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# **Socio-technical transition to a sustainable plastics economy: Strategic approaches for FMCG industry brand owners**

Master's Thesis

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**Abstract of Master's thesis**

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<p>Plastic is the workhorse material of the modern economy that has contributed to significant business growth in the past century. However, this growth has come with a cost; the negative externalities of plastics utilization cause adverse effects to natural systems on a global scale. Against this backdrop, this thesis seeks to identify strategic approaches by which the largest packaging plastics consumers, the FMCG industry brand owners, can pursue more sustainable plastics utilization without compromising their primary objective of profitability.</p> <p>This study links transition, institutions, and strategic management literature to form a holistic understanding of how an incumbent-led transition for a better plastics economy can be motivated and realized on business-terms. By following an abductive research approach, these theoretical frameworks are confronted with expert interviews from the FMCG industry to develop insights for driving sustainable change.</p> <p>The findings of the study are three-fold: First, a framework is constructed to understand the motivation for incumbents to pursue increased adoption of renewable plastics, which distinguishes between business incentives and institutional pressures. Second, various institutional tactics and adjustments to business configuration are identified as means for contributing to a sustainable transition. Third, based on identified incentives for change-advocacy, ecosystem challenges, and feasible means for contributing to a transition, two types of strategic approaches for driving systemic change are derived, labeled as infrastructure establishment and demand development. Underpinned by collaboration with business partners and introduction of incremental developments to existing operating model, these approaches seek to subdue the systemic challenges of inadequate circularity-enabling infrastructure and immature consumer demand, respectively, to bring about a transition.</p> <p>Ultimately, the results contribute to an increased understanding of how improved plastics utilization can be advanced in the FMCG industry, given the competitive aims of the involved players and the constraints of their operating environment. Moreover, the findings add to sustainability transitions research by augmenting the role of industry incumbents as potential drivers for change.</p>	
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## List of Abbreviations and Term Definitions

<b>Bio-plastics</b>	Plastics, in which a fossil-based feedstock has been fully or partially replaced with a renewable feedstock, such as sugar, starch, cellulosic fibers or organic waste. (EASAC, 2020)
<b>Biodegradable plastics</b>	Plastics that can break down to environmentally benign residues through biological processes under various conditions encountered in the natural environment. (EASAC, 2020)
<b>FMCG industry</b>	Fast-moving consumer foods industry, also known as consumer packaged goods industry. Involves fast-paced selling of relatively low-cost household goods ranging from food items to house chemicals.
<b>IPR</b>	Intellectual property rights
<b>LCA</b>	Life-cycle assessment
<b>MLP</b>	Multi-level perspective. A framework for analyzing socio-technical transitions, which posits that transition unfold as a result of interaction of three analytical levels: niches, socio-technical regimes and a socio-technical landscape. (Geels, 2002)
<b>Plastic packaging</b>	A sub-set of plastic usage, referring to all packaging made of plastic materials for both consumer and industrial purposes. E.g., bottles, jars, containers, trays, films, bags and pouches (World Economic Forum, Ellen MacArthur Foundation, McKinsey & Company, 2016)
<b>Recyclable plastics</b>	Plastic that can be sorted and aggregated into defined streams for recycling processes, be processed and reclaimed with commercial recycling processes, and thus becomes a raw material that can be exploited in the production of new products (APR & PRE, 2018)
<b>Renewable plastics</b>	An umbrella term for this thesis, utilized to refer to recyclable or bio-based plastics.



# 1 Introduction

This chapter will introduce the study's context as well as present its objectives. The first section introduces the study background and the motivation for the research topic of incumbents as change agents for a sustainable socio-technical transition. The following two sections will define the research questions and present the structure of this thesis, respectively.

