



SCHOOL OF  
ECONOMICS AND  
MANAGEMENT

## **Are Roles The ‘Salt and Pepper’ of Ecosystems?**

*An exploratory study of how an incumbent processing and packaging firm can  
navigate a plant-based ecosystem*

By

Premton Krasniqi

Sofia Lopes

June 2023

Master’s Programme in International Strategic Management

Supervisor: Magnus Johansson

# Abstract

**Title:** Are Roles The “Salt and Pepper” of Ecosystems? - An exploratory study of how an incumbent packaging and processing firm can navigate a plant-based ecosystem

**Seminar date:** June 1, 2023

**Authors:** Premton Krasniqi & Sofia Lopes

**Supervisor:** Magnus Johansson

**Course:** BUSN09 - Degree Project in Strategic Management

**Purpose:** The thesis aims to address the different roles incumbent firms can take in the emerging plant-based ecosystem and to contribute with new understandings related to these ecosystems.

**Theoretical framework:** The theoretical foundation for the thesis is rooted in theories on systems thinking, ecosystems and with a discussion around the roles that are inherent in ecosystems. This is accompanied by theoretical perspectives on incumbency, strategy, roles and ecosystems.

**Methodology:** To fulfil the proposed research question, a qualitative single-case study was conducted, following an abductive research approach. Eleven semi-structured interviews were used to collect data, with representatives from the case company, researchers, managers, and scholars.

**Empirical foundation:** From the eleven semi-structured interviews, seven were with representatives in diverse senior positions in the case company. The other four were with people outside the case company, working in academia, research and an incumbent dairy industry firm.

**Findings:** Our analysis of the empirical data categorised ecosystems as an advanced form of collaboration, highlighting the relevance of roles and leadership-based roles, for the system-level purpose of the ecosystem to be attained. Our findings indicate that incumbents hold core positions in ecosystems, with an expectation to occupy leadership-related responsibilities, due to their substantial resources and capabilities. Connection and partnerships were considered the most critical aspects within ecosystem dynamics, reinforcing the significance of ecosystem actors and the linkages shared between them, for aggregated value to be leveraged.

**Contribution:** This study contributed to ecosystem theory by introducing the study of roles from the perspective of an incumbent firm. We present our empirical contribution in relation to plant-based, and discuss it from the strategic standpoint of an incumbent in food processing and packaging.

**Keywords:** Ecosystems, Roles, Incumbents, Plant-based, Leadership

## Acknowledgements

We want to express our deepest gratitude to all the people who have contributed to this degree project, either through interviews, guidance or encouragement. We want to express our appreciation for the support of Professors Thomas Kalling and Tomas Hellström and the PhD Candidate in Strategy Hatice Has for the care and time invested in reviewing and improving our work. We want to extend our sincerest thanks to our supervisor, Magnus Johansson, for the unconditional support and both thorough and wise reflections to raise the sharpness and quality of our paper. Furthermore, we want to acknowledge the delightful collaboration experience with Tetra Pak, always in the presence of highly competent and insightful professionals. A special word of gratitude to Giancarlo LaRocca and Anders Pernqvist for representing close guidance, throughout the entire research process. Moreover, we would like to thank our peers, for their constructive feedback during the seminars, and the overall writing process of this paper. At last, a word of gratitude to our friends, family and loved ones for their everpresent support during this thesis process and throughout our entire academic journey.

Lund, 26th May 2023,



---

Premton Krasniqi



---

Sofia Lopes

# Table of Contents

<b>1. Introduction</b>	<b>7</b>
1.1 Contextualisation	7
1.2 Problematization	8
1.3 Research Question and Purpose	9
1.4 Significance for Strategic Management	10
1.5 Outline for the Thesis	11
<b>2. Literature Review</b>	<b>12</b>
2.1 Systems Thinking	12
2.1.1 System Thinking in Business	13
2.2 Ecosystems Conceptualization	15
2.2.1 Ecosystems Architecture	19
2.3 Roles in Ecosystems	20
2.3.1 Leadership in Ecosystems	20
2.4 Incumbency	23
2.4.1 Incumbents as Ecosystem Actors	23
2.5 Theoretical Summary	24
<b>3. Methodology</b>	<b>27</b>
3.1 Research Design	27
3.2 Case Study	28
3.2.1 Choice of Case Company	29
3.3 Data Collection	30
3.4 Data Analysis	34
3.5 Reliability and Validity	35
3.6 Ethical Considerations	37
<b>4. Empirical Results</b>	<b>39</b>
4.1 Case Description	39
4.2 Plant-based	40
4.2.1 A Shift in the Food and Beverages Industry	41
4.2.2 Challenges and Opportunities in the Plant-based Sector	42
4.2.3 Trends and Strategic Eloquence in Plant-based Categories	44
4.3 Ecosystems	45
4.3.1 Stakeholders and Ecosystem Dynamics	45
4.3.2 Value Capturing and Value Creation in Ecosystems	49
4.3.3 Roles in Ecosystems	51
4.4 Incumbents	53
4.4.1 Incumbents in the Plant-based Ecosystem	53
4.4.2 Incumbent's Strategic Contribution in a Plant-based Ecosystem	55
4.4.3 Incumbents vs Insurgents in Plant-based Ecosystems	57
4.4.4 Incumbent Roles in Ecosystems	58
4.4.5 Incumbents & Leadership Roles	59
4.5 Tetra Pak as an Incumbent in the Plant-based Ecosystem	60
<b>5. Discussion</b>	<b>64</b>

5.1 The Plant-based Ecosystem	64
5.2 Incumbency and Roles in a Plant-based Ecosystem	68
<b>6. Conclusion</b>	<b>71</b>
6.1 Theoretical Implications	72
6.2 Practical Implications	72
6.3 Limitations and Future Research	74
<b>7. Reference List</b>	<b>75</b>
<b>Appendix A - Interview Guide</b>	<b>89</b>

## List of Tables

<i>Table 1 - List of Respondents of Semi-Structured Interviews (created by authors).....</i>	<i>32</i>
--	-----------

## List of Figures

*Figure 1 - Illustration of the theoretical intersection of the paper (created by authors)..... 24*

# 1. Introduction

## 1.1 Contextualisation

The Brundtland Report, published in 1987 by the United Nations, critically established that the current premises of the global economic system were unsustainable at its core. Moreover, the report claimed that no economic system could develop sustainably if the ambitions of the present were continuously prioritised over the needs of the generations to come. In this regard, food systems are pivotal in the discussions around social, environmental and economic threats worldwide, given their contribution to ecosystem degradation, resource scarcity, biodiversity losses, food waste, and many others (El Bilali, Callenius, Strassner & Probst, 2018; Freibauer, Mathijs, Brunori, Damianova, Faroult, Girona i Gomis, O'Brien, Treyer, 2012; Garnett, 2014). Together with economic growth, traditional food systems are claimed to be the most significant cause of the disharmonies in global environmental change (Willett, Rockström, Loken, Springmann, Lang, Vermeulen, Garnett, Tilman, DeClerck, Wood, Jonell, Clark, Gordon, Fanzo, Hawkes, Zurayk, Rivera, De Vries, Sibanda, Afshin, Chaudhary, Herrero, Agustina, Branca, Lartey, Fan, Crona, Fox, Bignet, Troell, Lindahl, Singh, Cornell, Reddy, Narain, Nishtar, Murray, 2019). This has contributed to the intensification of the discussion around the current values of the food system, including questions such as:

*“[...] how much and what kind of food is produced, how and by whom; how it is moved, processed, packaged and sold and with what impacts; who gets what and how much to eat, and at the expense of whom – and what the future might hold for all these variables” (Garnett, 2014, p.10).*

The case of the food and beverages industry is particularly interesting for its counterintuitive nature. In order to meet the demand of the increasing global population, food production must increase. However, as mentioned above, intensifying food production would generate many aggravating implications in broader terms (Clark & Tilman, 2017; Davis, Gephart, Emery, Leach, Galloway, D'Odorico, 2016). Hence, for this demand to be met, a deeper reconfiguration is needed, at all levels, in the value creation of food and beverages (Foresight, 2011). Clark & Tilman (2017) have concluded that dietary shifts that open space for lower-impact foods and, for example, increased efficiency in agricultural inputs, can bring more transformation than simply switching to less conventional agriculture systems.



When subject to transformation, food systems also have the potential to beware all forms of life, facilitating a more sustainable paradigm and greater resilience (Willett et al., 2019). To capitalise this transformation through holistic development set-ups, consumption changes, technological innovation and organisational reinvention must be levered collectively (Freibauer et. al., 2011). As an example, food companies are increasingly seeking new opportunities in collaborative environments and crafting open innovation strategies to approach the challenges in the industry as a whole (De Bernardi & Azucar, 2020).

For planetary boundaries to be respected, a synergistic combination of measures needs to be taken in the face of environmental pressures (Springmann, Clark, Mason-D’Croz, Wiebe, Bodirsky, Lassaletta, Vries, Vermeulen, Herrero, Carlson, Jonell, Troell, DeClerk, Gordon, Zurayk, Scarborough, Rayner, Loken, Fanzo, Godfray, Tilman, Rockström, Willet, 2018). The rising plant-based dietary patterns have acted as a response. In the context of this study, plant-based is defined as “a regimen that encourages whole, plant-based foods and discourages meats, dairy products, and eggs as well as all refined and processed foods.” (Tuso, Ismail, Ha & Bartolotto, 2013, p.61). The fact that plant-based products are less resource-intensive than their animal-based counterparts, and, therefore more “climate efficient” (Carlsson-Kanyama & González, 2009, p.1706S), is favourable to the expansion of the category. Additionally, the fact that consumers’ perception associates plant-based choices as ethical, healthy and environmentally friendly (Aschemann-Witzel, Gantriis, Fraga & Perez-Cueto, 2021) introduces new windows of opportunity for businesses to rethink their products on offer and the way these are offered. The rising opportunities motivated by the growth of plant-based categories, and the connection of this with the work developed in this thesis will be introduced in the following chapter.

## 1.2 Problematisation

It is broadly recognised that plant-based foods are a recent, yet, growing trend (Aschemann-Witzel et al., 2021). Over the past decade, there was an exponential growth in the number of firms operating in plant-based markets, and in the number of products on offer in their portfolio (Aschemann-Witzel et al., 2021; Arwanto, Buschle-Diller, Mukti, Dewi, Mumpuni, Purwanto & Sukweenadhi, 2022). Reinforcing this tendency, the expected value of the plant-based food market worldwide is expected to triple between 2023 and 2030, reaching 161.9 billion USD (Statista, 2023). This growth derives from the increase in consumer demand, and consequently, the entrance of many firms into the market, challenging

incumbents working in mature food categories, such as dairy, meat and others (Aschemann-Witzel et al., 2021; Adner & Kapoor, 2016; De Bernardi & Azucar, 2020). Following this logic, packaging and processing are two core operations in the value creation of food, reuniting bottom-up and top-down innovations towards more novelty and efficiency (De Bernardi & Azucar, 2020). The influence of multi-level variables raised by entrepreneurial and innovation activities has challenged the sustainability premises of products and processes, offering an opportunity to remodel value chains (De Bernardi & Azucar, 2020). The combination of these factors builds up an interesting avenue to look into firms working in food packaging and processing, present throughout the strategic transformations of the sector.

With the entrance of more plant-based products and players into the food industry, processes in the supply chain become more complex due to dynamics related to servitization and customisation of markets, as well as consumer preferences and expectations (Trienekens, Wognum, Beulens & van der Vorst, 2012). In turn, the complexity of the operations and the need for firms to reinvent their roles in value creation accentuates the need for new epistemological models that generate integral understanding and more competitive responses.

In spite of the ample scientific research that regards food as a “complex ecosystem” (De Bernardi & Azucar, 2020) and acknowledges the value of a systemic approach in responding to emerging challenges, research focusing on plant-based or cell-based solutions still appears to be scarce (Carlsson-Kanyama & González, 2009; Gill et al., 2018). Moreover, Gill et al. (2018) also underscore that incumbency dynamics, including what role(s) to fulfil when choosing to actively or passively engage with a specific ecosystem, are underexplored in academia.

### 1.3 Research Question and Purpose

Based on the preceding discussion, the intention for this thesis is twofold. Firstly, we aim to contribute to academia by addressing the roles that incumbents, with their own autonomy, resources and reasoning, can take to promote the growth of emerging or discontinuous ecosystems, in a more general tone.

Secondly, it aims to contribute to a new understanding of ecosystems in the context of the emergence of discontinuity in food systems, especially in plant-based. This implies a clarification of how a plant-based ecosystem is defined and composed, in relation to actors

and the roles they could have; but also how a food packaging and processing incumbent firm could optimally respond to the specific plant-based characteristics of the ecosystem, from a strategic sightline. To fulfil the presented aim, the following research question was formulated: *How can a plant-based ecosystem be leveraged, from the perspective of an incumbent firm operating in the food and beverage industry?*

Within the context of our research, leveraging the plant-based ecosystem - as the end proposition of the research question - means stimulating the growth of plant-based categories and, therefore, increasing the market for plant-based products. To address this research question, a single case study of Tetra Pak, a prominent international player in packaging and processing for the mentioned industry, will be conducted. The methodology chapter will provide further information about the chosen case study, specifically in sections 3.2 and 3.2.1.

#### 1.4 Significance for Strategic Management

For the aforementioned problematisation to be attended to, a coherent discussion about transitioning conventional food practices while aligning food security and sustainability is needed (El Bilali, Callenius, Strassner & Probst, 2018). The prominence for the food system to respond to this calling for transition, for example, through plant-based categories, first requires firms to discard narrow firm-bounded strategies (Garnett, 2014). Illustrating this point, several firms have moved towards an open innovation strategy (De Bernardi & Azucar, 2020) and have put in motion R&D-intensive strategies (Gill et al., 2018), widening the scope of their portfolio and innovating their business models.

Therefore, inducing an ecosystem's logic can contribute to an optimisation of the strategic variables of the ecosystem itself, such as aiding coordination issues and enhancing harmonious arrangements between actors (Jacobides, Cennamo & Gawer, 2018). The setting of system-level targets also holds strategic pertinence, given that it implies a joint rationale between limited resources and unlimited ambition, through the linkages and purpose of the ecosystem (Jacobides, Cennamo & Gawer, 2018). El Bilali et al. (2018) have also concluded that strategic matters such as transparency in the value chain and integrated information systems are essential in a grounded food transition and, in turn, in the thriving of the plant-based ecosystem.

In addition, many scholars have approached ecosystems from the angle of ecosystem participants and the different roles or functions that might be adopted to leverage value

creation at the scale of the system. Most models of interpretation defend the role of a leader that not only provides structured direction to the ecosystem but also yields more resource-effective operations (Jacobides, Cennamo & Gawer, 2018). Adner (2012) advocates that determining the value withheld in leadership and followership roles in the ecosystem is helpful to support stakeholders in constructing and developing an ecosystem. Thus, understanding incumbents and their contribution to the emergence of a plant-based ecosystem can generate insights which are relevant to explore from a strategic standpoint.

### 1.5 Outline for the Thesis

This research paper commences with an introduction, where we present and contextualise the chosen research question and argue for its pertinence in strategic management, both theoretically and empirically. Following the introduction, we present a thorough literature review concerning relevant aspects of the research problem and its connection to existing research. After highlighting the results from previous scholars which are relevant to theoretically frame our research question, we state the particular angle and contribution intended for this thesis. The literature review presented will mainly focus on systems thinking and ecosystems, the two core theories, funnelling to roles and incumbency as the adequate perspectives, chosen to address the research question.

The third chapter corresponds to methodology, in which we will describe the chosen research design, as well as the methods for collecting and analysing data and how these serve the overarching research question. This chapter includes a reflection on the validity and reliability of the used methodology and the implicit considerations related to ethics.

In the fourth chapter, we present the case study that bases the exploration of our research question, as well as the empirical findings that resulted from our methodological approach. These findings will be analysed in chapter five, encompassing practical evidence in the argumentation and resolution of our research question. Additionally, these findings will be discussed in the light of the literature review presented.

At last, the sixth chapter encompasses the conclusion, where key results and resolutions will be proposed in line with the purpose of the research paper. We will mention the theoretical and empirical implications of our study, limitations and potential avenues for future research.

## 2. Literature Review

The following literature review is intended to provide an overview on the existing literature and the theoretical conceptions by presenting the stream of research in the chosen field. It starts with literature on systemic thinking in general and in business, to then position ecosystems and the inherent roles existing in them. It is followed by literature on incumbency in general and then, more specifically, in ecosystems. This culminates into a theoretical summary where a framework, encapsulating the intersection of three decisive fields, is presented, followed by an argumentation for the identified research gap.

### 2.1 Systems Thinking

*“Systems thinking is a discipline for seeing wholes” (Senge, 2006, p.68)*

Some scholars perceive systems thinking to be a set of tools, others a framework, or, when defined in a broader manner, as a lens of analysis or a way of living (Cabrera, Colosi & Lobdell, 2008; Anderson & Johnson, 1997; Kim, 1999). In common, it is argued that there are several ways to attribute meaning to systems thinking, justified by the transversal application possibilities to existing theories across knowledge fields (Cabrera, Colosi & Lobdell, 2008). Indeed, systems thinking is permeable to different areas, ranging from education, health, agriculture, biology, business, and other science and art forms (Cabrera, Colosi & Lobdell, 2008).

Peter Senge’s definition of systems thinking (2006) places emphasis on interrelations and patterns of change, instead of the isolated participants and seemingly stagnant system pieces. The definition proposed by Kim (1999) mentions that the unification of interrelated and interacting elements is purpose-driven, distinguishing systems from other forms of organisation. Sweeney and Sterman (2000) have also contributed to the definition of systems thinking, arguing that it enables the representation and assessment of dynamic complexity.

After thoroughly having studied several definitions of systems thinking, Arnold and Wade (2015) claim that the system aspect of systems thinking is the most relevant point to account for and that many other scholars have neglected. By this, the authors critically evidence a partial perception of what systems thinking is, or what it does, missing a systemic essence by oversimplifying. Their research proposes that any conceptualisation of systems thinking must

refer to the elements of the system, and their interconnections, and convey a sense of joint purpose. As a result, the authors conceptualised systems thinking as a:

*“Set of synergistic analytic skills used to improve the capability of identifying and understanding systems, predicting their behaviours, and devising modifications to them in order to produce desired effects. These skills work together as a system.” (Arnold & Wade, 2015, p. 675)*

Anderson and Johnson (1997) have also listed several guiding principles encompassed in systems thinking, including balancing time perspectives and acknowledging not only the reciprocity loops in the system interactions but also the intrinsic dynamic and complex nature of systems. Cabrera, Colosi and Lobdell (2008) embrace this metaphor when mentioning the relevance of the “part-whole” dichotomy in systems, and moreover alert to the role of distinctions, relationships, and perspectives in the system’s nature.

According to Bawden (1998), systems thinking’s interdisciplinarity manifests in a twofold manner: holism (“universe”) and pluralism (“multiverse”). The former is described as an interconnected need between all parts, and an attempt to grasp the wholeness of nature in the most integrative way. The latter refers to the multitude of realities and the intricately fragmented views created based on them. There are natural limits to framing in both seeing reality as one and engaging with it in a plural and iterative manner (Reynolds, 2011). According to Reynolds (2011), a third “world view” emerges from questioning the limitations and defining boundaries so that holism and pluralism can meet. The aspiration to conjugate both of these edges can be paralleled to “seeing both the forest and the trees”, as Arnold and Wade (2015, p. 672) argue.

### *2.1.1 System Thinking in Business*

As previously mentioned, the vast applicability fields of systems thinking ensure that business and management areas can also source understanding from this point of view. Richmond (1991), who first coined systems thinking, advocated that learning to learn in new ways is essential in a world with increasing complexity and interdependencies. Moreover, Bawden (2009, p.66) claims that “creative dialectics between [...] reductionism and holism, local perspectives and global perspectives need to be actively constructed”.

In the same way, the rapid pace of change is also manifesting in business systems, forcing system actors to be more aware of how they affect and are affected by the multi-directional process of value creation. Thus, systems thinking holistically analyses the role of organisations within social-ecological systems (Williams, Kennedy, Phillipp & Whiteman, 2017), which is also proposed in the field of plant-based.

