-study-shows/
US states that raise cattle and poultry are trying to fence in the fast-growing alternative meat industry.	September 16, 2020	Financial Times	https://www.ft.com/content/9f13d102-d775-11e9-8f9b-77216ebe1f17
Investments in fermentation companies picking up pace	September 18, 2020	Food Business News	https://www.foodbusinessnews.net/articles/16866-investments-in-fermentation-companies-picking-up-pace
Is 'cultivated meat' more sizzle than steak? UC Davis wants to find out Sustainability of meat being studied	September 24, 2020	Daily Democrat	https://www.dailydemocrat.com/2020/09/23/is-cultivated-meat-more-sizzle-than-steak-uc-davis-wants-to-find-out/
Mosa Meat — the Dutch company which made the world's first lab-grown meat burger back in 2013 — has raised $55m in new funding, which it hopes to use to bring the burgers to actual customers.	September 25, 2020	Sifted	https://sifted.eu/articles/mosa-meat-raises-55m/
Will Cultured Meat and Meat Alternatives Disrupt the Food System?	October 7, 2020	Stryber	https://stryber.com/cultured-meat-innovation/
Agronomics raises £10m to fund lab-grown meat companies	October 28, 2020	The Grocer	https://www.thegrocer.co.uk/fundraising/agronomics-raises-10m-to-fund-lab-grown-meat-companies/649794.article
How to regulate?	November 1, 2020	The Regulatory Institute's blog	https://www.howtoregulate.org/cell-cultured-meat-regulation/
Aleph Farms launches program to grow steaks in space	November 2, 2020	ISRAEL21C	https://www.israel21c.org/aleph-farms-launches-program-to-grow-steaks-in-space/
Meat Tech 3D – World's First Publicly Listed Cultivated Meat Firm – Announces $7 Million Funding Round	November 4, 2020	Vegconomist	https://vegconomist.com/science/meat-tech-3d-worlds-first-publicly-listed-cultivated-meat-firm-announces-7-million-funding-round/
At the first lab-grown meat restaurant, you can eat a 'cultured chicken' sandwich	November 5, 2020	Fast Company	https://www.fastcompany.com/90572093/at-the-first-lab-grown-meat-restaurant-you-can-eat-a-cultured-chicken-sandwich
China's First-Ever Fermentation & Cultivated Meat Seminar Unites Growing Industry	November 30, 2020	Green Queen	https://www.greenqueen.com.hk/chinas-first-ever-fermentation-cultivated-meat-seminar-unites-growing-industry/
Japan Authorities to Set Regulatory Standards for Cultivated & Alternative Meat	November 30, 2020	Green Queen	https://www.greenqueen.com.hk/japan-authorities-to-set-regulatory-standards-for-cultivated-alternative-meat-2/

Well done: Israel's Aleph Farms serves up its first commercial cultivated steak	November 18, 2020	Israel Hayom	https://www.israelhayom.com/2020/11/18/well-done-israels-aleph-farms-serves-up-first-commercial-cultivated-steak/
“Cultured” meat could create more problems than it solves	November 28, 2019	The Conversation	https://theconversation.com/cultured-meat-could-create-more-problems-than-it-solves-127702
USDA & FDA To Start Rulemaking Process for Labelling Products Made from Cultured Animal Cells	November 30, 2020	Green Queen	https://www.greenqueen.com.hk/usda-fda-to-start-rulemaking-process-for-labelling-products-made-from-cultured-animal-cells-2/
Memphis Meats Secures US$161M Series B, Largest Funding Round in Cultivated Meat History Industry	November 30, 2020	Green Queen	https://www.greenqueen.com.hk/memphis-meats-secures-us161m-series-b-bullish-indication-for-cultivated-industry/
Singapore grants world’s first approval to lab-grown meat	December 1, 2020	Financial Times	https://www.ft.com/content/7fd6a222-d6d4-447a-96f8-4e78b9be6bf5

SOURCE: The author (2021)