## 1.1 Research background

Plastics have provided an unrivalled value proposition for players across virtually all industries in the modern economy, by combining highly flexible functional properties with low cost. According to a report by Ellen MacArthur Foundation (2016), Plastics' utilization has increased twenty-fold in the past fifty years and is expected to double again before 2040. Despite these benefits, the current utilization of plastics is a practice of a multitude of environmental challenges that begin with the utilization of fossil fuels, are exacerbated by single-use, and end with leakage of materials into the environment that persists for centuries. These issues are well-known and widely accepted, and they entail a transformation of existing production and consumption systems towards a more sustainable orientation. Of the over 310 million tonnes of plastics produced in 2014, plastic packaging accounted for 26 % of the total volume, making it the largest individual plastics application. Consequently, exploring the means for reducing plastics packaging's environmental impacts provides an attractive starting point for any efforts to drive change towards a more sustainable plastics economy.

Drawing on the research by the Ellen McArthur Foundation (2016) and European Academies Science Advisory Council (EASAC) (2020), the fundamental approaches to solving the plastics problem can be structured into two areas: First, a transition towards a circular economy that has the objective of reducing material consumption and material flows by increasing the recycling rate and breaking the linear consumption systems of plastics. Second, decoupling plastics from fossil-based feedstocks by substituting petro-chemistry based polymeric materials with renewable and carbon-binding ones to enable efficient production and to foster recycling of plastics. For the former approach, the key cornerstones are creating an effective after-use plastics economy that economically incentivizes actors to transition towards sustainability and reducing the leakage of

plastics into natural systems and other negative externalities. Whereas the latter leverages new biobased plastics and their production processes that meet the requirements of the low-carbon world that is inevitably drawing closer.

Although the benefits of these approaches theoretically satisfy economic and ecological criteria in the long-term, their immediate or short-term implementation remains discouraged by associated costs, quality issues, and the general proliferation of infrastructures and rules in the operating landscape (Ellen MacArthur Foundation, 2016). Despite the potential long-term economic savings yielded from recycling materials, the investment costs of building the necessary circularity-enabling infrastructure are enormous. Based on the insights provided by Ellen MacArthur Foundation's (2016), it is evident circular economy transition would entail significant investments across the plastics value chain from efficient collection, sorting, recycling, and finally re-processing of material to enable use in new applications. From an operational perspective, the production costs of bioplastics are currently considerably higher than their fossil counterpart, which is attributed to higher material and processing costs. Moreover, even if a company would be inclined to cut its margins and opt for drop-in bioplastics, it would likely have to also invest in adapting its production processes to accommodate the new material's slightly differing material attributes.

Whereas a traditional retailer could work the cost-related issues by simply increasing the profit margin by appealing to the added-value attributed to improved sustainability, this is rarely the case for plastic packaging materials. Not only is the quality of the bio-based alternative more inflexible or inferior to the fossil counterpart, but the mere notion of increased sustainability is often unable to break the dominant consumption rationale driven by price (Ellen MacArthur Foundation, 2016; EASAC, 2020). Transition to sustainable alternatives is also hampered by the uncertainty regarding future policies and regulation and long-term implications of bio transitions (Ellen MacArthur Foundation, 2016). For example, a company may invest heavily into a particular bio-based polymer only to see a new regulation prevent its use in the future, thus imposing further risk to the investment. Further, plastics producers are also cautious of the potential negative externalities of the bioplastics, such as biopolymers cannibalizing feedstock from food crops or widespread mismanagement of biobased feedstock, as has happened in the harvesting of palm oil (Ellen MacArthur Foundation, 2016).