Non-linearity, another characteristic embedded in systems thinking, must also be taken into account, given its contribution to higher complexity through feedback loops and unpredictable outcomes (Basole, 2009). As a potential answer, Hearn and Pace (2006) advocate that applying a systems thinking logic to business allows a new understanding of value creation and a redefinition in business process development. According to the authors, this shift is attained in several ways, including transitioning from “thinking about customers to thinking about co-creators of value” (p.55), introducing “complex co-opetition” (p.55), and, more generally, “thinking about strategy in relation to the value ecology as a whole” (p.55). The urge to let go of individualistic strategic thinking in exchange for a network-based reasoning can be highly empowering for businesses (Hearn & Pace, 2006).

Gharajedaghi (2012) has studied how organisations can be viewed from the perspective of purposeful and plural systems, resembling natural phenomena. He has considered businesses as dynamic and open systems, which are under the influence of five systemic principles: *openness, purposefulness, multidimensionality, emergent property and counterintuitive behaviour*. These five guiding principles interact as a whole to explain the application of systems thinking in business (Gharajedaghi, 2012). Given the relevance of Gharajedaghi’s research to the present one, each of the factors will be contextualised.

The author’s observations about the contexts in which firms operate allowed the understanding that they are open to the influence of vast external factors, ranging from economics and technology to environment and policy, to name a few. The multidimensionality aspect manifests in the high number of other firms and stakeholders the organisations interact with, aiming for a common purpose (Gharajedaghi, 2012). This argument can be understood as the process that has value creation as a goal. Nonetheless, counterintuitive behaviour is a result of the complexity of systems and, in turn, reinforces complexity, given the non-linearity in the feedback loops (Gharajedaghi, 2012). Explained in a different manner, actions that firms actively take might result in undesired outcomes, or even be influenced by other unnoticed actions or firms. This finding highlights the

interconnectedness aspect of systems, and supports the explanation of the principle of emergent property. This principle illustrates that linkages or relationships in systems are more determinant to the quality of value creation than the isolated quality of the system's actors, themselves (Gharajedaghi, 2012).

Thus, the rising complexity of challenges to which the business realm is exposed incentivises firms to incorporate collective-based and purpose-driven strategies, which ecosystems can deliver on, raising more competitive and structured responses to the environment.

## 2.2 Ecosystems Conceptualization

The concept of “ecosystem” was first introduced as a theoretical standpoint in biology, and certain terminology and insights from biological ecosystems were later transferred to management studies. Moore (1993, p.76) explored early definitions of business ecosystems as “a more structured community” of actors, grasping the evolution of “cooperative networks” in four stages: *birth, expansion, leadership and self-renewal*. The author continued ecosystem-based work in 1996, presenting an ecosystem as an economic community where organisms in business (including organisations, customers, suppliers, lead producers, competitors and others) jointly participate in the creation of valuable goods and services. Moore (1993) further advocated the relevance of a direction point, shared between all organisms of the ecosystem, in spite of having distinctive, yet supportive, roles.

Although the business ecosystem terminology derives from biological constructs, it is relevant to recognise that transferring such analogies and metaphors entails risk. Therefore, it is pertinent to clearly state the contrasting points between biological and business ecosystems: *innovation, competition for members and intelligent actors* are the three modifications (Iansiti & Levien, 2004b). Explaining these further, the authors point out that business ecosystems comprise competition, not only in terms of attention from demand but also in the organisations that participate in the ecosystem as members. The pressure to grow by serving new demand or innovating in products, services or business models is felt more fiercely in business ecosystems (Iansiti & Levien, 2004b). The two scholars postulate that by being mobile, firms can land in the business ecosystem that better leverages their imperative for growth, and free-willingly enter or leave ecosystems. Hence, the competition for members, including their attraction and retention, can become a confrontation point within business ecosystems (Iansiti & Levien, 2004b). Finally, in spite of the ecosystem's governing



forces, participating members can use foresight and planning in decision-making, and intelligently interact with other ecosystem parts (Iansiti & Levien, 2004b). These three aspects are applicable to the research question presented, evoking the need to attend to them when analysing and discussing the roles firms take up in an ecosystem.

Contrastingly, a comprehensive conceptualisation of ecosystems can also be derived from the understanding of what an ecosystem is not. This can be achieved by identifying aspects in ecosystems that are differentiating from other forms of network-centric organisational structures. One of the major attributes of the ecosystem construct identified in the literature is that it is the one that includes the most diversity of stakeholders when compared to other models. This whole-system view, as described by Autio and Thomas (2014), includes both upstream and downstream activities, as well as vertical and horizontal relationships, which promote the co-development of new ecosystem states.

In addition, an ecosystem approach offers a new unit of analysis, when compared to more traditional models. The observation that ecosystem boundaries tend to be separate from industry and firm boundaries led to a value measurement that depends rather on the strength and type of the interactions between ecosystem members (Iansiti & Levien, 2004b). More traditional industrial or innovation networks tend to focus more on upstream processes, whereas user networks have a more exclusive sightline of downstream activities (Autio & Thomas, 2014). An ecosystems approach entails the integration of an end-to-end perspective, embedded in systems thinking for an inclusive and complete whole-value solution (Autio & Thomas, 2014).

The curious sense around defining ecosystems, and the lack of consensus gave rise to a multitude of angles from which an ecosystem logic has been approached (Kapoor, 2018; De Bernardi & Azucar, 2020). Nonetheless, certain characteristics are transversal to many scholars (Iansiti & Levien, 2004b; Hearn & Pace, 2006; Adner, 2017; Cabrera, Colosi & Lobdell, 2008), such as the absence of stagnancy in roles and interactions that different ecosystem participators might hold. The subjacent argument offered by the authors is that defining initial roles and capabilities in relation to other ecosystem elements does not suffice to ensure healthy competitive conditions or even the survival of the ecosystem. The need to consider the ecosystem as a whole, and the ever-evolving ecosystem dynamics, allows a more integral response to increasingly elaborate challenges (De Bernardi & Azucar, 2020).

The encompassing theoretical ground for ecosystem research is the existence of complementarities and interdependencies between ecosystem participants, simultaneously (Kapoor, 2018). On the one hand, complementarities relate to the contribution of firm offerings and portfolios to enhancing the value proposition of the ecosystem (Kapoor, 2018). On the other hand, interdependencies describe the connection between actors and the ecosystem architecture, namely how a change in a certain linkage might affect the contribution of others when creating value (Kapoor, 2018).

According to Iansiti and Levien (2004a), these linkages generate a sense of shared fate in the ecosystem, according to which members rise and fall together with the ecosystem, regardless of their individual strengths and weaknesses. Furthermore, Iansiti and Levien (2004b, p.40) have incrementally built on the definition of a business ecosystem, stating it as a “large number of loosely interconnected participants who depend on each other for their mutual effectiveness and survival.”. Members ought to acknowledge the implications and significance of the overarching shared fate when catering their position and actions towards the results intended for the ecosystem (Iansiti & Levien, 2004b). Yet, the disparity in interests and in perspectives from these individual actors is what moulds the heterogeneous nature of ecosystems (Iansiti & Levien, 2004b).

Yet, the ecosystem's logic also accounts for certain fragilities. One challenge is related to the openness and permeability inherent to ecosystem boundaries (Autio & Thomas, 2014; Gulati, Puranam & Tushman, 2012). With time, the need for coordination beyond the boundaries of the firm accentuates the demand for differentiated roles and more structured community decision-making, which can be considered a managed ecosystem model (Autio & Thomas, 2014; Gulati, Puranam & Tushman, 2012). Kapoor (2018) suggests that the growth of the value proposition of an ecosystem could be constrained by performance, cost or scarcity bottlenecks, and increased through strategic resource allocation in the architecture of the ecosystem.

Furthermore, Iansiti and Levien (2004b) indicate that the value of an ecosystem logic can be comprehended by analysing the health of an ecosystem, once it is in place. They propose that such evaluation should be analogised from biological ecosystems, in three main assessment criteria: *productivity*, *robustness*, and *niche creation*. Productivity is heavily correlated to efficiency and the input/output ratio produced by the ecosystem (Iansiti & Levien, 2004b). They state that this can also be interpreted in the light of innovation, by how lightly the

system can create and leverage new solutions, products or interaction nets. The robustness aspect is defined as the ability to upspring durable benefits to those who participate and contribute to the ecosystem (Iansiti & Levien, 2004b). On another note, robustness is associated with a sense of homeostasis in the ecosystem, balancing disruptions from an equilibrium point of view and sheltering against the shocks lived within and without the ecosystem (Iansiti & Levien, 2004b). The authors advocate that one of the functions of the ecosystem is to absorb perturbations happening both in its external and internal contexts and increase the predictability of those changes. Moreover, they argue that the ecosystem structure brings persistence to its core value proposition, therefore considering that secondary changes are possible to be anticipated and localised in certain parts of the ecosystem. The final aspect - niche creation - introduces the notion that diversity is not a linear indicator of the health level of an ecosystem, nor should it be considered in isolation (Iansiti & Levien, 2004b). Instead, since diversity is not equally applicable to all ecosystems, Iansiti & Levien (2004b) defended that only value-generating variety in firms, products or services should be incentivised. Therefore, the authors conclude that productive and robust ecosystems can also thrive in conditions of specialised products or niched customer targets, in the cases these are drivers of systemic value creation.

Ecosystems can also be seen as an “alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialise” (Adner, 2017, p.40). Adner (2017) determined that the joint value proposition is the paramount element of an ecosystem, and that the heart of ecosystem strategy is the pursuit of alignment between all actors involved. From a complementary angle, the strategy of an ecosystem member must take into account the alignment of partners and other ecosystem agents to secure its role and competitiveness in the ecosystem (Adner, 2017). According to Adner, the usefulness of an ecosystem approach rests in the proposal that the multilateral, interconnected relationships that sustain a certain value proposition cannot be decomposed into various, isolated bilateral relationships.

The pursuit of novelty is commonly appointed in literature as a source of value creation, especially when adjoined with the expertise of ecosystem participants (Brown & Mason, 2017; Iansiti & Levien, 2004b). In fact, the combination of novelty, robustness and persistence is considered the “creative process of evolution” (Iansiti & Levien, 2004b). Following a rationale of value creation, defining ecosystem participants as ever-changing

“complex adaptive systems” is essential (Brown & Mason, 2017). Moreover, Li (2009) supports the idea that an ecosystem can also provide an emerging orientation to create novelty in business operations.

### *2.2.1 Ecosystems Architecture*

Centering the discussion on an ecosystem’s value proposition, it is pertinent to examine the relationship(s) between the arrangement and constitution of ecosystems, and the value output generated altogether. Given the organising principles of complexity and diversity in each ecosystem (Galateanu & Avasilcai, 2013), and that firms might participate in multiple business ecosystems (Snihur & Bocken, 2022), a tailored ecosystem architecture must emerge from the elementary ecosystem elements.

Therefore, mapping and leveraging any ecosystem implies, according to the work of Adner (2017), the understanding of four elementary aspects in ecosystem architecture: *activities, actors, positions and links*. For the value proposition to materialise, ecosystem actors, who are interlinked, perform activities from the positions they occupy in the value creation and capture of the ecosystem. In other words, these four aspects represent the blueprint for how value is instigated, and how change at the scale of the ecosystem is strategically handled, which are key to the contribution intended for this paper.

In a cumulative contribution, Jacobides, Cennamo and Gawer (2018) allude to the correlation between the nature of the architecture of an ecosystem and patterns of value creation and capture amongst ecosystems and the actors in each ecosystem. In spite of perceiving “ecosystem participation as a [...] loose alliance” (Jacobides, Cennamo, Gawer, 2018, p. 2275), the architecture of an ecosystem must respond to governing rules for membership and relationships within the ecosystem, and incorporate dissimilarities in the roles of the ecosystem actors. The interplay of functions and responsibilities amongst ecosystem actors brings implications to other questions, such as the welcoming of disruption and transition into new ecosystems and what players join the ecosystem in its evolution (Jacobides, MacDuffie & Tae, 2016). These questions are pertinent in the exploration of suitable architectural configurations for a plant-based ecosystem, and its role distribution, which will be presented in the next section.

## 2.3 Roles in Ecosystems

In the literature, the discussion about the roles and functions has closely accompanied the definition of species within business ecosystems and is one core strategic option within the theme (Karhiniemi, 2009; Moore, 1993; Yoon, Moon & Lee, 2022). The understanding that the survival and effectiveness of the ecosystem rely heavily on its participants (Yoon, Moon & Lee, 2022) motivates the appropriate selection of each organisation's contribution to the whole. Not only do the roles firms take in ecosystems vary according to their organisational characteristics, but also from ecosystem to ecosystem. In addition, Moore (1993) mentions that as the ecosystem evolves, the roles of its participants must also change to align with the directions set by the leading actors in the ecosystem. Indeed, the organisations holding a guiding or leading position are the most accredited within the ecosystem, enabling a shared future for other members (Li, 2009). Thus, a more integral comprehension of roles' distribution within ecosystems requires a deeper look at the leadership role associated with ecosystems.

### *2.3.1 Leadership in Ecosystems*

As the previous introductory section to ecosystems has shown, ecosystems encompass extensive dimensions and actors that are affected by, and that, in turn, affect the ecosystem itself. Hence, to facilitate that the ecosystem succeeds with its target objectives, scholars have proposed and underscored the importance of leadership in the ecosystem. Moore's (1993) paper first highlighted the importance of the leader's role in ecosystems and what that would entail for the members. He accentuated that the position of the leader in the ecosystem is valued by the community of participants and that the position motivates the community to pool investments into a shared future with the intention to thrive together.

Since then, the definition of 'leader' has been endorsed further (e.g. Moore, 1996, Adner, 2017), but has also gained other definitions such as 'platform leader' (Cusumano & Gawer, 2002; Jacobides, Cennamo & Gawer, 2018), 'keystone' (Iansiti & Levien, 2004b), 'hubs' (Iyer, Lee & Venkatraman, 2006; Adner 2017), 'orchestrator' (Hurmelinna-Laukkanen & Nätti, 2018), and 'architect' (Gulati, Puranam & Tushman, 2012; Jacobides, 2019), depending on the context. Yet, although these definitions are different and related to the activities of the ecosystem leader, Dedehayir, Mäkinen and Ortt (2018) argue that the various activities in these definitions can be structured into four main activities, namely *ecosystem*

*governance, forging partnerships, platform management, and value management.* The ambition with these activities, according to the authors, is to decipher appropriate roles, attract and link partners, and build a “platform” to create and capture value, for example.

The above activities align with Adner’s (2017) notion that ecosystems have focal actors who define the direction and goals of the participating members, thereby naturally creating hierarchies. However, although the hierarchies come about due to the leader, Adner (2017) emphasises that leadership does not have to come in singularity, but that firms, through a collaborative sphere and shared leadership, can achieve the desired outcome. Another reason for choosing this dual collaborative leadership could be that firms might not have the necessary resources and capacity, such as superior products or services, to orchestrate the ecosystem (Jacobides, 2019). Additionally, organisational and cultural dimensions that affect responsiveness to challenges and how ecosystem members can be influenced need to be accounted for, stressing that ecosystem leadership is not for every firm (Jacobides, 2019).

As touched upon above, large and established players in the industry oftentimes take on the role of leaders, especially if they can provide and take responsibility for it (Iansiti & Levien, 2004b). Ecosystem leaders must account for the development and nurturing of the ecosystem so that its members can venture towards a beneficial future (Moore, 1993) and remain healthy (Iansiti & Levien, 2004b). Moreover, possessing such qualities and capabilities as the ecosystem leader does not only create value for the ‘ecosystem followers’, but in turn reflects positively on the leader. By facilitating efficient partnerships, the ecosystem leader increases its capabilities to deliver customer value and simultaneously hinders these actors from participating in other ecosystems where they can create value for competitors of the leader firm (Moore, 1993). The importance of possessing adequate resources to become the leader is further accentuated by Hurmelinna-Laukkanen and Nätti (2018), who state that the position of an orchestrator relies on having a strong resource base and bargaining power, which allows it to set objectives that ‘followers’ simply need to follow.

Further responsibilities that fall under the umbrella of the ecosystem leader include forging and designing an attractive value proposition, where the ecosystem can deliver novel value through the ecosystem members’ core competencies to create and deliver the combined value proposition (Linde, Sjödin, Parida & Wincent, 2021). Hence, this indicates that cooperation

and followership are integral parts of the ecosystem, allowing it to deliver on the overall customer expectations. Therefore, by initially governing the structure and forging adequate partnerships, the ecosystem leader can ensure that the value output is managed appropriately (Dedehayir, Mäkinen & Ortt, 2018).

Adner (2017) also stresses the importance of the value propositions in his focal distinction between ecosystems as affiliations and as structures. Where the former distinction emphasises communities and network affiliations in the ecosystem, the latter focuses on the value proposition first and then on which actors can help accomplish it (Adner, 2017). However, when speaking of value, it is important to make a distinction between different ecosystems. Although slight differences are present in terms of how many ecosystems have been identified, scholars have in their literature reviews found that the two most common and recurring distinctions are business ecosystems and innovation ecosystems (Jacobides, Cennamo & Gawer, 2018; Scaringella & Radziwon, 2018; Gomes, Facin, Salerno & Ikenami, 2018). Business ecosystems and innovation ecosystems are similar in the interconnectedness of actors in a community, the presence of an established ecosystem leader, the emergence of platforms, the facing of cooperation and competition, and the existence of life cycles (Gomes, Facin, Salerno & Ikenami, 2018). As for the differences, however, these seem to lay in what has been identified as two main areas, with one of them being that business ecosystems introduce the customer by acknowledging the demand side, which is absent or overlooked in innovation ecosystems (Wright, 2014). Thus, approaching customers in the business ecosystem is more straightforward than in the innovation ecosystem, where customer participation is taken “for granted” (Scaringella & Radziwon, 2018).

The other differentiating factor mentioned is that business ecosystems aim to capture value while innovation ecosystems aim to co-create value with their community (Gomes, Facin, Salerno & Ikenami, 2018). In short, value capture can be seen as the activities in which the firm strives to achieve competitive advantages and to secure the related profit, while value co-creation is a more collaborative activity intended to create value for stakeholders (Ritala, Agouridas, Assimakopoulos & Gies, 2013). Yet, Gomes et al. (2018), highlight that both value capture and value (co-)creation need to be present in an ecosystem. By pursuing both

activities, the ecosystem leader ensures that it will harness the intended profits from the ecosystem value proposition and nurture the relationships amongst the ecosystem community. Given the importance of roles and the characteristics attributed to the leader in the ecosystem, it becomes relevant to assess how actors possessing such attributes influence the ecosystem, therefore introducing incumbents in the following section.

## 2.4 Incumbency

In regards to discontinuities in products or services, incumbents have been typically portrayed as conservative and slow companies, with lower marginal incentive to develop and market radical innovations, when compared to entrepreneurial endeavours, or smaller companies (Chandy & Tellis, 2000). Indeed, in the literature, incumbents are described as players that display great customer and market knowledge, relevant market shares and power, privileged access to value channels and an enormous pool of resources and capabilities (Chandy & Tellis, 2000). In addition, incumbent characteristics include a strong correlation with size, being described as large entities in the market, and antiquity, having provided products or services for more than one “market generation” (Chandy & Tellis, 2000).

Nonetheless, more recent studies have suggested that in the face of disruption, factors such as the fear of market cannibalism and the high investments in R&D have enabled incumbents to introduce new value propositions and product development (Chandy & Tellis, 2000). Although established companies are more eager to initiate change than they were in the past, it is also a reality that such firms might wait for new products or services to enter the market (by non-incumbents) to then launch their own equivalent products. This means that incumbents may promote a late entry in emerging markets, and use their “muscles” to fully leverage recent technologies in the market (Chandy & Tellis, 2000).