Regardless of previous, actors involved in the production or utilization of plastics are faced with the inevitability of fossil-based plastics being mainly replaced in the long-term. In the absence of strongly committed global initiatives, it seems likely that players

that hold the exploitation of fossil-based plastics central to their business models may eventually face a position that submits to accepting short-term losses for long-term benefits. While it is likely that the costs associated with bioplastics will likely reduce due to the learning curve effects and thus further accelerate the adoption, early adopters must still break the initial barrier of achieving the critical scale. Although radical innovation-driven change is often attributed to the emergence and success of technology start-ups and SMEs (Geels & Schot, 2007), the commercialization of bioplastics in the short- or medium-term seems to be a game where the key issues revolve around scaling and doing so fast (Ellen MacArthur Foundation, 2016). Consequently, this thesis takes a slightly alternative view and argues it is the leading brand owners in fast-moving consumer goods vertical who withhold more transformative potential, attributed to their knowledge, established practices, networks, and scale of operations. Hence, in this thesis, I will explore the transformative power of incumbent organizations in the plastics economy and examine what kind of strategic approaches these actors could employ to break the current negative economic equation of renewable plastics adoption, and thus accelerate the transformation towards a more sustainable plastics economy in the system-level.

## **1.2 Objectives and research questions**

The overarching objective of this thesis is to understand how for-profit organizations in the plastics economy can initiate or accelerate system-level change while simultaneously taking into account their competitive aims. To achieve this aim, I will first refer to sustainability transitions research to understand how sustainable systemic change occurs and what are the roles of incumbents in that process. Then, I will employ an economic lens to identify the economic incentives for incumbents to opt-in for advocating sustainable change and explore what kind of strategies they can pursue to realize these aims.

Considering the breadth and the potential adverse impacts of current sustainability challenges, there is little surprise the increasing attention sustainable transition studies have received over the past two decades (Zolfagharinan, et al., 2019; Markard, et al., 2012; Smith, et al., 2010). For the same reasons, the initial focus of transitions research has been in defining a conceptualization that accounts for the variety of relevant dimensions involved in change – i.e., technological, material, institutional, social, and economic – as well as on the processes through which this broader change occurs (Zolfagharinan, et al., 2019). As a result of these efforts, sustainability transitions are

currently by large understood as a phenomenon of socio-technical systems (e.g., Geels, 2002), which typically unfold in a time span of decades as a result of aligned macro-level developments across the aforementioned dimensions (Geels & Schot, 2007; Markard, et al., 2012). Given this very focus on unpacking the system-level processes that underlie systemic change, the capabilities of individual actors, or organizations, to drive systemic change has remained a topic with little attention (Berggren, et al., 2015; Bidmon & Knab, 2018; Werbeloff, et al., 2016; Smith, et al., 2010). Thus, this thesis aims to advance this knowledge and contribute to a deeper understanding of systemic change by exploring the change-driving capabilities of a particular group of actors, the industry incumbents. This context is interesting, as the research subjects are driven by the rationale of profitability and thus view increased sustainability at most a secondary objective. Whereas past sustainability transition research has placed a strong emphasis on policy management (Zolfagharinan, et al., 2019), this research aims to break new ground by employing an integrative approach by combining concepts and perspectives from socio-technological transitions literature, institutional entrepreneurship research, and strategic management studies to provide actionable implications that can be assumed by managers of large for-profit companies and operationalized into business models.

Considering the impact of the FMCG vertical on global plastics utilization (Ellen MacArthur Foundation, 2016) and the intensity of competition within the field, any sustainability-seeking initiative in this context ought to be accompanied with an attractive business case (Schaltegger, et al., 2012). However, as the heightened general consciousness of sustainability matters has enabled companies to redefine value as a combination of social and economic rewards (Siegel, 2009), there exists potential for discovering novel ways of combining organizational assets and resources in a way that enables the simultaneous pursuit of economic and social benefits. Hence, the first research question of this thesis is formulated as follows:

- 1) What factors motivate incumbents to initiate or accelerate system-level sustainable change?

While the previously discussed literature acknowledges that agency plays a vital role in transitions, the means by which organizations can act as drivers of broader systemic change have been understudied (Smith, et al., 2010; Smink, 2015; Markard, et al., 2012). Moreover, when considering renewal from a systemic rather than an individual company's perspective, I argue that the consideration of applicable means and practices must extend beyond the scope of traditional strategic management research to account also for the institutional dimension inherent to a transition. For instance, prior research

by Farla et al. (2012) has indicated that any initiatives seeking to achieve broader systemic change, must also reach out to the broader environment. Further underpinning the relevance of this notion in the context of sustainability transitions, Geels (2011) argues that sustainable systemic innovation is likely more dependent on policy support than mainstream innovation. Building on these assumptions and identified gaps, the second research question is defined as follows:

- 2) What means incumbents may employ to initiate and accelerate sustainable change?

Finally, to contribute to another understudied dimension in sustainability transitions research of providing actionable insights that go beyond high-level approaches (Werbeloff, et al., 2016; Bolton & Hannon, 2016), I pursue to identify strategic approaches by which the brand owners seek to advance sustainable systemic transition while not compromising their profitability, and how these approaches manifested to practice. Hence, yielding the final research question as follows:

- 3) How can the brand owners' strategic approaches contribute to the initiation and acceleration of systemic change?

### **1.3 Structure of the thesis**

This thesis is structured into seven chapters. This introductory chapter has provided a brief description of the background and the motivation for the research, as well as stated its objectives and presented the formal research questions. The following chapter 2 consists of a literature review that begins with a description of sustainability transitions research and a process-oriented perspective on how systemic change unfolds. Ultimately, the literature review narrows down to the perspective of industry incumbents and their incentives to pursue systemic sustainable change, as well as the previously identified means at their disposal to realize their aims.

Chapter 3 outlines the methodology and describes the empirical data utilized in this study. Empirical data will then be analyzed and discussed in Chapter 4. As this study features an abductive research approach, Chapter 5 will further synthesize and reflect the empirical findings related to the third research question in light of the MLP framework. The final results are then presented and discussed in chapter 6, together with an assessment of the study's limitations. To close this thesis, this study's implications and suggestions for future research are summarized in chapter 7.

## **2 Literature review**

This literature review consists of three main parts that construct the theoretical framework for the study. The first main section will outline the theoretical context by narrowing down from the general field of transition studies to this study's worldview, the multi-level perspective, to establish how change unfolds in a socio-technical system. The second part discusses on the relationship between agency and systemic change to establish how actors can contribute to the initiation or acceleration of a systemic transition. Ultimately, the subsection zooms in on one group of actors within the field, the field incumbents, and examines their potential and incentives to act as agents of sustainability change. Last, the third section will focus on how incumbents' change advocacy manifests in practice. It begins with a description of a business model as a device for connecting individual organization's actions to systemic outcomes, and closes with an introduction of a framework of practices the incumbents can employ to pursue sustainable systemic change.

### **2.1 Theoretical context of the study**

Although this study is focused on incumbent companies' role as the agents of sustainable change, it is essential to outline the wider context in which the study takes place. This section will first provide an overview of sustainability transitions research, which seeks to understand how change that targets more sustainable future practice unfolds. To establish an understanding of the worldview employed by this thesis, this section will then proceed to introduce the dominant framework for analyzing sustainability transitions, the multi-level perspective (MLP), and its key concepts. Finally, I will provide a process-oriented description of how change occurs according to the MLP and describe the types of sustainable change pathways identified by past literature.

#### **2.1.1 Sustainability transitions**

Sustainable business operations or development has been a prevalent theme in all business discussions since the introduction of the Triple Bottom Line concept, which maintains that business goals are inseparable from the societies and environment within which they operate (Elkington, 2013). Central to this idea is that companies must seek development that meets the present's needs without compromising future generations' ability to meet their own needs, and failure to achieve such balance would make a business practice unsustainable (Elkington, 2013). Despite this notion's general