### *2.4.1 Incumbents as Ecosystem Actors*

The fundamentals of co-creation in ecosystems imply coordination and partnership mechanisms between incumbent firms and other actors, such as startups and academia (Baloutsos, Karagiannaki & Pramataris, 2020). While not likely to pioneer new ecosystem solutions, incumbents must have dynamic capabilities to cope with disruption, including

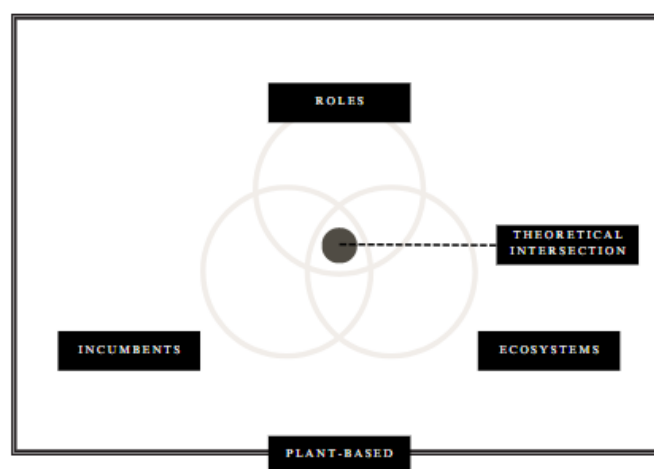


*collaboration and networking, opportunity sensing, entrepreneurial orientation, knowledge management and strategic flexibility* (Kim, Paek & Lee, 2022).

Recent studies of incumbents' roles in ecosystems often mention that such firms hold core positions and act as gateway keepers, appropriating larger shares of value when compared to other ecosystem players (Zhu & Du, 2023). The definition of incumbents' roles seems highly contextual, although the characteristics of incumbent firms mentioned in the previous section are associated with roles which, directly or indirectly, "sustain or reinforce the trajectory of performance within an established value network" (Christensen & Rosenbloom, 2014, p. 255). This facilitative role of incumbents has been mentioned by other authors, at an ecosystem level, leading the aggregation of efforts from members into a coherent whole (Jacobides, MacDuffie & Tae, 2016; Tripsas, 1997). Overall, the "incumbent" category has not been consensually associated with specific roles in an ecosystem. Instead, other factors, such as the upstream/downstream position of incumbent firms and their relative relationship to other actors, are considered critical in the reflection of how incumbents could contribute to the ecosystem's value co-creation (Zhu & Du, 2023).

## 2.5 Theoretical Summary

The literature review encompasses the intersection of three decisive fields: ecosystems, roles and incumbents, which can be used jointly to interpret how the ecosystem as a whole can be leveraged. **Figure 1** showcases the theoretical position considered for our thesis, and where our unit of analysis and contributions are centred around.



**Figure 1** - Illustration of the theoretical intersection of the paper (created by authors)

The phrasing of the research question comprises these three keywords in the same manner, alluding that the attainment of an ecosystem's shared fate requires a comprehension of its participating members and the roles taken toward the aggregated value proposition.

In relation to the research question, the existing literature presented may aid in generating answers relating to the leveraging of a plant-based ecosystem, or other business-related ecosystems, through ideas of how to sustain, organise, connect, lead and more. Yet, the existing literature cannot provide adequate answers on this from the perspective of an incumbent firm. With this consideration in mind, this research focuses on incumbents, well-established and resourceful firms who, as reflected in the literature, tend to hold core positions in the contexts they participate in. Albeit, according to the literature, the organisational characteristics of incumbents can resonate with some of the leadership functions or activities in ecosystems, there is no clear mention of how these two can intertwine. This gap in the ecosystems literature, in relation to the research question at hand, limits the contextualisation of how an incumbent can leverage the plant-based ecosystem. Therefore, the absence of previous discussion in ecosystems theory about incumbents, as highlighted by Gill et al. (2018), contrasts with the significance of size and action of these players; which is the core research gap we aim to cover. This leads us to believe that progressing in this discussion, from a theoretical standpoint, appeals to an overview of incumbent firms, especially in relation to potential roles in leading, sustaining or reinforcing the ecosystem.

To empirically substantiate these theoretical intentions, a plant-based ecosystem was selected and analysed from the perspective of an incumbent firm operating in the food and beverages industry. Firstly, as mentioned in the introduction, plant-based solutions are tacit contributors to a reinvention in the approaches taken in sustainability-threatening global issues (De Bernardi & Azucar, 2020; Pigford, Hickey & Klerkx, 2018). These issues require a more sophisticated scope of action and aggregated vision, which are principles inherent to an ecosystems approach. Furthermore, the wide range of stakeholders that collaborate to deliver plant-based solutions - farmers, retailers, academia, research institutions, startups, SMEs, and consumers (De Bernardi & Azucar, 2020) - as well as the need for higher coordination justify the appropriateness of using plant-based to illustrate ecosystem properties.

Secondly, the characteristics of the plant-based sector, in its current emerging state, were further reasons that motivated this choice. Indeed, the expanding plant-based categories on offer, the large diversity in plant-based raw ingredients and the complexification and specialisation of processes introduce agitation in the *modus operandi* of ecosystem participants and underline the motion in roles and interactions, mentioned throughout the literature. As a result, new or more dispersed roles might be needed amongst actors, reinforcing plant-based as a window of opportunity to reflect on the roles that organisations can take in the ecosystem and how to best position themselves to respond to plant-based challenges and opportunities.

Thirdly, the rise in plant-based products has comprised not only “plant-based born companies” but also companies that operate in other industries in food and beverages and that have introduced plant-based products in their portfolios. The latter, often incumbent firms in traditional food categories, where they tend to hold representative roles, are challenged by the idiosyncrasies present in a plant-based ecosystem. Hence, the entrance and expansion of incumbents into plant-based businesses bring about an interesting problematisation between the nature of incumbency and the need for strategic adaptation in the roles such firms hold.

These three arguments, in line with the three decisive fields mentioned at the beginning of this section, aim to legitimise not only the connection between the research question and the theoretical funnel of the study but also establish plant-based ecosystem(s) as the methodological path for the empirical findings and approach the identified research gap.

### 3. Methodology

This chapter presents and describes our choice of methodological approach to address the intended purpose and research question of our study. It intends to be a guiding section for the reader and is enveloped in reflections on the possible implications of the study.

#### 3.1 Research Design

The research design aims to explicitly outline the type of study chosen, as well as what type of inquiry, procedures and methodological approaches were selected to substantiate the research study (Creswell & Creswell, 2018). Saunders, Lewis & Thornhill (2012) emphasise the relevance of initially understanding the research question at hand, and what it encompasses, for the research design to be built accordingly and coherently.

The research question has been proposed as the following: *“How can a plant-based ecosystem be leveraged, from the perspective of an incumbent firm operating in the food and beverage industry?”*. It is essential to evoke once more our eagerness for a systemic understanding of an emerging plant-based ecosystem, from the point of view of mature firms already operating in the food and beverage industry. Furthermore, the proposed research question is justified by a lack of existing literature that merges up-and-coming food systems, such as plant-based, applied to strategic management and from the perspective of ecosystems. The way research is designed must also reflect the new contribution or purpose of the research question, in comparison to the work of previous scholars (Creswell & Creswell, 2018; Saunders, Lewis & Thornhill, 2012; Schwandt & Gates, 2018).

To approach our research question, we have decided to conduct a qualitative study, given its value in emergent research topics (Creswell & Creswell, 2018). Moreover, a qualitative study is motivated by the in-depth approach to the research topic, the need for minor adjustments or nuances in the procedure conduction or the reflexive nature of the participation of interviewees (Creswell & Creswell, 2018). Accordingly, the conceptual framework to be formulated emerges from non-standardized data collection and is permeable to participants' meanings and the relationships between them (Saunders, Lewis & Thornhill, 2012). Given that this study will employ a systemic theoretical lens, a conglomerate of perspectives, in interaction with one another, will be assumed. Additionally, there are several theoretical concepts with no consensual definition, such as “leverage” and “ecosystem”, which are

pivotal to our research topic. In this regard, a non-numeric study offers an interpretative philosophy that captures the breadth and depth to capture the richness of multiple contributions (Creswell & Creswell, 2018; Saunders, Lewis & Thornhill, 2012; Schwandt & Gates, 2018), best serving our research question.

For the described qualitative design, we have chosen to use an abductive approach, which combines available theory with empirical data (Dubois & Gadde, 2002). Saunders, Lewis and Thornhill (2012, p.144) claim that in an abductive approach, “a set of possible premises is determined that is considered sufficient or nearly sufficient to explain the conclusion”. Therefore, in contrast to inductive or deductive approaches, an abductive approach implies a more hybrid methodology, deriving conclusions from interacting specific and general study premises (Saunders, Lewis & Thornhill, 2012). As a result of this iterative nature, it is possible to generate or modify existing theoretical background, while still incorporating existing knowledge (Saunders, Lewis & Thornhill, 2012). This is particularly relevant to our intention to identify and explore new ecosystem factors and in the choice of which knowledge in existing ecosystems theory or food-related studies can be incorporated in support of this research.

### 3.2 Case Study

Building on this research design, we are applying a single case study as our research methods strategy (Saunders, Lewis & Thornhill, 2012). The choice to utilise real-life contexts is common in exploratory research (Saunders, Lewis & Thornhill, 2012), intending to obtain a rich comprehension of both the context and the processes included in the scope of the research question (Eisenhardt and Graebner 2007).

According to Yin (2009), using a case study approach is favourable when there are no clear boundaries between the phenomenon being studied and its context. As a result, contextual aspects are extremely relevant in the presentation and analysis of the chosen case study (Yin, 2009). Moreover, the author stresses the importance of relying on multiple sources of evidence and utilising previous theoretical propositions to solidify the construction of the case and to provide guidance for the collection and analysis of data.

According to the literature, contribution to theoretical development is what exploratory research, as the present one, is mostly devoted to (Yin, 2009; Schwandt & Gates, 2018; Saunders, Lewis & Thornhill, 2012). For that, the authors argue that the case selection must

be deeply in tune with the theoretical propositions of interest to the research question. In line with an abductive approach, the selection of a single case study can also be useful to “challenge an existing theory and also provide a source of new research questions” (Saunders, Lewis & Thornhill, 2012, p.180).

Highlighting the importance of coherence between the methods and the research question, the choice of the company used in the single case study must also be motivated by the nature of the case (Saunders, Lewis & Thornhill, 2012). The chosen case study revolves around Tetra Pak’s role and its position in the mentioned plant-based ecosystem, thus not considering the company itself, in isolated focus, but in relationship with its environment.

Despite these advantages, which argue for the use of a case study, there are several fragilities to take into account. Having a singular case on which to base the research question can be interpreted as a weakness, given the reduced evidence that can be obtained (Saunders, Lewis & Thornhill, 2012). However, the authors also mention that the number of cases that are incorporated is “not simply related to producing more evidence” (p.181). This means that there are other factors to be accounted for in research design, such as the case company, which matter. Further reflections on these limitations and how they were tackled will be discussed in section 3.5.

### *3.2.1 Choice of Case Company*

While in the previous chapter we motivate the reasons for choosing a single case study, this section aims to elaborate on the choice of Tetra Pak as the centrepiece case company.

Tetra Pak is a global leader in food processing and packaging solutions, with a high proximity to its upstream and downstream value chains. Through an integrated edge, Tetra Pak aims to solve strategic issues, from end-to-end, having food safety at its core (Tetra Pak, n.d.a; Tetra Pak, n.d.b).

On the one hand, considering that Tetra Pak operates in three main branches - processing, packaging and services (Tetra Pak, n.d.b), is in line with the systemic thinking in the literature review, and the introduction of ecosystems as a complex, multi-branched approach.

On the other hand, Tetra Pak’s incumbency (e.g. maturity, experience, resources and market share) serves as a point of reference to the inclusion of an incumbent’s perspective in the

paper, as well as its role(s), which might be derived, to a certain extent, from Tetra Pak's broad acting in current non-plant-based ecosystems. Moreover, the vast food and beverage industries in which they operate are useful for the holistic perspective intended for the research results. Also to be taken into account is Tetra Pak's transversal business sense that derives from close, mutually protecting relationships with clients in many areas. Therefore, one could argue that, to a certain extent, the strength of a multiple-case approach might be enhanced by internalising the richness of Tetra Pak's operations and international presence into a single case study.

Provided that we are considering Tetra Pak as a whole, and have had contact with all the branches for a more systemic understanding of the research question, we will pursue a holistic case study (Yin, 2009). This matter aids the justification of critical and typical elements of the chosen single case study (Saunders, Lewis & Thornhill, 2012). Tetra Pak's representativeness in the processing and packaging industry is key when defining its choice for the study because it conveys the typical aspects, which might be understood at a more general scale for the ecosystem. Whereas the typical argumentation derives from Tetra Pak's illustrative nature, the critical tone is related to the importance of Tetra Pak in the industries and systems it already participates in.

A third principle that justifies the choice of Tetra Pak relates to its high commitment and investment in R&D, working in an open innovation model to develop and explore cutting-edge food solutions. The interest in the sustainable foods of the future, where plant-based food and beverages are included (Tetra Pak, n.d.c), makes the company a natural participant in the emergence of a plant-based ecosystem. Therefore, having Tetra Pak as a case study supports the indirect inclusion of the most contemporary and disruptive food technology or trends, including new food fermentation (Tetra Pak, n.d.d) and alternative protein plants (Tetra Pak, 2022). This allows the coverage of the current literature gap, as well as for the challenges urged in the introduction to be met.

### 3.3 Data Collection

The collection of data for the case has been done through semi-structured interviews, which enabled us to follow the specific themes and questions outlined in our interview guide, with the flexibility of asking other relevant questions that emerged (Bryman & Bell, 2017). Due to

this flexible nature, the choice of semi-structured interviews was also motivated by the exploratory nature of our research (Saunders, Lewis & Thornhill, 2012).

In total, eleven interviews were conducted with seven Tetra Pak representatives, and four with interviewees from other organisations, in research, academia and another incumbent firm in the dairy industry. The number of participants per interview ranged from one to three, taking into account that the interviews with more than one person were justified by the fact that they belonged to the same team, division or projects and could contribute, in a complementary way, to the central themes under analysis. The purposeful selection of these respondents (Creswell & Creswell, 2018) relied on the seniority of their positions and network, but also their involvement in strategic challenges related to our research question, such as partnerships, business development and value in food systems. Given that the three main branches for Tetra Pak are processing, packaging, and services, the selection of interviewees both inside and outside the case company was intended to provide as many nuances as possible on the branches, concerning the themes of the research question. Hence, this motivated interviews with people in knowledgeable positions, and highly involved in current activities related to sourcing, processing, packaging, and research in plant-based.

Despite some interviewees not having plant-based expertise, a plant-based focus was promoted whenever possible in the interviews. The representatives from Tetra Pak varied in their tenure but all had extensive careers behind them and held relevant middle and executive-level management positions at Tetra Pak during our interviews. The selection of interviewees outside Tetra Pak was intended to include plural perspectives both from experts in academia and research, and from an incumbent in dairy, as a way of expanding our comprehension of incumbency, roles and ecosystem logic, more neutrally or impartially.

Due to their different fields of expertise and branches of the interviewees, our interview guide was adapted to encompass questions that would allow the specific interviewee insights to shine through. In **Table 1** below, we have outlined the chronological order of interviews, the representatives and their roles, their relation to our research study, how the interview was conducted, and the approximate duration of the interview.



**Table 1 - List of Respondents of Semi-Structured Interviews (created by authors)**

<b>No.</b>	<b>Stakeholder</b>	<b>Position</b>	<b>Relation to Research Study</b>	<b>Via</b>	<b>Duration (approx.)</b>
#1	Tetra Pak	Global Category Manager, Marketing	Insights from Tetra Pak's history, business and operations, as a introduction to the company, in relation to our research study	Face-to-face	90 min
#2	Tetra Pak	Global Leader for Food & Technology Development  Ingredient Expert  Food Scientist Consultant	Insights from Tetra Pak's processing branch (Food and Technology Development Center), in relation to ingredients and processing solutions for plant-based categories	Teams	60 min
#3	Tetra Pak	Marketing and Innovation Coordinator	Insights from the entrepreneurial perspective, in relation to Plug & Play, seeding and scouting startups with advanced innovation proposals	Teams	25 min
#4	Tetra Pak	Global Marketing, Business Insights Leader	Insights from Trendipedia 2023, in relation to customer trends (usage and attitudes in food and beverages)	Teams	60 min
#5	Tetra Pak	Strategic Business Developer  New Business Manager	Insights from Tetra Pak's services branch, in relation to business development, value creation and support to other branches and stakeholders	Teams	60 min
#6	Tetra Pak	Innovation & Partnerships Manager	Insights from Tetra Pak's partnerships ecosystem model, more	Teams	35 min

			specifically in the fields of early innovation and startups		
#7	Researcher	Project Manager in Sustainability and Digitalisation	Expertise in food packaging, materials and processes	Teams	60 min
#8	Professor	Department of Management	Research on value creation in the food sector, especially in relation to business and management implications	Teams	60 min
#9	Researcher	Project Manager	Insights about the food and meals of the future, from the perspective of emerging opportunities related to shifts in food and sustainability	Teams	60 min
#10	Tetra Pak	Global Business Strategy Director Global Portfolio Strategy Manager	Insights related to Tetra Pak's incumbency (resources, direction, etc), from a strategic standpoint	Teams	60 min
#11	Company X (incumbent in the dairy industry)	Innovation and Category Director	Exploration of the roles and participation in a plant-based ecosystem, from the perspective of another incumbent firm	Teams	30 min

The first semi-structured interview was the only one held physically and on site at Tetra Pak, in Lund. The interview served as an exploratory interview to help us better understand the case company's history and operations, and thereby identify what questions to ask in the design of the following interviews (Saunders, Lewis & Thornhill, 2012). All the other interviews were held digitally through Microsoft Teams due to the interviewees being geographically dispersed. These digital interviews were recorded and transcribed through Microsoft Teams own tools and were then afterwards assessed and carefully cross-checked to ensure that the transcriptions matched the recording, and if not these were then corrected. Before every interview, we had decided on who should be the "interview leader" that would present us, the thesis, and the themes, as well as ask the questions to the interviewees. By having one focusing on this, the other team member could focus on taking relevant notes if

necessary, observing the dynamics in the answers, and thinking of questions outside the interview guide that were just as important to the context. Hence, by doing so we were able to cover several facets and truly focus on the essence of the interview. Both of us were present in all interviews except for interviews #4 and #7, but those were later rewatched by the one who was not present to ensure the same level of coherence.

### 3.4 Data Analysis

Once data had been collected, the analysis stage took place where we initially segmented and clustered the data to later generate sense-making, to be used in the methodological steps. Qualitative data originated in semi-structured interviews highly relies on interpreting both verbal and non-verbal communication, and classification or clustering into several non-standardised categories (Saunders, Lewis & Thornhill, 2012).

For the proposed research we decided to use King's Template Analysis. This data analysis technique has a *template* as the foundational characteristic, which is defined as a "list of codes or categories that represent the themes revealed from the data that have been collected" (Saunders, Lewis & Thornhill, 2012, p. 572). Themes, patterns and relationships are central aspects in the way data is coded and analysed in Template Analysis, unitising data according to a selected hierarchical list of themes and codes (Saunders, Lewis & Thornhill, 2012). As a result, template analysis permits the identification of themes of relevance to the proposed research question, as well as emergent issues which were not initially identified in the research (King, 2012). The discussions around the research design and contributions, and the literature review inspired the creation of the codes. In this process, there was reflexivity on the reasoning behind the codes, including the perspectives from which these were constructed, and how richly they connected with interpretative descriptions (King, 2004).

King (2012) further points out that the creation of the template should be a dynamic process, in the sense that it should be adjusted or revised until all the data has been collected. To better serve the analysis purpose, the author proposed that codes could be inserted, deleted, merged or edited throughout. The underlying intention is for data aggregation in themes to be analysed selectively, and for its accurate value.

Several factors motivated the methodological selection of Template Analysis. First, the hybrid nature of Template Analysis, combining deductive and inductive practices without any fixed position (King, 2004), was in line with the abductive approach chosen for the study. Additionally, King and Brooks (2017) defend that Template Analysis aims to “balance flexibility and structure in how it handles textual data” (p.3), promoting less strict, yet more thorough and in-depth coding procedures. Secondly, King (2004, p. 205) reiterates that Template Analysis can adequately respond to the “contextual constructivist” disposition of qualitative studies, according to the interpretation from researchers, the context of the research and the manifold perspectives of the interviewees. Therefore, the philosophical position of our research also deems Template Analysis as a more suitable method, when compared to other more prescriptive qualitative methods, such as Grounded Theory (King, 2004).

### 3.5 Reliability and Validity

Validity and reliability are two major constructs comprising the quality of the methodology and, as a result, in the quality of the findings (Saunders, Lewis & Thornhill, 2012). Depending on the philosophical perspective implied in the study, there are nuances in the terminology or definition used to describe validity and reliability in the context of the research study (Saunders, Lewis & Thornhill, 2012).

Yin (2009) argues for four main assessment points of the quality of case study research: reliability, construct validity, internal validity and external validity. Nonetheless, internal validity is not applicable to exploratory papers, and therefore will not be presented (Yin, 2009; Saunders, Lewis & Thornhill, 2012).

Following this perspective, reliability evaluates if the same data collection techniques and other research procedures could be replicated by other researchers and, still, produce consistent findings (Riege, 2003; Saunders, Lewis & Thornhill, 2012). This criterion sets emphasis on the rigour of the methods, the role of the researcher(s) and the need for a thorough evaluation and communication of the studied concepts. Saunders, Lewis and Thornhill (2012) have presented four main threats to reliability - participant errors and biases, and researcher errors and biases.

Regarding the participants of the study, the time slots for the interviews were selected in agreement with the Tetra Pak representatives, and respecting the time they had available. In addition, the digital format of most interviews allowed the participants more flexibility and comfort to choose a convenient space for the interviews. Nonetheless, despite our preference to have one interviewee per session, which would have minimised biases, some interviews were done with more people, belonging to the same business unit or department, for example. While allowing a more co-constructivist approach, we are aware of the risk of bias between the participants. This may have manifested in response constraints, from potential differences in seniority, or confirmation biases, given the tendency of the answers to depend on others. In spite of this, the dominant concern was to encourage the interview participants to communicate their answers with honesty and from their own experienced reality, to the detriment of any scripting or storytelling (Alvesson, 2003).

The second item, construct validity, designates the selection of appropriate operational measures and procedures for the theoretical concepts to be researched. Riege (2003) mentions that in case studies, researchers have a more direct exposure to the organisation and its representatives, both implied in the study of the case. As a consequence, the possibility of the methodology becoming more subjective or lacking rigour might weaken construct validity. In the context of this thesis, the starting point for construct validity is the identification of the key concepts that underlie our study, such as plant-based and ecosystem. Given this, we believe that the connection between the literature review and the research methods is comprehensive, as well as the way in which this construction is of service to address the research question.

The fragilities in the construct validity are additionally minimised by the meticulous approach in the phases of data collection and analysis. Evidence from various sources was included, through triangulation, and cross-checked several times from the data collected via transcriptions and quotations. This paper has been consistently reviewed during the report-writing period, and unclear aspects have been improved (Riege, 2003).

A secondary concern in case study conduction is the little basis for generalisation, especially when findings are based on single case studies, which identifies with our research. This topic is essential to external validity, which can be described as the degree of generalisation and extrapolation of particular research findings. However, we must confirm that our intention is

not for this case study to be considered a “sample” of others, nor meant for statistical generalisation. In our thesis, external validity also manifests as analytical generalisation - the applicability of the findings to broader theory, aiming to identify generalisable patterns in the findings (Saunders, Lewis & Thornhill, 2012; Quintão, Andrade & Almeida, 2020). In the context of our research, a clear identification and definition of the scope and boundaries of the chosen research design is the main safeguarding factor of external validity (Riege, 2003).

### 3.6 Ethical Considerations

Ethics is paramount to the success of any research project (Saunders, Lewis & Thornhill, 2012) and researchers must acknowledge ethical risks, prior to the studies (Creswell & Creswell, 2018). In accordance, this section addresses several ethical principles, as well as the procedures adopted to promote ethical practice and beneficence. These concerns are amplified in research projects which involve human participants (Saunders, Lewis & Thornhill, 2012), stressing the relevance of protecting them and harnessing trust and integrity in the research project (Creswell & Creswell, 2018).

In every interview, the purpose and context of this research study were properly disclosed and described. This allowed clarity about the intention and conditions of the study, in a way that discarded unethical framing from lack of informed consent from the participants. Moreover, the anonymity of the participant’s identities was guaranteed, intending to safeguard any concerns regarding personal data and privacy. This was assured by only presenting a comprehensible reference of the job position or department of the interviewees. Furthermore, for the interviewees that were not part of the case company, anonymity was also promised in relation to their organisational backgrounds, to ensure an environment where they could speak freely from their own perspectives without feeling limited by their positions, in their respective organisations. Lastly, there was active consideration both for the time slot scheduled for the interview and the need for further contact, asking the interviewees for authorisation whenever applicable.

With respect to the voluntary nature of participation and the right to withdraw (Saunders, Lewis & Thornhill, 2012), all participants were informed of the output of their participation and were later involved in a member-checking process (Creswell & Creswell, 2018). This means that an iterative process will be established with the participants, cross-checking the

main findings and granting the space for the interviewees to comment on them (Creswell & Creswell, 2018). All of the interactions with the case company were performed under the signing of a non-disclosure agreement, and likewise with incumbent Company X, reinforcing the seriousness and the consideration in this thesis.

## 4. Empirical Results

The results section aims to present the studied case, as well as the empirical findings collected from the semi-structured interviews conducted. The former aims to contextualise the results that will be presented in sections 4.2 to 4.5, by introducing relevant information about Tetra Pak's operational and strategic characteristics and linking those to the current stage of the plant-based sector.

### 4.1 Case Description

Tetra Pak was founded in 1952 with the intention to develop an alternative to bottle-based milk distribution (Tetra Pak, n.d.e). The company's purpose is the following: "We commit to making food safe and available, everywhere and we promise to protect what's good: food, people and the planet" (Tetra Pak, n.d.f). In this study, however, a particular focus is placed on Tetra Pak as an incumbent firm, already operating in the food and beverages industry, including plant-based. In detail, the company has been interacting with plant-based categories for several years, offering "well-tested and well-developed packaging solutions to handle different plant-based products", according to the Global Business Strategy Director (interview #10). For a better understanding of the context of the case, it is also relevant to mention that Tetra Pak's solution has three main branches: processing, packaging and services (Tetra Pak, n.d.b), which also includes marketing and business intelligence, mentioned by the Global Portfolio Strategy Manager (#10).

Moreover, Tetra Pak's international presence and experience over the years has made the company a knowledgeable and respected player in the market, which, in the framing of this thesis, means that the company has co-developed several generations of new food products with their clients. To illustrate this reality, Tetra Pak's Global Portfolio Strategy Manager (#10) shared the following statement:

*Having a global presence of course means that we have customers and brands we collaborate with all around the world, so we share best practices. We know what has been successful in a specific market and we can give you those best practices and cases for inspiration or to replicate them.*



Tetra Pak's customer-focus and long-term values (Tetra Pak, n.d.f) are also important to state, since they provide comprehension of Tetra Pak's esteem for customer relationships, as an end-to-end provider within the contexts the company operates in.

#### 4.2 Plant-based

In the initial stages and throughout the interviews, respondents voiced their opinions and experiences regarding the evolution, direction, and characteristics that have accompanied the emergence of plant-based into its large-scale transition. Although the respondents came from various backgrounds, both within and outside of Tetra Pak, the overall notion of the plant-based category was optimistic. However, it was highlighted that the food and beverage industry did not adopt a plant-based philosophy initially until it "had to":

*I mean, it was not in the interest of most of the industry to go plant-based because going plant-based was also questioning a lot of what the entire industry is based on. So I think that has had a big influence on halting the progress.* [Management Professor, #8]

*Many established companies realise that they need to offer plant-based on top of dairy ingredients, it is not either or. They already have established relationships with their customers, to develop products and relatively easily can expand their offering.* [New Business Manager, #5]

Both interviews point towards, in different ways, the industry willingly not choosing plant-based at first. While the Management Professor (#8) points to the industry's initial resistance and a fear of going against its identity, Tetra Pak employees in interview #5 explain that the industry did not have a choice but to adapt, but that the necessary capabilities were in place to make it work. Overall, interviewees were coherent in describing that this resistance phase had passed. The Global Business Strategy Director (#10), from Tetra Pak, made a further commentary on this, saying that the plant-based category has been around "for decades, if not centuries, [...] with traditional soy products". He claims that in the aftermath of the resistance stage, the sector is evolving "at a much faster pace with new products being brought on".

#### 4.2.1 A Shift in the Food and Beverages Industry

It was on several occasions pointed out in the interviews that the plant-based category in the food and beverage industry had grown tremendously in recent years. Most respondents accentuated a clear shift in customer preferences and a desire to tackle climate-related challenges, from customers and companies, as reasons why plant-based has become more competitive:

*I think the trajectory we have seen in plant-based is exceptional. It really broke so many rules and boundaries of the traditional and core categories, so the hope is that this will continue in terms of market growth, market penetration and market expansion. [Global Portfolio Strategy Manager, #10]*

*Everyone is hitting the ground running to try to solve different ways of combating climate change. And that, of course, is putting a huge focus on the food and beverage industry. [Food Scientist Consultant, #2]*

As can be seen, interview #10 highlighted an unprecedented growth in the plant-based category, while interview #2 explicitly stated that “everyone” is involved in combating environmental challenges. It can be understood that this shift in the industry indicates a new “era” in food and beverages, where it appears that plant-based continues to secure attention. This notion was further strengthened in the interviews since plant-based was described as a category within food and beverages that was still evolving in terms of new innovations and actors, hence indicating that there is still untapped potential in the industry.

*It is very much emerging I would say and sort of a flourishing part of the industry where there are lots of new ideas and new companies popping up everywhere. [Project Manager, #9]*

The abovementioned continuous emergence was reiterated throughout the interviews with interview #5 stating that “...there are a number of products coming and that are growing, and you also see products that are really more of a niche”. In both cases, it is highlighted that the plant-based category products are growing and finding their way to the commercial market. Interestingly, the plant-based category growth was often described as a result of the high

variety of possible blends in plant-based, which enabled multiple combinations of ingredients in the creation of beverages for instance. Several respondents explained that customer demand, due to preferences and curiosity in new flavour combinations, pushed the category further and that it was not just a mere continuation of demand for existing products and tastes already available.

*The other thing we are going to see is more hybrid products within the non-dairy milk space and we are going to see different combinations. We have already, for instance, seen soy and coconut and want to try to deliver more of this taste because we know consumers are excited and willing to try plant-based products. It is just a matter of whether they go back to them or not.* [Food Scientist Consultant, #2]

*So what you see with plant-based, they call it 2.0, is a kind of enhanced way where it is not just one ingredient, but it is gonna be a mix of them. And I think that is the way that it is gonna happen. I think we can play a big role there to help our customers.* [New Business Manager, #5]

Both statements point to yet another plant-based “era” and accentuate the desire to accommodate the customer through the unique characteristic inherent in the plant-based category that allows new compositions and tastes. The described 2.0 era, where the emphasis is on hybrid compositions, was assumed to be promising by several respondents in the interviews for the future of plant-based.

#### *4.2.2 Challenges and Opportunities in the Plant-based Sector*

Yet, one of many key success factors in making the category products appreciated by customers, and perhaps the most essential next to safety as mentioned throughout the interviews, is taste. Creating plant-based products that are tasty was unequivocally considered by the respondents to be imperative in ensuring a successful product that customers returned to, as stated by the Business Insights Leader (#4) that “*taste is still king*” and that “*Taste is the key driver behind the food and beverages people buy*”. Yet, creating various tasty plant-based products was still considered to be a challenge that the industry struggled with.

*So consumers want plant-based ingredients, but yet it is not delivering on taste and texture and everything else that they are looking for. [...] at least for the plant-based products right now, you are more or less developing them as you go. [Food Scientist Consultant, #2]*

*When it comes to plant-based food [...] I think it is still problematic with achieving taste. Sometimes, they are losing me personally as a customer because it does not taste good, so plant-based food producers need to work on taste. [Project Manager in Sustainability and Digitalisation, #7]*

*A lot of companies say “Let us make this new product and throw it on the market”, and then they have some product that maybe consumers taste and then think is awful and then do not want to go back to. [Management Professor, #8]*

Linking these statements with plant-based still being considered in a phase where new ideas and companies emerge, the statements from interviews #2, #7, and #8 highlight how the industry to a certain degree is failing to accomplish a key success factor. From interview #8, it also becomes clear that the industry appears to be trying to cater to the customer demand, but paradoxically delivers products that risk limiting the demand eventually.

Another challenge that was raised with pushing out a lot of products is the quickening saturation in the market, as stated by the Food Scientist Consultant in interview #2: “*Yeah, I would say right now certain sectors are quite saturated*”. In turn, she stated that the accelerated go-to-market strategies could be connected to the launch of plant-based products that are in need of improvements in taste and texture. The same interviewee also mentioned the lack of technological development for the plant-based category as being a hurdle that the industry is tackling. This was further justified by the Management Professor, in interview #8, from the perspective of there not being enough funding channelled into plant-based research.

However, the respondents also accentuated several opportunities in the plant-based industry related to the continued growth of the category and even contradicted some of the aspects in the challenges above. According to the Project Manager (#9), having more and better products would help in “*building the culture of eating plant-based, which is a good thing*”

*because then you are increasing the need [for plant-based]*". Yet, it remains essential that the products actually are better to not end up in a situation as described above by the Food Scientist Consultant (#2) and, by doing so, growing the category further. Another opportunity within plant-based products was related to the possibilities of impact on sustainability as stated by the Global Portfolio Strategy Manager, at Tetra Pak (#10):

*We operate and we've been operating for so long with the dairy industry and we now know that it comes with a cost when it comes to sustainability. [...] We see the plant-based alternatives go hand in hand with our long-term strategy, which is satisfying customer demand for this type of products, and our agenda on sustainability where we want to be the most sustainable packaging supplier in the world. And packing sustainable products is part of it for sure.*

#### 4.2.3. Trends and Strategic Eloquence in Plant-based Categories

Throughout the interviews, the respondents mentioned certain trends in plant-based that they considered have spanned globally. The diversification of dietary patterns, with emphasis on flexitarian dietary regimes, claimed Business Insights Leader at Tetra Pak (#4), is one of those trends captured in becoming "*broad mainstreaming*". This in-between diets movement can also be seen in the creation of blended plant-based products, according to respondents in interview #2, for which processing adaptation and diverse ingredients intelligence and composition are essential. This changing customer perspective has been matched with dual company strategies, as noted by Tetra Pak's Global Business Strategy Director (#10), accompanied by the awareness that "*we need dairy plus plant-based food to feed the world*", in the words of one of Tetra Pak's Strategic Business Developer (#5).

When placing the quality of products and services around plant-based in the centre of the discussion, interviews #2 and #9 reflected on concerns about the insufficiency of an animal-based mimicking strategy and how firms must be more strategic about food processing and fermentation, and the bioavailability of nutrients in the plant-based options launched. Following this logic, the interviewed Management Professor (#8) mentioned that "*[...] there is a professionalisation in the sector, the companies become more and more professional*", and explained how that increased quality in plant-based products derives from

companies becoming better at what they do. However, the Strategic Business Developer at Tetra Pak (#5) shared that *“there are multiple dimensions which makes it pretty complex to figure out”*. In response to this, the Project Manager (#9) shared that *“that is where I think the ecosystem would be great, [...] to connect new dots”*.

### 4.3 Ecosystems

The different interviews revealed that the terminology “ecosystems” was known, but that the perception of the practicalities of ecosystems is not consensual nor linear. Respondents in interview #5 mentioned that:

*It is really a very, very wide area and in that sense, it is not that easy to figure out what the ecosystem is. There are many parties from very big established companies to lots of startups and everything in between.*

Indeed, from interviews #1, #2, #5, #8, #9 and #10, the stakeholders identified as part of the plant-based ecosystem were many, including startups, incubators, ingredient suppliers, distributors, retailers, producers, farmers, consumers, academia, governmental forces, public sector organisations, and researchers.

#### *4.3.1 Stakeholders and Ecosystem Dynamics*

More interestingly, the interviewees were positive regarding the linkages established across stakeholders and provided descriptions of connection, collaboration, partnership and networking in various formats. According to interview #2, an ecosystem's logic is not feasible *“without engaging with the other teams”*, and it was further affirmed that it *“is a collaboration thing because otherwise, we cannot succeed”*. These ideals were also shared in interview #9, where the Project Manager mentioned that actors must be *“willing to collaborate, both in the chain, but also vertically, [...] with competition, which means that all players would be part of the same ecosystem, and help each other out”*. This broader sense of interconnectedness and interdependence amongst ecosystem members was several times referred to during the interviews:

*I really see the combination between different stakeholders to be needed in ecosystems to make it work properly. I see it especially relevant for plant-based [that] we really should work as a whole with a supplier for planning and machinery needed; with the ingredients suppliers; with the whole processing world that we have set; and with our customers and the market trends that we intercept in certain geographical areas. [Innovation & Partnerships Manager, #6]*

*You cannot solve this alone because if you look back historically at how the value chains were constructed, it is that you had your own competitive advantage and you improved your company within your company. But now even if you do that you cannot get the other kind of win-wins by yourself. This is valid for anybody in any country in any kind of industry. [Project Manager in Sustainability and Digitalisation, #7]*

Despite this integrated vision and the focus on the aggregated value generated in the ecosystem, it was also mentioned that firms must be able to adapt their collaboration efforts in consonance with the diversity of stakeholders in the ecosystem:

*It plays a very important role in defining the guard rails for each kind of partnership and in a way that helps us understand how to drive different relationships with the partners in the ecosystem. [Innovation & Partnerships Manager, #6]*

Within this diversity, respondents from interview #10 highlighted that ecosystems can be geographically bounded and that, as a result, multinational companies need to be open to “*the opportunity to not always think global but to be [...] local when needed.*” This observation can be further commented from the point of view that plant-based ecosystems are at different stages, in different regions and that, therefore, stakeholders are pursuing different strategies to accelerate the growth of the ecosystem. As mentioned by Tetra Pak’s Innovation and Partnerships Manager (#6), “*in certain markets, this may come faster than others and different parts of [the company] are taking on this trend a little bit differently.*”

Many other interviewees mentioned the importance of discerning diversity in partnerships to develop suitable partnership scouting mechanisms in ecosystems. Interview #10 used the term “*matchmaking*”, and reinforced that in spite of the rise of open innovation systems, a certain efficiency aspect of the ecosystem derives from “*getting people to know of each other*” and “*to have the right partners to be able to recommend amongst each other*” in “*old ecosystems*”. In relation to business development and the ambition to develop new products, the Strategic Business Developer (#5) mentioned that “*we can do it faster because we are using knowledge already from an external partner*”. So, selecting the “*right*” linkages in an ecosystem was acknowledged as a key factor to growing plant-based, potentially in new consumer occasions or new consumer targets, as advocated by the Global Portfolio Strategy Manager. The criticality of partnership scouting was also recognized by the Project Manager in Sustainability and Digitalisation interviewed (#7):

*It is a very huge challenge to find this kind of network, seek opportunities and find the right partners for your ecosystems and it is a success and failure thing. [...] You have to fail fast, fail forward, you could say.*

In this context, the potential to promote “*a more tight dialogue*”, as expressed by the Project Manager (#9), reinforces the relevance of communication and transparency to sustain relationships in ecosystems. Concerning stakeholder management, Tetra Pak employees at interview #5 shared the opinion that:

*It is very important to have hyper care in terms of if something is not working and this is verbalised. You need to make sure that the customer understands that you are working on it. Then you are solving it.*