acceptance, companies still prioritize economically more attractive yet environmentally harmful practices over more sustainable alternatives. On the one hand, environmental economists attribute this issue to the fact that environmental needs are poorly served by existing markets (Pearce, et al., 1989; Smith, et al., 2010). They argue that product or service costs and prices rarely internalize the environmental or social externalities related to consumption or production, and hence the demand for more sustainable solutions has yet been unable to achieve the necessary pull to drive towards a more sustainable society (Pearce, et al., 1989; Smith, et al., 2010). On the other hand, any sustainability challenge can be seen to be coupled with and aggravated by strong path dependencies (Markard, et al., 2012). Established technologies are deeply intertwined with dominant practices, lifestyles, complementary technologies, infrastructures, value networks, and social structures and thus their displacement and replacement is not merely a technological or economical issue, but also entails transformation of the social systems involved (Geels, 2004; Markard, et al., 2012). Against this backdrop, the question of how to promote and govern a fundamental shift towards more sustainable modes of production and consumption has received unsurprising attention from sustainability transition scholars.

Fundamental changes to established ways of thinking and doing, or systemic innovations, directed toward more sustainable socio-technical systems are increasingly understood in terms of transitions and the domain of transition studies has received a growing amount of attention from researchers. (Zolfagharinan, et al., 2019) According to sustainability transitions research, a transition involves far-reaching structural changes in socio-technical systems that enable higher-order societal functions, such as mobility or heating, which typically unfold over considerable timespans. A central observation underlying this school of thought is that wider transitions often occur as a consequence of many successive or concurrent incremental developments, rather than as a result of a single disruptive shock (Markard, et al., 2012). Hence, transitions are characterized by being purposeful or guided (Smith, et al., 2010; Smink, 2015). These systems consist of actors, institutions, material artifacts and knowledge (Markard, et al., 2012; Geels, 2004). Actors comprise of the individuals, firms, other organizations, and organizational groupings. Institutions include the structures that guide actors in the system, such as societal and technical norms, regulations, life-styles, or standards of good practices (Markard, et al., 2012; Smith, et al., 2010).

Essential to the systems concept is the simultaneous variety yet strong interdependence between actors and how their interplay establishes structure and directionality for the

system (Geels & Schot, 2007; Markard, et al., 2012). In the course of a transition, new offerings, business models, and organizations emerge, partly complementing and partly substituting for existing ones (Markard, et al., 2012; Geels & Schot, 2007). Hence, transitions are multi-dimensional processes spanning technological, material, organizational, institutional, political, economic, and socio-cultural dimensions (Markard, et al., 2012; Geels & Schot, 2007). In other words, a transition involves fundamental changes in multiple levels of practice and perception: perceptions of consumers what constitutes a particular service, perceptions of how value is attributed and created, perceptions what is acceptable or desirable, and how to best organize to create and capture value in the system.

Considering the previous, transition research an inherently interdisciplinary field. To illustrate, past research has been drawing on insights from fields including innovation studies, institutional theory, evolutionary economics, governance, sociology, corporate social responsibility, and complex adaptive systems theory (Zolfagharinan, et al., 2019). Indeed, a key distinction between technological and socio-technical transitions is that the latter takes into account changes in a broader and established domain, that include user practices, institutions, and complementary infrastructures (Markard, et al., 2012). This domain is referred to as the socio-technical regime, which core idea is to impose logic and direction for incremental socio-technical change along established pathways of development (Geels & Schot, 2007; Markard, et al., 2012; Smith, et al., 2010). A counterpart to the regime and another central concept in transition studies is niches, which have an instrumental role in the emergence of technologies. Niches have been defined as protected spaces, such as particular market or application domains, in which radical novel innovations can develop without being subject to the selection pressure of the dominating regime (Geels & Schot, 2007; Markard, et al., 2012; Smith, et al., 2010). Through iterations of learning processes and social networking, these novel solutions may develop and eventually challenge established technologies, and potentially steer the system towards new pathways (Geels & Schot, 2007). By studying these very processes by which regimes and niches develop and interact with one another, researchers have established and conceptualized an understanding of how change unfolds in larger systems.