On another angle, the three main themes presented so far - choosing the right partners, communication and collaboration - were presented as the main ecosystem challenges, in interview #5. The growth of plant-based categories can, in itself, bring challenges for the ecosystem to manage, associated with the extension of the product lifecycle and the hardships of betting on the right products or categories to extend, according to the Global Portfolio Strategy Manager (#10). Hence, another risk factor in the plant-based ecosystem raised by her was related to poor financial outcomes, from investing in products that are in the market for a short period, for instance. To the challenges in the plant-based ecosystem, she added



high volatility and the absence of a “*known trajectory if you compare it with established daily products, for instance, that can last for decades*”. Nonetheless, the ecosystem's logic was posed as an optimistic response to these challenges:

*There should be more collaboration and there should be a path towards open innovation somehow. I think that nevertheless, it comes with risks and with sharing the value. There should be more collaboration among players in an ecosystem dynamic, where these trials or formulations or market tests can be shared. And this is completely, again, breaking the rules of food and beverage and the dynamics of our way of doing things. [Global Portfolio Strategy Manager, #10]*

The opportunities that an ecosystems approach could promote in plant-based environments were also mentioned in some of the interviews. The Project Manager (#9) indicated that one of the opportunities in the plant-based ecosystem is the juvenile policies and investment practices, in the sense that it conceives more space for companies to create and for the ecosystem, as a whole, to freely respond. Within this space, the Global Portfolio Strategy Director (#10) mentioned that there is more “*possibility for brands to differentiate [themselves] or innovate and bet on the next ingredient and win the market on the other side*”. Complementarily, the Global Business Strategy Director (#10) at Tetra Pak put this comment into perspective by adding:

*We are at a much faster pace with new [plant-based] products being brought on. Creating enough mass within one of these - because it is not an obvious choice that product X will become the next big one - is where the ecosystem has a very powerful role to play: to convey that across the industry and over to consumers, so that it [plant-based] becomes the next biggest thing.*

Throughout the interviews, the relevance of strategic innovation and a “test and trial” attitude was evidenced as key to facing the increased complexity inherent to plant-based. The many ingredients being used and tested hint at a certain ramification of perspectives highly-sensitive to context, the organisational characteristics, and the role taken within the ecosystem. The Innovation and Category Director at Company X (#11) stated that “*it has to do with [...] what you stand for, where you want to go, what is the ecosystem or the*

*environment you are operating in*". Contrasting plant-based with animal-based options, and considering that there are players operating in both sectors, the Global Portfolio Strategy Manager (#10) from Tetra Pak extended the contextual tone of plant-based ecosystems, saying that *"it depends on how you see it. If you are a dairy player, [it is] both a possibility/risk, but that is where many try to have a dual strategy."*

#### 4.3.2 Value Capturing and Value Creation in Ecosystems

Another theme discussed during the interviews revolved around how each participant could contribute to the creation of value at the scale of the ecosystem and, still, ensure viable participation through the value captured for the firm. The Global Portfolio Strategy Manager (#10) at Tetra Pak stated that an ecosystem arrangement allows actors to cater to their customers more efficiently, and, in that way, increase the joint value generated in the ecosystem and for themselves:

*So all a firm wants by being part of an ecosystem, is to be so much centred in the consumer and customer needs that you will be fulfilling those needs in a seamless way. [Global Portfolio Strategy Manager, #10]*

*It is definitely a win-win for ecosystems to function. You need to find this sweet spot where you have an ecosystem of value cycles, where everybody wins on your idea. Otherwise, it is very easy to fail. [Project Manager in Sustainability and Digitalisation, #7]*

Indeed, one of the mechanisms in the ecosystem that tightly influences value has to do with the reciprocity and balance between the actors and the ecosystem, as a whole. In this regard, respondents at interview #5 defended that *"different actors need to be really clear with what they bring to the table and what they expect other actors to provide in an ecosystem view."* Connecting this to other interviews, the respondents were confident that the self-propelling mechanisms firms develop to absorb value can be converted into the generation of value, and vice-versa:

*The strategy to "stay on top" is to continuously want to reinvent yourself, and that will push the ecosystem, even if the firm does not care about the*

*ecosystem. While [...] reinvent yourself, you push the ecosystem to do that as well. There is a middle way there. [Project Manager, #9]*

*Value creation and value capturing have to go hand in hand. I mean, [increasing] the market is the only option that you can also gain from having increased the market, at some point. [Management Professor, #8]*

Interviewees #8 and #9 articulated that, ideally, incumbent firms can combine the processes of value creation and value capture, even though the interviewed Project Manager (#9) stated that creating value that incumbents capture for themselves can be, initially, more important. She claimed that the value that incumbents drive needs to come first, in order for them to “*help lift the rest of the ecosystem*”.

To sustain these premises, several interviewees mentioned the relationship between an ecosystems mindset and operating with a medium-to-long-term perspective. While, from a more practical point of view, the Project Manager (#9) positively noted the need for business models which are built to last, from a more abstract perception, Tetra Pak’s Global Portfolio Strategy Manager (#10) mentioned the trade-offs that participating in an ecosystem might imply, in terms of value:

*It is a journey, so there will be initial stages where you have to give up short term results and perhaps value because, in an ecosystem logic, it is more the mid and long term thinking that will win and where you will cash in. But there will be a transition where the value generated will be less than doing it in a more traditional way.*

Another premise revealed during the interviews was related to circularity and how it can not only increase sustainability but also optimise the creation of value for the plant-based ecosystem:

*In building a modern ecosystem, you also need to have a circular view of things on the value chain. So you need to have an idea of each step in the value chain, and what happens with the leftovers, in order to avoid as much waste as possible. [Project Manager, #9]*

The Project Manager in Sustainability and Digitalisation (#7) utilised the example of packaging to mention the importance of circularity and of “*thinking of the value of the material together with the product for the larger system*”. This “*life-centred approach*”, as the interviewee coined it, is in line with greater product resilience, allowing it to “*live longer, and through different lives*”.

#### 4.3.3 Roles in Ecosystems

When asked to reflect on current roles in ecosystems, the New Business Manager (#5) at Tetra Pak responded that it “*depends on the ecosystem and on customer preference.*” The need to approach plant-based categories and develop the ecosystem “*iteratively*”, as supported by the Global Business Strategy Director (#10), hints that role selection and distribution in the ecosystem can be complex.

One of the initial observations from the interviews relied on whether the roles were actively selected by the members, and if so, what criteria were considered in that reasoning process. In the words of Company X’s Innovation and Category Director (#11), the roles taken in an ecosystem are actively decided:

*I would say most of the time it is defined in a strategy and it is a very conscious choice, and I think the factors that lead to that choice, you can guess them: it is a size of opportunity, what competition is doing, how well we think the consumer is being served, what we see as the opportunities within that area for growth. And it could have more internal drivers as well, when a certain raw material that we want to use more or less of can have an impact of value in another place.*

For this active decision-making around roles, Tetra Pak’s Global Portfolio Strategy Manager (#10) mentioned the relevance of identifying “*core vs non-core capabilities*”:

*Regarding what is not core, but still relevant to have the full proposition, we should delegate, so, look outside through partnerships and collaborations and that would allow us to deliver on that customer need, not necessarily doing everything by ourselves [...] when putting this ecosystem hat on.*

Furthermore, she defended that the definition of roles is subject to a customer-centric approach and, consequently, is in high dependence to the value derived to the final customer/consumer. The Project Manager (#9) complemented this view saying that in a flourishing ecosystem as plant-based, the needs, wants and wishes of consumers are the greatest driver of value in that same ecosystem, and from which roles can be rearranged.

In regards to roles within the plant-based ecosystem, the answers often persisted in the dual vision of leadership vs followership roles. The potential roles within leadership were easier for interviewees to name or describe, and more frequently mentioned for their structural contribution to the continuation of the focal ecosystem. The references to leadership were often associated with the provision of direction, as illustrated in the following quote:

*When it comes to plant-based, there are challenges that, if taken piece by piece, may be hard to solve. Instead if you find the right combination of an ecosystem driver, like a party that takes the lead in some of those challenges, they can really put together the puzzle and challenge solvers in a way that the biggest systemic challenge can be solved. [Innovation & Partnerships Manager, #6]*

In another stance, the Innovations and Partnerships Manager at Tetra Pak (#6) mentioned the importance of having a firm whose role protects a “*broader vision on the whole process*”, connecting and realigning other ecosystem participants towards it. The Project Manager in Sustainability and Digitalisation (#7) spoke about firm traits based on “*nice manifestos, promises, visions*”, developing competitive advantages towards resilient plant-based solutions. She also mentioned that, in pioneering the food system, brand owners and ingredient or material producers are the ones who tend to take the lead. Tetra Pak’s Innovation & Partnerships Manager (#6) specifically stressed the leadership tone of firms that behave as partnerships coordinators:

*It really takes care of managing the relationship with all partners and [...] interconnect needs from the inside to outside, find synergies [...] not only between the company and suppliers but also between suppliers, to really make the whole ecosystem around us grow with us.*

Moreover, the roles taken within ecosystems were pointed out in interview #11, with the incumbent in the dairy industry, as a byproduct of internal factors, such as the purpose or the philosophy of the company, and external factors such as competition and other free market dynamics. Even though there is a tendency for firms to aim for “*taking charge and be the winner*”, as the Innovation and Category Director expressed (#11), the attribution of roles was admitted as a thought-through process.

#### 4.4 Incumbents

From the interviews, incumbents’ stand-out elements were characterised in terms of “*technology and knowledge, and [...] deep expertise in an area*” by the Innovation and Category Director (#11). At interview #10, incumbents were seen as “*traditional established players [which] have presence across the value chain*”. The Project Manager in Sustainability and Digitalisation stated that incumbents have “*more power to influence*” other players and the ecosystem since they are a “*larger and bigger force*”. Expressions such as “*big size*” and “*large player*” and “*resourceful*” were also common conceptions used in the interviews to describe incumbents. In addition, being well-established in their relationships, and owning the trust of the retailers were examples provided by the Management Professor interviewed (#8). Another characteristic mentioned by her relied on the ability of incumbents to “*reach out to many more consumers*” and “*produce a large amount*” of products. Agreeing with this, the Project Manager suggested that an incumbent “*offers products and services to [...] mass market*”, having scale and breadth of action as features in their favour.

##### *4.4.1 Incumbents in the Plant-based Ecosystem*

In line with the characteristics listed in the above section, incumbents can benefit from their resources and their privileged access to other actors within plant-based, as stated by the Project Manager (#9). The Innovation and Category Director (#11) listed that size and scale, investment in technologies, and access to raw materials could be considered the most significant spaces of opportunity a plant-based ecosystem could represent for incumbents.

In a more limiting tone, interviewees #8, #9, #10, and #11 all agreed that incumbents’ size can be a hindrance to pace, proactivity, innovation and, to a certain degree, generate

resistance to new-era plant-based premises. Illustrating this, the interviewee from Company X (#11) commented that, as an incumbent, “*it becomes harder to turn the ship*” and that “*you risk more every time you launch something you have credibility [in] or a certain positioning of your brands.*”. The Management Professor (#8) added that this can be particularly sensitive to firms which were not rooted in plant-based, such as dairy companies, given the path dependencies existing in identity and other constraints in terms of ownership structure or governance.

Such firms, which benefit from incumbency in non-plant-based food sectors, redirect many resources towards plant-based when they decide to enter that market. This is especially expressive, said the Management Professor (#8), in relation to marketing and communication efforts. The connection between marketing, social media and plant-based was also mentioned in interview #10, as a brick-and-mortar way to promote awareness for emerging plant-based products. In a more strategic light, the Management Professor (#8) also mentioned the convenience of participating and promoting the plant-based ecosystem as a way of showing that “*they [the incumbents] are doing good*”, and protecting their “*corporate image*”. These points were supported by the Management Professor (#8), who expressed:

*For small companies, a lot of them have portrayed themselves as being driven by values to have and changing the world and making it better. But of course, that is maybe also storytelling, that is what companies typically do. And a big company is not really allowed to do it, because nobody will believe them on that. But on the other hand, I think some of the bigger companies actually, may go into the plant-based sector as a way to show that they also want to do something for sustainability.*

The Management Professor (#8) also argued that whereas smaller companies “*do not have enough resources to do more than just one thing*”, the opposite risk can happen to incumbents, which “*have the opportunity and the resources to do a lot [and] some of them did not manage it*”. This distinction was further supported by both Tetra Pak respondents at interview #5, who stated that:

*Incumbent firms typically focus on dairy or plant-based. Some of them start to include both, by cooperation and/or acquisition, and present themselves as*

*ingredient suppliers. Startups typically have [only] one area, or even sometimes one specific ingredient they focus on. Typically the incumbent knows the market and trends, is used to developing concepts, and now needs to look at what new plant-based ingredients could mean for future products.*

As a consequence, in the movement of expanding to plant-based, incumbents were described as cautious in the early stages, to later “*having a big market share in a very short space of time. And actually, [having] quite good products, because maybe they waited so long.*”, said the Management Professor (#8). From her perspective, the rise of the plant-based ecosystem, and the decision of participation from incumbents can be localised in a certain stage, and surrounded by different degrees of intervenience from other stakeholders:

*In the beginning, it was the consumers who started it, then it was companies in the plant-based sector, at some point, the big companies were coming in, and the retailers were doing something and then the politicians so that each player was playing a role in each phase, until they announced collaborating on that.*

#### *4.4.2 Incumbent’s Strategic Contribution in a Plant-based Ecosystem*

The maturity of incumbents was considered extremely important to promote relevant levels of scale and growth in the plant-based categories. The Management Professor (#8) shared the following thought about how incumbents can contribute:

*I especially think the most important thing that [incumbents] can do for the whole sector of plant-based is that they can help to increase the market. And in my view, I think that is super, super important because this market would not grow if it would not be for some of the big companies to come in. Especially those companies who otherwise are actually criticised, or [...] considered the opposite of this market. They do not have to fight against plant-based.*

Elaborating on this thought, she shared that “*the plant-based niche market will remain, even if this does not become a mass market, [...] and the companies that are on the niche market*



*[...] will stay there.*”. Therefore, she summarised, incumbents can contribute immensely in “*bringing the whole sector forward*” and “*getting it from a niche market to a bigger market*”. Indeed, one of the growth constraints in the ecosystem, identified in interview #10, and that incumbents can facilitate, is the infrastructure and access to large-scale retailing. This observation was expressed by the Global Portfolio Strategy Manager (#10), in the same interview:

*Also, from the point of view of partnerships in ecosystems thinking, there are so many risks and barriers that you could overcome. The number one barrier for new brands to succeed is actually the access to distribution and to large-scale retailing.*

According to the Global Business Strategy Director (#10), with the expansion of incumbent firms into new sources of value, higher levels of change can be achieved in food systems. He hypothesised that “*many people who are usually considering dairy as their base, maybe will start to consider plant-based as their base*”. While smaller firms can be more agile and pioneer the ecosystem breakthroughs, incumbents tend to “*first watch*” and decide to participate in such plant-based categories when they believe they have a competitive product and could “*get it out to a bigger market share*”, from the perspective of the Management Professor (#8).

Nonetheless, the discussion around incumbents’ roles also led to some fragilities being pointed out, such as the fact that incumbents might undermine their real influence over the ecosystem, and other actors. This was argued by the Project Manager (#9), who also added that some incumbent firms do not extract the full potential of their roles in plant-based industries because “*they do not see what is in it for them to actually have a sustainable impact*” from a strategic point of view. As a suggestion, the Marketing and Innovation Coordinator (#3) mentioned that incumbents still have “*a lot of space to promote [themselves] as innovative and as partners for innovation*”. The same interviewee continued to express that:

*I think we [incumbents] are too shy, yet I have the perception that we are putting our feet there just to feel the temperature of the water. We did not jump*

*yet. So I think we have a lot to grow and communicate, meaning that we have space to position ourselves. [Marketing and Innovation Coordinator, #3]*

This observation was shared by the Project Manager in Sustainability and Digitalisation (#7) as well, who commented that incumbents “*should open up themselves*” to grasp the full potential of their roles and serve the plant-based ecosystem in a more devoted way.

#### *4.4.3 Incumbents vs Insurgents in Plant-based Ecosystems*

When asked to describe how incumbents differentiate themselves from other ecosystem actors, most interviewees organically used the contrast between incumbents and insurgents, and the ecosystem dynamic between the two. Interviewees #1, #7 and #10 believe that, through an ecosystem approach, both incumbents and insurgents can host complementary roles and channel their functions and capabilities in distinct, yet enriching ways. Accordingly, this dynamic was described by the Project Manager in Sustainability and Digitalisation (#7):

*I see more and more incumbents that create incubator programs where they can share their challenges and their pain, you know. If they want to investigate something about the future, [...] they can arrange a program where insurgents can apply to, and together in partnership, without being afraid that “my small company will be eaten up by a big company”, develop some kind of ideas together, which will see the market.*

At interview #10, the respondents reflected on how entrants can force incumbents to take a stance and, therefore, gain perspective over the roles they can fulfil:

*An interesting way of looking at it from an ecosystem point of view is that [...] we are seeing new players. Another interesting part is how these new entrants pushed dairy players to step into plant-based as well. It is breaking some boundaries... [...] I would have never thought of an established dairy player launching a plant-based range of products that could potentially cannibalise their core product.*

#### 4.4.4 Incumbent Roles in Ecosystems

After understanding what differentiates incumbents from other organisation types, the discussions funnelled to understand what distinguishes incumbents amongst them, and how roles can be fulfilled accordingly. When asked if incumbents had similar capabilities/possibilities to assess roles, and/or if those roles could be transferable in between them, the Innovation and Category Director (#11) responded “*Oh, for sure! One hundred per cent, others have the same.*”. He added that “*In general, [incumbents] benefit from many of the same variables, but they have their [own] strongholds*”. Aiming to comprehend, as a result, how “similar” incumbents could serve the ecosystem differently, interviewees emphasised the competitiveness aspects within the ecosystem, and how innovation and timing can make a difference:

*The ingredients business is a very competitive market, so the first that shows new concepts has an advantage. Having said that the market as such is big enough for several big firms to compete with a similar offering.* [New Business Manager, #5]

*I see this linked to the product life cycle. In the growth phase, new incumbents will enter, most likely with similar offerings, as there is still room to grow, but with new variants, formats, markets, channels. Here, in my opinion, the first could have an advantage.* [Global Portfolio Strategy Manager, #10]

Focusing specifically on incumbents, several interviewees were able to mention the different roles these firms could take to grow plant-based categories. Reinforcing the previous results, the interviewed Management Professor (#8) mentioned that “*the most important role for them is maybe not to start with something completely new, but to make it into a big market.*”

For this to be possible, one of the arguments presented by the Project Manager (#9) implies that incumbents are the main force of support of other ecosystem actors that can contribute to solving some of the key success factors in plant-based, mentioned in the beginning of this section. The Project Manager (#9) also presented three examples on how incumbents could support academia, the public sector and policymaking to leverage plant-based:

*Incumbents have more capabilities to access academia and to leverage the knowledge from academia, for example, by financing research. They could also tap into the public sector, in terms of public meals. It is easier for larger and more established firms to make business with the public sector and that could have an impact on policy making, and on politicians.*

The Project Manager in Sustainability and Digitalisation (#7) stated that incumbents “*have a lot of muscles*” and so, that “*they should be leaders.*” Yet, in the vision of the Innovation and Category Director at Company X (#11), the relationship between incumbents and leading or following positions is more nuanced:

*I would say when it comes down to products and innovation and playing in different categories, the answer starts to become a bit more versatile. I think that there are definitely some places where we are followers and we do not invent new categories, but we pick up what is out there in terms of categories and try to deliver a great combination of taste, quality and price to consumers. And then there are some categories where we are truly leading-edge and the industry puts us as the standard to follow.*

Moreover, one interesting clarification was that, when used as default, the category of “incumbent” seems to be attributed to an organisation, and the context-boundedness of that incumbency tends to be overlooked. The Innovation and Category Director of a dairy incumbent firm operating in plant-based (#11) stated that: “*in plant-based, [...] I would not call [us] an incumbent.*”. He elaborated that the distribution of roles within an ecosystem must respect these variances amongst sectors and categories into account.

#### *4.4.5 Incumbents & Leadership Roles*

Amongst the roles of leadership, two main ones were mentioned by interviewees: the nurturer and the educator. In the first one, incumbents were seen as having responsibilities proportional to their size, and as a “*very big positive burden on [their] shoulders*”, according to the Innovation and Category Director at Company X (#11). He described the responsibility as a nurturer, within the ecosystem and within food systems, as the following:

*From a sustainability point of view; from a agricultural best practice point of view; from a quality point of view, it is a huge role that you play, first and foremost, from that perspective, I think [incumbents] also have a big role to play in terms of delivering nutritional and quality products to our consumers.*

The second role mentioned was related to educating consumers and “*to create awareness and to bring great options for them to live their best life*”, expressed the Innovation and Category Director (#11). This point was reinforced by Project Manager #9, who mentioned that the position to “*shift behaviours*” is transversal to the different ways incumbent roles manifest.

The respondents also mentioned the underlying importance of ethics, given the tight connectedness incumbents have with other stakeholders and the extensive influence. Therefore, according to the Innovation and Category Director at the dairy company (#11), the role of incumbents must be more directly related to the vision of the ecosystem and its purpose, when compared to other players:

*We also have a responsibility to innovate, to look into the future, to think about what is the function of food and the agricultural footprint, etc, and how we can balance that out with the growing population and growing needs. So I see the purpose at that level and then all the things about operating ethically and doing the right thing, It is [...] a hygiene factor.*

#### 4.5 Tetra Pak as an Incumbent in the Plant-based Ecosystem

In addition to section 4.1, where the case company was framed in the plant-based context of the results section, many insights arose from the exploration of Tetra Pak, the single case company, with which we had 7 interviews with, in the different branches. Thus, this section aims to present the results that lead to an understanding of how Tetra Pak could be in line with the research question, and the role(s) of an incumbent in a plant-based ecosystem.

Interview #5 described the operations of the company, mentioning that it has “*overarching processes in the services development process and product creation process that are essentially catered to developing products and services as a whole in a big company*”. The service branch provided more direct insight on how plant-based could be encouraged,

through two main avenues: “*develop new portfolio*” and “*new business and partnerships*”, stated the interviewees. They also described that if a plant-based product is promising, then it is “*handed over to the line organisation*”. The Strategic Business Developer (#5) mentioned that all of these processes are done mainly in-house, however, “*that is not always the fastest*”. In this process, the Innovation & Partnerships Manager from Tetra Pak shared that the company works with “*several priorities and inputs from the outside and from the inside, in terms of crossing our company automation strategy with what is happening outside [their] windows*.”. She emphasised the importance of test-and-trial and exploration phases, where assumptions are tested, before product creation. The freedom to “*try things and see if it works*” was further mentioned in interview #5, as well as the opinion that “*in the current environment with a lot of startup companies, it makes sense [for incumbents] to be a little bit more agile than the old fashioned big process*.”

In regards to plant-based, the respondents in interview #5 stated that “*the core sits in the processing*”, aligning with the perspective of the Ingredient Expert (#2) that Tetra Pak’s “*processing equipment can make it safe and available for consumers*”. More structural company values are also respected in plant-based categories, according to interview #2. Here, the Food Scientist Consultant (#2) presented that the company is “*a great way of manufacturing products that have a long shelf life, [...] with no preservatives and, typically, clean label ingredients*”, which not only might bring solutions for plant-based but also aid the systemic food shift. Indeed, “*food safety and abiding to regulation*” were focal points mentioned in interview #5, both for Tetra Pak, but also for the ecosystem.

In those ecosystems, the two Tetra Pak representatives in interview #5 mentioned that the company is “*combining forces with suppliers of ingredients to provide solutions to customers*”. The tight relationship Tetra Pak promotes with its customers was also noted by the New Business Manager (#5):

*If a customer buys an ingredient plan from us, they know that it works on the machines they have because we have validated it on our machine. So we are trying to provide this value together with those suppliers of ingredients where we as Tetra Pak are the machine owner.*

The main strategic ambition presented was to be a “*system end-to-end provider*”, according to interview #5, even though it was acknowledged that there is a co-dependence with the remaining plant-based participants in the ecosystem. In the same interview, it was mentioned that:

*The [plant-based] ecosystem [...] depends very much on what our customers expect from us. We can do “everything”, but that is not what creates value in the eyes of the customer*”. [Strategic Business Developer, #5]

Indeed, the most consensual role identified for Tetra Pak in the interviews was related to the provision of an end-to-end solution, illustrated by the following:

*When we produce powder, it is not necessary that it is going to turn into something good, but we can try to turn these ideas into reality because we have commercial equipment available and we have extra what normal producers traditionally have in their pilot plants. We have product development since that is where we have the commercial equipment that is going to be out at customer sites, where we can do all these tests. So we can put it all into Tetra Pak*. [Ingredient Expert, #2]

*We have current partnerships when it comes to offering a full solution to our customers, including a kind of palatalization or end-of-line solutions. [...] We offer these contacts and full solutions to customers worldwide, but by leading*. [Global Business Strategy Director, #10]

In regards to the roles Tetra Pak potentially could take in the ecosystem, the Global Portfolio Strategy Manager (#10) responded that the company tends to be the “*orchestrator*” or the “*leader*”. However, the different respondents commented on this consensual observation from different angles. Tetra Pak’s Global Leader for Food & Technology Development (#2) mentioned that one of the roles Tetra Pak fulfils currently is to integrate other actors, such as startups, in the ecosystem. This supportive role of Tetra Pak was also mentioned by the Ingredient Expert in the same interview, who stated:

*We have to support the world in these new coming technologies and ingredients because we find customers saying, in so many parts of the world,*

*that they want to enter plant-based, but have no knowledge in house. They do not know where to go, they do not know who to approach, and they do not know the technology. We need to be ahead of innovation and one of our main goals is to do that for customer growth.*

The Food Scientist Consultant (#2) continued this line of reasoning, emphasising the importance of aseptic technology in Tetra Pak's forefront position in the development of technology. Lastly, the Marketing and Innovation Coordinator (#3) added that, in her vision, technology is the main value for Tetra Pak:

*It maintains the characteristics of the product, the quality. It does not make conservatives to be used in the product, so it makes it very natural. I do not see any other package so good in terms of technology and structure for this product today. So I think this is the main value for us.*



## 5. Discussion

This section intends for the three main themes identified in the theoretical section - ecosystems, roles and incumbents - to come together with the empirical findings presented in the previous chapter. Therefore, the discussion is organised in two main parts: section 5.1, where ecosystem theory is merged with the illustrative empirical field of plant-based; section 5.2, which relates incumbent firms with roles, within the context of an ecosystem.

### 5.1 The Plant-based Ecosystem

The empirical findings have outlined the unprecedented growth in plant-based categories raised in the literature, reassuring the large-scale transition towards a plant-based 2.0 stage, as a response to major systemic challenges. As mentioned in one of the interviews, depending on the geographical market and the plant-based category, some of the products have been commercialised for decades or centuries, allowing the sector to move at different velocities. Our research has demonstrated that the market holds space to scale and commodify plant-based, aiming to normalise plant-based solutions for the masses, as well as to protect niche products and specialised processing. Yet, Iansiti and Levien (2004b) note that the diversity of niched customer targets can only be sustained if these niches are in line with the value-creating drivers of the ecosystem.

In the context of plant-based 2.0, where ingredient blends and processing solutions become more complex and the tension between dairy and plant-based is diffused to find a common ground of relevance, ecosystems were agreed to be suitable orchestrating mechanisms. Taste continues to be, both theoretically and empirically, the most urgent key success factor to tackle, with the need for a step up in the technological development of plant-based solutions. The principle of counter-intuitive behaviour, mentioned by Gharajedaghi (2012), can be used to explain the contrasting go-to-market strategies in plant-based 1.0 and 2.0. The initial intention to serve customer demand faster led, according to our interviewees, to the launch of products that do not deliver the best customer experience regarding the key success factors of the plant-based sector. However increasing the exposure of demand to plant-based alternatives, the risk of saturation might hinder the engagement with such categories.

One of the most intervening factors in the plant-based ecosystem dynamics is related to disruption waves within the products being developed and launched. From the interviews, the test-and-trial philosophy was strongly present as an underlying way to leverage the ecosystem, matching Jacobides, MacDuffie and Tae's (2016) statement that welcoming transition is highly relevant in ecosystem evolution and participation. Furthermore, the ideology of "failing fast and forward", an expression used in the empirical findings, could impact the current challenges in plant-based sectors. Nonetheless, it could be argued that the robustness provided by an ecosystem, advocated by Gharajedaghi (2012), could tolerate in an optimised way the levels of innovation promoted in plant-based, and promote a relevance-focused strategy amongst ecosystem actors.

Indeed, the synthesis of ecosystems, both empirically and theoretically, points towards a valorisation of ecosystems as a form of organisation, in spite of not reuniting a consensual definition nor a closed field regarding the ecosystem participants. This is supported by the fact that interviewees would often describe the ecosystem, and who participates in it, from the angle of their job positions, or their business unit. Indeed, these points are consistent with the characteristics of openness and permeability in ecosystems, presented by Gharajedaghi (2012), Autio & Thomas (2014) and Gulati, Puranam & Tushman (2012).

The recognition of ecosystems as an advanced form of collaboration was generally noted both in the literature and by practitioners. The interviewees reported the notion that more value can be achieved collectively, and that, therefore, they perceive the benefits of ecosystem architecture to tackle systemic challenges. This logic was explained in the literature by Gharajedaghi's (2012) emergent property principle, which stresses that the relationship-generated value in the ecosystem surpasses the value of firms, in isolation. Also, Iansiti and Levien (2004b) have emphasised the dependability of ecosystem value on the strength and type of interactions between ecosystem members.

Despite the criticality of ecosystem relationships, the empirical findings reflect that collaboration and communication are amongst the most significant challenges in ecosystems. This implies not only selecting the degree of involvement with the ecosystem actors, and how to nurture such linkages, based on the roles and contributions desired by each firm. Some of the hardships in these areas were connected to the implicit nature of plant-based, which introduces variety in inputs and complexity in the processing, therefore pressuring the

productivity aspect of the ecosystem proposed by Gharajedaghi (2012). Another concern expressed during the interviews regarded partnerships and how relevant it is to gather enriching members in the ecosystem, given its interconnectedness principles.

Relating ecosystem dynamics amongst participants with value creation and value capturing, the opinions diverged empirically about how these two topics could be managed by the different ecosystem actors. However, it was consensual that an equilibrium between the two forces would be ideal over the long-term and for that, Iansiti and Levien (2004b) advocate that only value-generating variety in firms, products and services should be incentivised in the ecosystem. This alludes back to the natural selection needed in the ecosystem, suggesting the moderation not only of the plant-based products developed and launched but also the number of participants in the ecosystem, according to their relevance and contribution to the value co-creation at the scale of the ecosystem. The actors and their activities are constituent parts of the architecture of the ecosystem, which should, according to Jacobides, Cennamo and Gawer (2018), be tailored towards improved patterns of value creation and capture. Interestingly, responsibilities related to value management have been associated in the literature as a building block of leadership-based roles.

The key success factors in plant-based mentioned previously are especially relevant in the light of the customer-centric approach proposed in the empirical findings, being one of the factors to ponder in regards to ecosystems' roles. Since the customers are also one of the stakeholders integrating the ecosystem, the potential to achieve value creation and capturing is tightly correlated with meeting the demand, and demand being in parity with the systemic shift in food. Indeed, Hearn and Pace (2006) mention that this transition implies that companies continue their focus on the value delivered to the customer, but start thinking about them as co-creators of value, in co-opetition within the plant-based ecosystem. This recommended approach articulates a systemic perspective and follows, according to Wright (2014), more the principles of business ecosystems than innovation ecosystems.

The possibility for a “managed ecosystem model” as suggested by Autio & Thomas (2014) and Gulati, Puranam and Tushman (2012), also encompasses the expression of complex coordination through more diversity in roles. Nonetheless, a wider range of roles available in an ecosystem challenges not only the plasticity of the ecosystem but also firm-specific boundaries and decision-making. From a strategic sphere, and given that there is no guarantee

in the singularity of roles amongst the different ecosystem participants, the dispersion of responsibility can result in challenges regarding the efficiency of resource allocation. Even though being resourceful was one of the competitive advantages of an incumbent, it is equally important that there is a resonance with the contextual nature of roles, and that resources are reallocated strategically. According to Kapoor (2018), if this is attained, the value proposition of an ecosystem expands.

Based on the interview findings, the perception around roles was that these are dynamic and actively selected as a strategic intention from the firm. Although the firm category (e.g. incumbent, entrant, etc) brings a strategic evenness to companies who share the same category, in terms of characteristics and capabilities, there are many other factors implied in role distribution or selection in an ecosystem. One of those factors is directly related to firm-specific characteristics, such as ownership structure, governance, market(s) and sector(s) presence and positioning, competitive advantages, etc.

The literature poses emphasis on the evolution of these roles, and, with the contribution of the interviews, how new market landscapes can unlock new roles to be fulfilled or how companies can participate in more than one business ecosystem. When asked about roles, most interviewees relied on the same dual approach that the literature proposes: leadership and followership, usually portrayed by incumbents and insurgents, respectively. Nonetheless, when asked to describe the roles that organisations could have in a plant-based ecosystem, or currently have in other ecosystems, the interviewees answered with functions and activities that cannot be linearly categorised in the spectrum of leader-follower roles. As an example, the roles of connecting other stakeholders, scouting and recruiting new ecosystem partnerships or educating and raising awareness showcase that, within a systemic conception, the roles of an ecosystem do not follow a dual, nor linear conception, but rather a more archetypal tone.

Moreover, taking into account the relativity in the perception of roles, the empirical results have shown that the interplay of roles within an ecosystem can be highly contextual, varying amongst plant-based categories, changing as the ecosystem grows and adapts, and allowing multiple manifestations, or activities, of the same overarching role. In the same way that leadership can be shared in an ecosystem, Adner (2017) postulates, the empirical findings evidence that roles are intention-based in nature and that, to a certain extent, are part of the

strategic exercise of members operating in a certain ecosystem. Despite this, Jacobides (2019) clearly states that encompassing a leadership role within an ecosystem is not available for every firm, which also showcases that certain roles become accessible to firms through a combination of certain internal and external factors. For a full accomplishment of the utilitarian value of the plant-based ecosystem, in the purposefulness aspect proposed by Gharajedaghi (2012), Autio and Thomas (2014) argue that a complete, whole-value solution should be provided. Therefore, the roles that different ecosystem members take up could also be thought to fulfil the same end-to-end purpose, through a variable combination of activities and responsibilities from the ecosystem actors. Paralleling this with the vision that the plant-based ecosystem is a complex adaptive system with a unique architecture and mapping in itself, then the selection of a role, whether more inclined to leadership or not, has the selection of an organisation's contribution to the whole as the primary aim.

## 5.2 Incumbency and Roles in a Plant-based Ecosystem

The empirical findings related to the incumbent's characteristics and their roles in ecosystems align, in many ways, with the theoretical perspective written in the literature. The inherent capabilities of incumbents, such as Tetra Pak, were in the interviews argued to ensure a role that would sustain quality and robustness in the ecosystem and reflect Christensen and Rosenbloom's (2014) notion of roles that are intended to reinforce trajectories and performances. Thus, the research indicated that responsibilities catering towards the facilitation of the ecosystem, as accentuated by Jacobides, MacDuffie and Tae (2016), were essential and also expected from the incumbent(s), by the respondents. Resources and capabilities for supporting others, investing, and networking were ascribed to incumbents, and highlighted the expected dynamic capabilities mentioned by Kim, Paek and Lee (2022).

However, the findings did not necessarily fully cohere with the author's notion of incumbents' unlikelihood of pioneering new ecosystems. The research from Chandy and Tellis (2000), in addition to the data collected from the incumbent representatives points to a strategic modernisation of incumbents, in which they are closer to innovation responsibilities. This could also translate that incumbents are eager to explore new roles, and, as recommended by some interviewees, embrace their power and be more invested in the plant-based shift, despite the higher risks for their branding capital.

At the same time, insurgents seem not only to be a pushing force for incumbents to use their maturity and resourcefulness in a more exploratory way but also understanding from incumbents that the efficiency and survival of the ecosystem cannot bloom from product saturation and underdeveloped key success factors in plant-based industries. As a result, the contrasting findings on the characteristics between incumbents and insurgents point towards a converging movement between the complementary activities of incumbent and new entrants, towards the professionalisation of the plant-based sector. This fit alludes to the idea of the actors within the ecosystem not only actively choosing which roles to undertake, but that their roles can derive from what is missing inside the ecosystem for it to be leveraged, with the flexibility to change over time, nonetheless.

Yet, the above mentioned characteristics and the roles stated in the findings depict incumbents in the context of the traditional food market. With ecosystems blurring the industry boundaries in ways such as by having a plurality of actors from several industries present, the relationship of substitution versus competition adds another dimension to what plant-based ecosystems entail for the ‘traditional’ incumbent. The findings highlighted that there are differences amongst incumbents, and that ‘traditional incumbency’ characteristics do not necessarily translate from other food sectors into the plant-based category.

Several challenges were underscored in the findings, such as the need for new technologies, improved ingredients, and more research in plant-based products. Moreover, the incumbent’s size characteristics were accentuated to hinder the adequate flexibility to switch courses, when needed, or for that matter to even react quickly enough to discontinuities. Thus, in the face of a highly ramified and multifaceted sector such as plant-based, it appears that incumbents are more prone to risks in strategic dispersion. However, the diversity in the resources for incumbents matches the diversity and complexity of ingredients in plant-based products which could be promising for the ecosystem, although it seems that if incumbents focus on too many roles to serve the ecosystem, the execution might get lost.

In short, the interviews revealed that there are incumbency characteristics which are non-exclusive, but that each player has different strengths from which they can leverage their contribution or sustain their roles. Moreover, the influence incumbents can exhibit in ecosystem governance, through competition and gateway keeping, can alter the way in which roles are taken in the ecosystem. As an example, incumbents can intervene in the discretion

and roles of other ecosystem members in the plant-based categories by selectively entering certain saturated categories, pursuing mergers and acquisitions or claiming roles that initially were performed by insurgents.

When contrasting incumbents with the leadership description in the literature review, many of the attributes are convergent: a strong resource base and bargaining power (Hurmelinna-Laukkanen and Nätti, 2018), strong relationship mechanisms (Dedehayir, Mäkinen & Ortt, 2018; Moore, 1993), sufficient size and capabilities to operate having aggregated value in mind and think at a larger scope (Moore, 1993; Linde, Sjödin, Parida & Wincent, 2021; Zhu & Du, 2023). As a result, one could argue that leadership positions place a more serious focus on value creation and several management facets in the ecosystem. Given the compatibility between leadership requisites and incumbent characteristics, this could also be analysed from the perspective of the expectations other ecosystem members develop of incumbents and, in turn, in aspirations incumbents gather for themselves. Therefore, even though the literature does not convey that incumbents must be ecosystem leaders, our findings point to the fact that incumbents reunite the characteristics to fill leadership roles, and are, generally, more capable to do so, when compared to other ecosystem actors.

Nonetheless, in line with the ecosystem dynamics described throughout the discussion, leadership does not correspond to a singular role, and it can encompass many different responsibilities and activities, depending on the context (outside-in) and on the firm-specific characteristics (inside-out). An additional mention relates to collaborative leadership, proposed through the work of Jacobides (2019). This is derived from the realisation that the differences amongst incumbents might mean that, in practice, some are more capable to lead for having superior value propositions in their products or being distinguishably resourceful in a specific field. In other words, our research hints that if an ecosystem is populated by one incumbent which reunites greater power and resources in a more integrated way, the leadership roles might become more unilateral. As an overarching result, leadership in an ecosystem does not have to be taken as a whole, and it is not set that an incumbent firm should aim to accommodate or respond to that role integrally. Thus, the active decision-making about roles mentioned in the interview findings could be the factor that bridges being eligible for a leadership role and effectively absorbing that role, provided that incumbents have the substance in resources and power to do that.

## 6. Conclusion

The main purpose of this thesis has been to enhance the comprehension of the roles of an incumbent in the context of an ecosystem. In order to do so, the following research question was formulated:

*How can a plant-based ecosystem be leveraged, from the perspective of an incumbent firm operating in the food and beverage industry?*

Rooted on a qualitative single case study, this research question was addressed by exploring the intersection of three main domains - ecosystems, incumbents and roles. Looking at them in depth, ecosystems welcome new combinations of stakeholders in an advanced form of collaboration, therefore, enabling more complete value propositions. Our findings have shown that incumbents' roles can be cascaded down to various activities, yet, that all of those roles respond to the overarching purpose of sustaining and reinforcing the development trajectory of the ecosystem, towards more mature stages. Thus, an incumbent's contribution seems to be even more relevant in emerging ecosystems, such as plant-based, once the ground base value proposition has been seeded and the critical lead ecosystem actors have been gathered.

Moreover, our findings emphasised the linkage between the incumbency characteristics and the leadership-based roles within ecosystems, yet acknowledging, however, that other firm-specific attributes also influence the undertaken roles. Given that the value of an ecosystem is mostly extracted from its linkages and relationships, then, the incumbents appear to be core value-leveraging actors. This is because they reunite greater influence in management, governance and coordination facets, which seem to be the most critical components a leader can influence. Even though all ecosystems require direction and purpose, ecosystems are not bound to have incumbent members, nor do all incumbent members host leading positions. Furthermore, it was found that participation in several business ecosystems, potentially overlapping or adjacent, is more available for incumbent firms, raising the question of resource-effectiveness and strategic adaptation of roles.



## 6.1 Theoretical Implications

The presented findings advocated several theoretical implications, motivated by the twofold contribution to the identified research gap. Firstly, this research aimed to further contribute to the theoretical body of ecosystems, by extending its study onto new theoretical angles. The existing theoretical material encompasses the understanding of how the value of an emerging ecosystem, illustrated by the plant-based ecosystem, can be leveraged and contributed to, in general terms. However, the focus on incumbents within ecosystems is the core contribution of our work and has extended the interpretation of incumbents as highly influential and resourceful actors. Consequently, this thesis suggests that incumbents qualify for leadership positions in ecosystems and can be determinant when setting new strategic initiatives to make an ecosystem scalable and robust.

Secondly, the choice to focus the discussion around roles aims to put into perspective the dominant dual roadmap for roles - leadership and followership - within an ecosystem. According to our findings, there is space for a more horizontal perspective towards roles, and how participants can channel their capabilities and resources to take the ecosystem forward. This thesis reiterated the dynamic nature of roles described in the literature, however, as a further theoretical implication, roles have been suggested as shareable and contextual, according to internal and external factors and the evolving necessities of the ecosystem.

## 6.2 Practical Implications

Practically, the thesis raises implications for practitioners and the companies they serve, especially for employees with strategic decision-making influence in incumbent firms. First of all, this thesis argues for the relevance of accompanying and corresponding systemic business challenges with superior coordination forms, such as ecosystems. More importantly, within the dynamics of value capturing and value creation, it was found that incumbents, as the most resourceful ecosystem members, reunite the conditions to define system-level targets and balanced strategies between mass and niche markets. In contexts such as plant-based, emerging and where range and variety are keywords, it appears that incumbents can contribute to constructing a more solid trajectory of development, by selecting what products are value-generating and what ecosystem members are enriching to partner up with.

Another empirical implication is built upon the relational nature of ecosystems, more specifically forging, scouting and establishing value-enriching linkages amongst ecosystem actors. Our findings reveal that such thematic is often underscored, and a source of hardship for ecosystem actors, implying that this thesis can additionally contribute to employees working with partnership facilitation or community-related positions. With sound partnership mechanisms in place, incumbents get to establish a more selective recruitment and management of ecosystem actors, enriching the linkages and activities promoted within the ecosystem and allowing more relevant products to be developed and launched. Taking the example of plant-based, having more invested and capable actors in the ecosystem increases the chances of advancing in technological development and delivering on the key success factors such as taste and bio-availability of the products. Therefore, by promoting roles that are strategically resonant with their incumbency status, and accompanying the ecosystem evolution, such firms can improve the conditions the ecosystem operates in, unleashing the growth of the plant-based market.

Lastly, by further increasing awareness of the roles that firms take in an ecosystem, and consequent implications at the ecosystem scale, this study also provides clarity on the importance of actively mapping the ecosystem opportunities and challenges. Ultimately, our findings have hinted that the strengths and weaknesses present in the tissue of ecosystem stakeholders in partnership can be abstracted to strategic advantages or limitations for the ecosystem, as a system in itself. Our research has come to indicate that, since incumbents often hold core roles with connection and partnership responsibilities, they could better serve the overseeing responsibilities in the ecosystem, and set in motion strategies to fortify and leverage the ecosystem. This can be done through reducing risks and leveraging opportunities, for example, by leading the ecosystem towards identifying new consumption occasions or customer targets for the ecosystem's multilayered purpose.

### 6.3 Limitations and Future Research

Pointing to the limitations of the findings in this thesis is important, not only for reliability purposes but also for the potential it brings for areas of future research. As was mentioned in section 6.1, our findings point towards incumbents being qualified to take on leading roles in ecosystems. However, considering that ecosystems can comprise several incumbents, it remains unclear what the effects of this would be for the distribution of roles within an ecosystem. Thus, we believe that exploring the contributions to an ecosystem that several co-existing incumbent firms have, could potentially lead to interesting findings and discussions. Additionally, the final sections of the thesis have pointed towards the space for a more horizontal perspective on roles in ecosystems, challenging the duality of leadership and followership roles. Yet, these roles have not been studied nor defined in depth in this thesis, hence leaving the opportunity for future research to explore and list what these different roles would be and how resources and capabilities could be channelled differently, to take the ecosystem further. Both of these future studies could be done from the perspective of a qualitative approach and incorporate a more exploratory or interpretative approach.

Moreover, due to the methodological choice of pursuing a qualitative study, to exploratively address the identified research gap, we have not intended any quantitative methods to test our findings, nor test any correlations between variables. Nonetheless, our findings have appointed potential variables and factors to be tested and assessed through future quantitative studies, by statistically testing the correlations between the different roles taken by incumbents and the outcome or effect in ecosystem growth or value.

Furthermore, using Tetra Pak as a single case company might entail that our findings are company-bounded or sector-bounded, and not representative elsewhere. Also, having collected the empirical data through digital interviews, due to interviewees having been geographically dispersed, could be constraining to data quality. Limitations in access and disclosure to interview certain strategic stakeholders of the case company might have additionally limited or narrowed data quality. Given that these factors may have limited the generalisability of our findings, we propose that future research encompass more diverse possibilities of collecting data to enrich our current findings.

## 7. Reference List

Adner, R. (2012). *The wide lens: A new strategy for innovation*. London: Penguin.

Adner, R. (2017). Ecosystem as Structure: An Actionable Construct for Strategy, *Journal of Management*, vol. 43, no. 1, pp. 39–58. Available online: <https://journals.sagepub.com/doi/full/10.1177/0149206316678451> [Accessed 14 April 2023]

Adner, R., & Kapoor, R. (2016). Innovation Ecosystems and the Pace of Substitution: Re-Examining Technology S-Curves, *Strategic Management Journal*, vol. 37, no. 4, pp. 625-648. Available online: <https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.2363> [Accessed 17 April 2023]

Alvesson, M. (2003). Beyond Neopositivists, Romantics, and Localists: A Reflexive Approach to Interviews in Organizational Research. *The Academy of Management Review*, vol. 28, no. 1, pp. 13-33. Available online: [https://www.jstor.org/stable/pdf/30040687.pdf?refreqid=excelsior%3A1ee5f25c243ca154b02c4032d27bde98&ab\\_segments=&origin=&initiator=&acceptTC=1](https://www.jstor.org/stable/pdf/30040687.pdf?refreqid=excelsior%3A1ee5f25c243ca154b02c4032d27bde98&ab_segments=&origin=&initiator=&acceptTC=1) [Accessed 23 April 2023]

Anderson, V. & Johnson, L. (1997). *Systems Thinking Basics: From concepts to causal loops*, Massachusetts: Pegasus Communications

Arnold, R. & Wade, J. (2015). A Definition of Systems Thinking: A Systems Approach, *Procedia Computer Science*, vol. 44, pp.669-678. Available online: <https://www.sciencedirect.com/science/article/pii/S1877050915002860> [Accessed 20 April 2023]

Arwanto, V., Buschle-Diller, G., Mukti, Y., Dewi, A., Mumpuni, C., Purwanto, M. & Sukweenadhi, J. (2022). The state of plant-based food development and its prospects in the Indonesia market. *Heliyon*, vol. 8, no. 10. Available online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9593187/> [Accessed 6 May 2023]

Aschemann-Witzel, J., Gantriis, R.F., Fraga, P. & Perez-Cueto, F.J.A (2021) Plant-based food and protein trend from a business perspective: markets, consumers, and the challenges and opportunities in the future, *Critical Reviews in Food Science and Nutrition*, vol. 61, no.18, pp. 3119-3128. Available online: <https://pubmed.ncbi.nlm.nih.gov/32654499/> [Accessed 18 April 2023]

Autio, E. & Thomas, L.D.W. (2014). Innovation Ecosystems: Implications for Innovation Management, in M. Dodgson, D.M. Gann, N. Phillips (eds), *The Oxford Handbook of Innovation Management*, online edn, Oxford Academic, pp. 204–228

Baloutsos, S., Karagiannaki, A.& Pramadari, K. (2020). Identifying contradictions in an incumbent–startup ecosystem—an activity theory approach. *European Journal of Innovation Management*, vol. 25, no. 6, pp. 527-548. Available online: <https://www.emerald.com/insight/content/doi/10.1108/EJIM-04-2020-0114/full/html> [Accessed 13 May 2023]

Bartlett, C. & Ghoshal, S. (1988). Organizing for Worldwide Effectiveness: The Transnational Solution, *California Management Review*, vol. 31, no.1, pp. 54–74. Available online: <https://journals.sagepub.com/doi/10.2307/41166538> [Accessed 16 April 2023]

Basole, R. (2009). Visualization of interfirm relations in a converging mobile ecosystem, *Journal of Information Technology*, vol. 24, pp. 144–159. Available online: <https://journals-sagepub-com.ludwig.lub.lu.se/doi/epdf/10.1057/jit.2008.34> [Accessed 14 April 2023]

Bawden, R.J. (1998). The Community Challenge: The Learning Response, *Journal of the World Education Foundation Australia*, vol. 99, pp. 40-59 [pdf]. Available at: [https://www.education.sa.gov.au/docs/curriculum/tfel/the\\_community\\_challenge\\_the\\_learning\\_response.pdf](https://www.education.sa.gov.au/docs/curriculum/tfel/the_community_challenge_the_learning_response.pdf) [Accessed 14 April 2023]

Brown, R. & Mason, C. (2017). Looking inside the spiky bits: a critical review and conceptualisation of entrepreneurial ecosystems, *Small Business Economics*, vol. 49, pp. 11–30. Available online: <https://link.springer.com/article/10.1007/s11187-017-9865-7#Sec2> [Accessed 07 April 2023]

Bryman, A. & Bell, E. (2017). *Företagsekonomiska forskningsmetoder*. 3e uppl. Stockholm: Liber

Cabrera, D., Colosi L. & Lobdell, C. (2008). Systems thinking, *Evaluation and Program Planning*, vol. 31, no. 3, pp. 299-310. Available online: <https://www.sciencedirect.com/science/article/pii/S0149718908000025> [Accessed 14 April 2023]

Carlsson-Kanyama, A. & González, A.D. (2009). Potential contributions of food consumption patterns to climate change. *The American journal of clinical nutrition*, vol. 89, no. 5, pp. 1704S–1709S. Available online: <https://www.sciencedirect.com/science/article/pii/S0002916523238484?via%3Dihub> [Accessed 16 April 2023]

Chandy, R. & Tellis, G. (2000). The Incumbent's Curse? Incumbency, Size, and Radical Product Innovation. *Journal of Marketing*, vol. 64, pp.1-17, Available online: [https://journals.sagepub.com/doi/pdf/10.1509/jmkg.64.3.1.18033?casa\\_token=ke4XWHoclWQAAAA:HDpQLDd2nQiX5gFyNxKz6qKP9n1p9htroqpUzbral8DKZeunI0DKGZPM\\_iqNMZZqH6ryzaK9Ygj](https://journals.sagepub.com/doi/pdf/10.1509/jmkg.64.3.1.18033?casa_token=ke4XWHoclWQAAAA:HDpQLDd2nQiX5gFyNxKz6qKP9n1p9htroqpUzbral8DKZeunI0DKGZPM_iqNMZZqH6ryzaK9Ygj) [Accessed 14 May 2023]

Christensen, C. & Rosenbloom, R. (2014), Explaining the attacker's advantage: technological paradigms, organizational dynamics and the value network, in R. Adner, J.E. Oxley and B.S Silverman (eds), *Collaboration and Competition in Business Ecosystems* (Advances in Strategic Management, Vol. 30), Bingley: Emerald Group Publishing Limited, pp. 389-429

Clark, M., & Tilman, D. (2017). Comparative analysis of environmental impacts of agricultural production systems, agricultural input efficiency, and food choice, *Environmental Research Letters*, vol. 12, no. 6, Available online: <https://iopscience-iop-org.ludwig.lub.lu.se/article/10.1088/1748-9326/aa6cd5> [Accessed 16 April 2023]

Clarysse, B., Wright, M., Bruneel, J. & Mahajan, A. (2014). Creating value in ecosystems: crossing the chasm between knowledge and business ecosystems. *Research Policy*, vol. 43, no. 7, pp. 1164–1176. Available online: <https://reader.elsevier.com/reader/sd/pii/S0048733314000766?token=AEA28A757D8171C2C33EF4500E7C288B13FE9E9B4A50C58B110CFEB8ACCED677B8EDCDDC5ECC7A453F9071EABD12CDD6&originRegion=eu-west-1&originCreation=20230424053746> [Accessed 24 April 2023]

Creswell, J.W. & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th edn, London: SAGE Publications

Cusumano, M.A., & Gawer, A. (2002). The Elements of Platform Leadership, MIT Sloan Management Review, vol. 43, no. 3, pp. 51-58, Available online: <https://ludwig.lub.lu.se/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip.uid&db=bth&AN=6553425&site=eds-live&scope=site> [Accessed 20 April 2023]

Davis, K.F., Gephart, J.A., Emery, K.A., Leach, A.M., Galloway, J.N., D'Odorico, P. (2016). Meeting future food demand with current agricultural resources, Global Environmental Change, vol. 39, no., Available online: <https://www.sciencedirect-com.ludwig.lub.lu.se/science/article/pii/S0959378016300632?via%3Dihub> [Accessed 16 April 2023]

De Bernardi, P. & Azucar, D. (2020). Innovation in Food Ecosystems: Entrepreneurship for a Sustainable Future [e-book] Switzerland: Springer, Available through: <https://link.springer.com/content/pdf/10.1007/978-3-030-33502-1.pdf> [Accessed 07 April 2023]

Dedehayir, O., Mäkinen, S.J., & Ortt, R. (2018). Roles during innovation ecosystem genesis: A literature review, Technological Forecasting and Social Change, vol. 136, pp. 18-29, Available online: <https://www.sciencedirect.com/science/article/pii/S0040162516307867> [Accessed 21 April 2023]

Dubois, A. & Gadde, L.E. (2002). Systematic Combining: An Abductive Approach to Case Research, Journal of business research, vol. 55, no. 7, pp 553-560. Available online: <https://www.sciencedirect.com/science/article/pii/S0148296300001958> [Accessed 18 April 2023]

Eisenhardt, K.M. and Graebner, M.E. (2007). Theory building from cases: Opportunities and challenges, Academy of Management Journal, vol. 50, vo. 1, pp. 25–32. Available online: <https://journals.aom.org/doi/10.5465/amj.2007.24160888> [Accessed 19 April 2023]

El Bilali, H., Callenius, C., Strassner, C., & Probst, L. (2018). Food and nutrition security and sustainability transitions in food systems. Food and Energy Security, vol. 8, no. 2, Available through: <https://onlinelibrary.wiley.com/doi/full/10.1002/fes3.154> [Accessed 16 April 2023]

Foresight. (2011). The Future of Food and Farming, Final Project Report [pdf]. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/288329/11-546-future-of-food-and-farming-report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288329/11-546-future-of-food-and-farming-report.pdf) [Accessed 16 April 2023]

Freibauer, A., Mathijs, E., Brunori, G., Damianova, Z., Faroult, E., i Gomis, J.G., O'Brien, L. & Treyer, S. (2011). Sustainable Food Consumption and Production In a Resource-constrained World: Summary Findings of the EU SCAR Third Foresight Exercise. EuroChoices, vol. 10, no. 2, pp. 3-65. Available online: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1746-692X.2011.00201.x> [Accessed 16 April 2023]

Galateanu, E. & Avasilcai, S. (2013). BUSINESS ECOSYSTEMS ARCHITECTURE [pdf], ANNALS OF THE ORADEA UNIVERSITY - Fascicle of Management and Technological Engineering, no. 1, Available online: [http://imt.uoradea.ro/auo.fmte/files-2013-v1/Galateanu%20\(Avram\)%20Elena%201.pdf](http://imt.uoradea.ro/auo.fmte/files-2013-v1/Galateanu%20(Avram)%20Elena%201.pdf) [Accessed 8 May 2023]

Garnett, T. (2014). Three perspectives on sustainable food security: efficiency, demand restraint, food system transformation. What role for life cycle assessment?, Journal of Cleaner Production, vol. 73, pp. 10-18. Available online: <https://www.sciencedirect.com/science/article/abs/pii/S0959652613005064> [Accessed 18 April 2023]

Gharajedaghi, J. (2012). Systems Thinking, Managing Chaos and Complexity: A Platform for Designing Business Architecture, 3rd edn, [e-book] Morgan Kaufmann, Available through: <https://www.sciencedirect.com/book/9780123859150/systems-thinking#book-description> [Accessed 07 April 2023]

Gill, M., den Boer, A.C.L., Kok, K.P.W., Breda, J., Cahill, J., Callenius, C., Caron, P., Damianova, Z. Gurinovic, M.A., Lähteenmäki, L., Lang, T., Laperrière, A., Mango, C., Ryder, J., Sonnino, R., Verburg, G., Westhoek, H., Regeer, B.J., Broerse, J.E.W. (2018). A systems approach to research and innovation for food system transformation, FIT4FOOD2030 [pdf]. Available online: <https://fit4food2030.eu/eu-think-tank-policy-brief>. [Accessed 18 April 2023]



Gomes, L., Facin, A., Salerno, M., & Ikenami, R. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends, *Technological Forecasting and Social Change*, vol. 136, pp. 30-48, Available online:

<https://www.sciencedirect.com/science/article/pii/S0040162516306576?pes=vor> [Accessed 23 April 2023]

Gulati, R., Puranam, P. & Tushman, M. (2012). META-ORGANIZATION DESIGN: RETHINKING DESIGN IN INTERORGANIZATIONAL AND COMMUNITY CONTEXTS, *Strategic Management Journal*, vol. 33, no. 6, pp. 571-586. Available online:<https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.1975> [Accessed 06 April 2023]

Hearn, G. & Pace, C. (2006). Value-creating ecologies: understanding next generation business systems. *Foresight*, vol.8, no. 1, pp. 55-65. Available online: <https://www.emerald.com/insight/content/doi/10.1108/14636680610647147/full/pdf?title=valuerecreating-ecologies-understanding-next-generation-business-systems>

[Accessed 14 April 2023]

Hurmelinna-Laukkanen, P., & Nätti, S. (2018). Orchestrator types, roles and capabilities – A framework for innovation networks, *Industrial Marketing Management*, vol. 74, pp. 65-78, Available online:

<https://www.sciencedirect.com/science/article/pii/S0019850117307204?pes=vor> [Accessed 20 April 2023]

Iansiti, M. & Levien, R. (2004a). Strategy as Ecology, *Harvard Business Review*. Available online: <https://hbr.org/2004/03/strategy-as-ecology> [Accessed 12 April 2023]

Iansiti, M. & Levien, R. (2004b). *The Keystone Advantage: What the New Dynamics of Business Ecosystems Mean For Strategy, Innovation and Sustainability*. Boston, Massachusetts: Harvard Business School Press

Iyer, B., Lee, C.H., & Venkatraman, N. (2006). Managing in a “Small World Ecosystem”: Lessons from the software sector, *California Management Review*, vol. 48, no. 3, pp. 28–47, Available online: <https://journals.sagepub.com/doi/10.2307/41166348> [Accessed 20 April 2023]

Jacobides, M. (2019). In the Ecosystem Economy, What's Your Strategy?: The five questions you need to answer, Harvard Business Review, Available online: <https://hbr.org/2019/09/in-the-ecosystem-economy-whats-your-strategy> [Accessed 20 April 2023]

Jacobides, M., Cennamo, C. & Gawer, A. (2018). Towards a theory of ecosystems. Strategic Management Journal, vol. 39, no. 8, Available online: <https://onlinelibrary.wiley.com/doi/10.1002/smj.2904> [Accessed 16 April 2023]

Jacobides, M., MacDuffie, J., Tae, C.J. (2016). AGENCY, STRUCTURE, AND THE DOMINANCE OF OEMs: CHANGE AND STABILITY IN THE AUTOMOTIVE SECTOR. Strategic Management Journal, vol. 37, pp. 1942-1967. Available online: [https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.2426?casa\\_token=VPSueGHlg9kAAAAA%3AqSdJHt2GYxI9Ud0qwzR3afDEHOBkieuZCKpW\\_OSc\\_PfzbM1ttX\\_7fSGidqzB1lIm6iakPx07yhZyaw](https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.2426?casa_token=VPSueGHlg9kAAAAA%3AqSdJHt2GYxI9Ud0qwzR3afDEHOBkieuZCKpW_OSc_PfzbM1ttX_7fSGidqzB1lIm6iakPx07yhZyaw) [Accessed 7 May 2023]

Kapoor, R. (2018). Ecosystems: broadening the locus of value creation, Journal of Organization Design. Available online: <https://link.springer.com/article/10.1186/s41469-018-0035-4> [Accessed 12 April 2023]

Karhiniemi, M. (2009). Creating and Sustaining Successful Business Ecosystems, MSc Thesis, Department of Business Technology, Helsinki School of Economics, Available online: [https://aaltodoc.aalto.fi/bitstream/handle/123456789/332/hse\\_thesis\\_12200.pdf?sequence=1&isAllowed=y](https://aaltodoc.aalto.fi/bitstream/handle/123456789/332/hse_thesis_12200.pdf?sequence=1&isAllowed=y) [Accessed 13 May 2023]

Keppler, J.K., Schwarz, K. & Jan van der Goot, A. (2020). Covalent modification of food proteins by plant-based ingredients (polyphenols and organosulphur compounds): A commonplace reaction with novel utilization potential. Trends in Food Science & Technology, vol. 101, pp. 38-49. Available online: <https://www.sciencedirect.com/science/article/pii/S0924224420304520> [Accessed 24 April 2023]

Kim, D. (1999). Introduction to Systems Thinking, Pennsylvania: Pegasus Communications

Kim, H., Lee, J. & Han, J. (2010). The Role of IT in Business Ecosystems, *Communications of the ACM*, vol. 53, no.5. Available online: <https://dl.acm.org/doi/abs/10.1145/1735223.1735260> [Accessed 13 May 2023]

Kim, J., Paek, B. & Lee, H. (2022). Exploring Innovation Ecosystem of Incumbents in the Face of Technological Discontinuities: Automobile Firms. *Sustainability*, vol. 14, no. 3. Available online: [https://econpapers.repec.org/article/gamjsusta/v\\_3a14\\_3ay\\_3a2022\\_3ai\\_3a3\\_3ap\\_3a1606-3ad\\_3a738232.htm#:~:text=EconPapers%3A%20Exploring%20Innovation%20Ecosystem%20of%20Incumbents%20in%20the,attention%20in%20the%20strategy%20and%20innovation%20fields%20to](https://econpapers.repec.org/article/gamjsusta/v_3a14_3ay_3a2022_3ai_3a3_3ap_3a1606-3ad_3a738232.htm#:~:text=EconPapers%3A%20Exploring%20Innovation%20Ecosystem%20of%20Incumbents%20in%20the,attention%20in%20the%20strategy%20and%20innovation%20fields%20to) [Accessed 14 May 2023]

King, N. (2004). Using Templates in the Thematic Analysis of Text, in C. Cassell & G. Symon (eds.), *Essential Guide to Qualitative Methods in Organizational Research*, London: SAGE Publications, pp. 256-270

King, N. (2012). Doing Template Analysis, in G. Symon & C. Cassell (eds.), *Qualitative Organizational Research: Core Methods and Current Challenges*, London: SAGE Publications, pp. 426-450

King, N. & Brooks, J. (2017). *Template Analysis for Business and Management Students*. London: SAGE Publications

Kyriakopoulou, K., Keppler, J. & van der Goot, A.J. (2021). Functionality of Ingredients and Additives in Plant-Based Meat Analogues, *Foods* 2021, vol. 10, no. 3. Available online: <https://www.mdpi.com/2304-8158/10/3/600> [Accessed 18 April 2023]

Li, Y. (2009), The technological roadmap of Cisco's business ecosystem, *Technovation*, vol. 29, no. 5, pp. 379-386. Available online: [https://www.sciencedirect.com/science/article/abs/pii/S0166497209000157?casa\\_token=Geee7JRKtNwAAAAA:IuQOd88hYuH-VzUWrvYiqWz8ECwMeCe\\_QqH9JOyv8I5ocfbU5TVE5zwL6ruGY6OJZ54DHhio7gaq#bib20](https://www.sciencedirect.com/science/article/abs/pii/S0166497209000157?casa_token=Geee7JRKtNwAAAAA:IuQOd88hYuH-VzUWrvYiqWz8ECwMeCe_QqH9JOyv8I5ocfbU5TVE5zwL6ruGY6OJZ54DHhio7gaq#bib20) [Accessed 12 April 2023]

Linde, L., Sjödin, D., Parida, V., & Wincent, J. (2021). Dynamic capabilities for ecosystem orchestration – A capability-based framework for smart city innovation initiatives, *Technological Forecasting and Social Change*, vol. 166, Available online:

<https://www.sciencedirect.com/science/article/pii/S0040162521000469> [Accessed 21 April 2023]

McClements, D.J. & Grossmann, L. (2021). The science of plant-based foods: Constructing next-generation meat, fish, milk, and egg analogs. *Comprehensive Reviews in Food Science and Food Safety*, vol. 20, no. 4, pp. 4049-4100. Available online: <https://ift.onlinelibrary.wiley.com/doi/full/10.1111/1541-4337.12771> [Accessed 24 April 2024]

Moore, J. (1993). *Predators and Prey: A New Ecology of Competition*. Harvard Business Review, Available online: <https://hbr.org/1993/05/predators-and-prey-a-new-ecology-of-competition> [Accessed 06 April 2023]

Moore, J. F. (1996). *The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems*. New York: Wiley Harper Business.

Powell, W., Packalen, K. & Whittington, K. (2010). Organizational and institutional genesis: the emergence of high-tech clusters in the life sciences. *Queen's School of Business Research Paper*, no. 3, Available online: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1416306](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1416306) [Accessed 24 April 2023]

Quintão, C., Andrade, P. & Almeida, F. (2020). How to Improve the Validity and Reliability of a Case Study Approach [pdf]. *Journal of Interdisciplinary Studies in Education*, vol. 9, no. 2, pp. 264-275. Available online: <https://files.eric.ed.gov/fulltext/EJ1294617.pdf> [Accessed 23 April 2023]

Reynolds, M. (2011). Critical thinking and systems thinking: towards a critical literacy for systems thinking in practice. In: Horvath, Christopher P. and Forte, James M. (eds). *Critical Thinking*. New York, USA: Nova Science Publishers, pp. 37–68.

Riege, A.M. (2003). Validity and reliability tests in case study research: a literature review with “hands-on” applications for each research phase”, *Qualitative Market Research*, vol.6 no. 2, pp. 75-86. Available online: <https://www-emerald-com.ludwig.lub.lu.se/insight/content/doi/10.1108/13522750310470055/full/html> [Accessed 30 April 2023]

Richmond, B. (1991) *Systems Thinking. Four Key Questions*. Watkinsville, GA: High Performance Systems.

Ritala, P., Agouridas, V., Assimakopoulos, D., & Gies, O. (2013). Value creation and capture mechanisms in innovation ecosystems: A comparative case study, *International Journal of Technology Management*, vol. 63, no. 3-4, pp. 244-267, Available online: [https://www.researchgate.net/publication/264817098\\_Value\\_creation\\_and\\_capture\\_mechanisms\\_in\\_innovation\\_ecosystems\\_A\\_comparative\\_case\\_study](https://www.researchgate.net/publication/264817098_Value_creation_and_capture_mechanisms_in_innovation_ecosystems_A_comparative_case_study) [Accessed 26 April 2023]

Santo, R., Kim, B., Goldman, S., Dutkiewicz, J., Biehl, E., Bloem, M., Neff, R. & Nachman, K. (2020). Considering Plant-Based Meat Substitutes and Cell-Based Meats: A Public Health and Food Systems Perspective. *Frontiers in Sustainable Food Systems*, vol.4, no. 134. Available online: [https://www.frontiersin.org/articles/10.3389/fsufs.2020.00134/full?utm\\_source=F-AAE%26utm\\_medium=EMLF%26utm\\_campaign=MRK\\_1427535\\_110\\_Sustai\\_20200908\\_arts\\_A](https://www.frontiersin.org/articles/10.3389/fsufs.2020.00134/full?utm_source=F-AAE%26utm_medium=EMLF%26utm_campaign=MRK_1427535_110_Sustai_20200908_arts_A) [Accessed 9 April 2023]

Saunders, M, Lewis,P. & Tornhill, A. (2012). *Research Methods for Business Students*, 6th edn, Edinburgh: Pearson Education Limited

Scaringella, L. & Radziwon, A. (2018). Innovation, entrepreneurial, knowledge, and business ecosystems: Old wine in new bottles?. *Technological Forecasting and Social Change*, vol. 136, pp. 59-87. Available online: <https://www.sciencedirect.com/science/article/abs/pii/S0040162517312660> [Accessed 23 April 2023]

Schwandt, T. & Gates, E. (2018). Case Study Methodology, in N. Denzin & Y. Lincoln (eds), *The SAGE Handbook of Qualitative Research*, SAGE Publications, pp. 600-630

Senge, P.M. (2006). *The Fifth Discipline: The Art and Practice of the Learning Organization*, London: Currency Doubleday

Snihur, Y. & Bocken, N. (2022). A call for action: The impact of business model innovation on business ecosystems, society and planet, *Long Range Planning*, vol. 55, no. 6. Available online: <https://www.sciencedirect.com/science/article/pii/S0024630122000012> [Accessed 7 May 2023]

Springmann, M., Clark, M., Mason-D’Croz, D., Wiebe, K., Bodirsky, B.L., Lassaletta, L., Vries, W., Vermeulen, S.J., Herrero, M., Carlson, K.M., Jonell, M., Troell, M., DeClerck, F., Gordon, L.J., Zurayk, R., Scarborough, P., Rayner, M., Loken, B., Fanzo, J., Godfray, H.C.J., Tilman, D., Rockström, J. & Willet, W. (2018). Options for keeping the food system within environmental limits, *Nature*, vol. 562, no. 7728, Available online: <https://www-nature-com.ludwig.lub.lu.se/articles/s41586-018-0594-0> [Accessed 16 April 2023]

Statista. (2023). Value of the plant-based food market worldwide from 2020 to 2030, Available at: [Plant-based food market value worldwide 2030 | Statista](#) [Accessed 16 April 2023]

Sweeney, L.B. & Sterman, J.D. (2000). Bathtub dynamics: initial results of a systems thinking inventory, *System Dynamics Review*, vol. 16, no. 4, pp.249-286. Available online: <https://onlinelibrary.wiley.com/doi/10.1002/sdr.198> [Accessed 14 April 2023]

Tachie, C., Nwachukwu, I.D. & Aryee, A.N.A. (2023). Trends and innovations in the formulation of plant-based foods. *Food Production Process and Nutrition*, vol. 5, no. 16. Available online: <https://fppn.biomedcentral.com/articles/10.1186/s43014-023-00129-0#citeas> [Accessed 24 April 2023]

Tetra Pak (n.d.a). What we do, Available online: <https://www.tetrapak.com/about-tetra-pak/the-company/tetra-pak-in-brief> [Accessed 21 April 2023]

Tetra Pak (n.d.b). Solutions, Available online: <https://www.tetrapak.com/solutions> [Accessed 21 April 2023]

Tetra Pak (n.d.c). Future of Sustainable Food, Available online: <https://www.tetrapak.com/innovation/voices-of-innovation/future-sustainable-food> [Accessed 21 April 2023]

Tetra Pak (n.d.d). New food fermentation, Available online:  
<https://www.tetrapak.com/solutions/processing/applications/alternative-proteins>

[Accessed 21 April 2023]

Tetra Pak (n.d.e). About Tetra Pak, Available online:  
<https://www.tetrapak.com/about-tetra-pak> [Accessed 25 May 2023]

Tetra Pak (n.d.f). Why we exist, Available online:  
<https://www.tetrapak.com/about-tetra-pak/the-company/our-identity-and-values> [Accessed 25 May 2023]

Tetra Pak (2022). Tetra Pak collaborates with Mycorena on ground-breaking alternative proteins plant. Available online:  
<https://www.tetrapak.com/en-lv/about-tetra-pak/news-and-events/newsarchive/tetra-pak-collaborates-with-mycorena> [Accessed 21 April 2023]

The Good Food Institute (n.d.). Consumer Insights. Available online:  
<https://gfi.org/resource/consumer-insights/> [Accessed 24 April 2023]

Trienekens, J.H., Wognum, P.M., Beulens, A.J.M., & van der Vorst, J.G.A.J. (2012). Transparency in complex dynamic food supply chains, *Advanced Engineering Informatics*, vol. 26, no. 1, Available online:  
<https://www.sciencedirect.com/science/article/abs/pii/S1474034611000553#b0005> [Accessed 16 April 2023]

Tripsas, M. (1997). Unraveling the process of creative destruction: complementary assets and incumbent survival in the typesetter industry. *Strategic Management Journal*, vol. 18, pp. 119–142. Available online: <https://www-jstor-org.ludwig.lub.lu.se/stable/3088213> [Accessed 13 May 2023]

Tuso, P. J., Ismail, M. H., Ha, B. P., & Bartolotto, C. (2013). Nutritional update for physicians: plant-based diets. *The Permanente journal*, vol. 17, no. 2, pp. 61–66. Available online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3662288/> [Accessed 17 April 2023]

Ulrich, W. (2003). Beyond Methodology Choice: Critical Systems Thinking as Critically Systemic Discourse, *The Journal of the Operational Research Society*, vol. 54, no. 4, pp.

325-342. Available online: <https://www.jstor.org/stable/4101702?seq=2>  
[Accessed 16 April 2023]

United Nations. (1987). Report of the World Commission on Environment and Development: Our Common Future [pdf], Available at:  
<http://www.un-documents.net/our-common-future.pdf> [Accessed 16 April 2023]

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L.J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J.A., De Vries, W., Majele Sibanda, L. and Afshin, A. (2019). Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, [online] vol. 393, no. 10170, pp.447–492. Available online: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)31788-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31788-4/fulltext)  
[Accessed 16 April 2023]

Williams, A., Kennedy, S., Philipp, F. & Whiteman, G. (2017). Systems thinking: A review of sustainability management research. *Journal of Cleaner Production*, vol. 148, pp. 866-881. Available online: <https://www.sciencedirect.com/science/article/pii/S0959652617302068?via%3Dihub>  
[Accessed 3 May 2023]

Wright, M. (2014). Academic entrepreneurship, technology transfer and society: where next?, *The Journal of Technology Transfer*, vol. 39, pp. 322-334, Available online: <https://link.springer.com/article/10.1007/s10961-012-9286-3> [Accessed 23 April 2023]

Yin, R.K. (2009) *Case Study Research: Design and Method*, 4th edn. London: Sage.

Yoon, C., Moon, S. & Lee, H. (2022). Symbiotic Relationships in Business Ecosystem: A Systematic Literature Review. *Sustainability*, vol. 14, no. 4. Available online: <https://www.mdpi.com/2071-1050/14/4/2252> [Accessed 13 May 2023]

Zhu, X. & Du, K. (2023). Incumbent business ecosystems in the face of new entry: An event study of Google's autonomous car announcement, *Information & Management*, vol. 60, no.3, Available online: <https://www.sciencedirect.com/science/article/pii/S0378720623000083>  
[Accessed 14 May 2023]



Zucchella, A. & Previtali, P. (2018). Circular business models for sustainable development: A “waste is food” restorative ecosystem. *Business Strategy and The Environment*, vol. 28, no. 2, pp. 274-285. Available online:

[https://onlinelibrary.wiley.com/doi/full/10.1002/bse.2216?casa\\_token=yBQWIJtEmWIAAA%3AOpqgfwScYqpX0vCU6hDyWx0uPgJ1rn1PASjv9KRBnow-eqPGZrQ5N-CudfEqTjO3hKExKqwBcKXR-A](https://onlinelibrary.wiley.com/doi/full/10.1002/bse.2216?casa_token=yBQWIJtEmWIAAA%3AOpqgfwScYqpX0vCU6hDyWx0uPgJ1rn1PASjv9KRBnow-eqPGZrQ5N-CudfEqTjO3hKExKqwBcKXR-A) [Accessed 24 April 2023]

# Appendix A - Interview Guide

## Introduction

- Is it okay if this interview is recorded and transcribed?
- Please, tell us about you and describe your role within the company?

## Tetra Pak's Operations

- What are the main types of services Tetra Pak offers and what is the ultimate function of your unit/department?
  - What methodologies do you use in the services you provide?
  - How do you co-develop change with your customers, in practical terms?
- How are new business opportunities generated and how are new trends supported by Tetra Pak?
- How do you interact with the packaging and processing branches, inside Tetra Pak?
  - What other areas do they contact with, in the clients they support?

## Ecosystems

- Within your operation, are there any ecosystems present, and if yes, how would you define that(those) ecosystem(s)?
- In your opinion, what forces or market dynamics are behind the emergence of ecosystems?
- Analysing Tetra Pak's current participation in other ecosystems, how would you describe the roles (functions) you have?
- Strategically, what would you consider are Tetra Pak's strengths and weaknesses, and how do those relate to the way in which you approach an ecosystem?
- How do you determine your role(s) in those ecosystems?
  - What is the strategic reasoning around it?

## Plant-based Focus

- What is your perception around the plant-based food industry, in the present and in the future?
- How do you define the plant-based ecosystem, and what actors partake in this ecosystem?

- How do you think Tetra Pak can add value to this ecosystem, from the perspective of your unit/department?
- What is the main value proposition you consider Tetra Pak could deliver in a plant-based ecosystem?
- From the perspective of Tetra Pak's contribution, where do you see the plant-based ecosystem heading?
  - To which direction do you want to grow the plant-based ecosystem?

### **Incumbency**

- What differentiates these actors from the rest in the ecosystems they act in?
- What is the relationship that an incumbent firm has with value creation and value capturing in the ecosystems it participates in? Why?
- Do you share the notion that a combined value proposition is improved, in relation to "individual" value propositions?
  - What relevance does a combined value proposition have for plant-based, specifically?
- What is the main value proposition you consider an incumbent in processing and packaging could deliver in a plant-based ecosystem?
- What are the main challenges and opportunities currently in the paradigm shift of food, from the perspective of an incumbent?
- What can an incumbent firm "find" in an ecosystem that aids the tackling of the challenges and optimization of opportunities?
  - In other words, what is missing, and how does the ecosystem provide that?
- When you approach a new business opportunity, do you actively determine your role? If so, how would you reason about the choice of a role?
- Do role(s) vary across categories, and if so, what are the decision factors?
- In an ecosystem where there are more than one incumbent firm, sharing similar general characteristics, how are roles distributed amongst incumbents?
- How could an ecosystem logic support the incumbent in both overcoming challenges and seizing opportunities?