Considering that the aim of this study is to provide actionable insights for managers of incumbent companies for better informed future practice, a logical perspective for this study is that of pragmatist transition research (Zolfagharinan, et al., 2019). Central to this view is the consideration of transitions as the practical consequence of ideas and



emphasis of knowledge as an enabling resource for successfully carrying out progressive actions. (Zolfagharinan, et al., 2019) Effectively this means a focus on problems, practices, and their relevance to transitions in order to contribute to problem-solving and better-informed future practice. Illustrative examples of studies conducted in this vein include those of Kiss & Neij (2011) and Yuan et al. (2012). The former explored the adoption of energy-efficient windows in Sweden and evaluated policy instruments for advancing learning processes and policy change to accelerate the adoption process. The latter study observed the development of low-carbon systems in China and proposed a framework for efficient transition management. In a similar vein, this thesis seeks to contribute to transition research by employing problem-solving lens, with the aspiration of better-informed future practice in the domain of the plastics economy.

### 2.1.2 Multi-level perspective on sustainability transitions

The multi-level perspective (MLP) can be seen as the main analytical framework in sustainability transitions (Zolfagharinan, et al., 2019; Smith, et al., 2010). At the heart of the MLP is the aim to integrate findings from a broad range of literatures by providing analytical and heuristics concepts to understand the complex dynamics of socio-technical change (Geels, 2002). Similarly to the sustainability transitions tradition, the MLP conceptualizes a transition as a shift from regime to another, such that the whole network of interrelated technologies, actors, structures, cultural meanings, and practices change fundamentally and eventually establish a new dynamic equilibrium (Geels & Schot, 2007). Or in other words, an alignment of perceptions related to the projection of the regime. Essentially, MLP is an analytical framework that describes transitions on a macro-level, by utilizing socio-technical systems as the unit of analysis. These systems consist of an interdependent and co-evolving mix of technologies, supply chains, infrastructures, markets, regulations, user practices, and cultural meanings (Geels, 2018; Werbeloff, et al., 2016). A remarkable characteristic of these systems is that they develop over many decades and the alignment of these different elements leads to path dependence and resistance to change (Geels, 2018; Werbeloff, et al., 2016). On the one hand, existing systems are maintained and incrementally improved by incumbent actors, whose actions are guided by “socio-technical regimes”; the semi-coherent set of rules and institutions (Geels & Schot, 2007). On the other hand, actors outside this established regime seek to disrupt and transform the regime, and potentially replace it, by the means of socio-technical innovation (Werbeloff, et al., 2016; Geels & Schot, 2007).

To facilitate the analysis of the complex dynamics related to systemic change, the MLP distinguishes between three analytical levels: the socio-technical regime, technological

niches, and the socio-technical landscape (Geels, 2002). Where the former two together comprise the endogenous environment which is open to the direct influence of its actors, the latter forms the exogenous environment largely beyond their influence (Geels & Schot, 2007). The socio-technical regime refers to the mainstream and highly institutionalized ways of realizing societal functions. It involves shared cognitive routines, and alignment and interdependency of activities in a socio-technical system (Geels & Schot, 2007). The main influence of the regime is to stabilize existing trajectories of development, or invoke path dependency, in various ways: fixing the attention of actors to current cognitive schemas, regulation, and standards; adaptation of lifestyles to technical systems; sunk investments; infrastructures; and competencies (Geels & Schot, 2007; Werbeloff, et al., 2016; Zolfagharinan, et al., 2019). Considering the previous, change at this level tends to be incremental rather than disruptive, and typically manifests by R&D investments aimed at greater efficiency via incremental development or government regulations. Drawing on the categorization of Geels et Schott (2007), the six central dimensions of a regime include markets, industry, policy, technology, science, and culture. The focal actors in this level include established organizations, such as industry incumbents, associations, and regulatory bodies.

While the socio-technical regime constitutes a significant source of inertia within the system, the technological niches form the micro-level from which radical novelties emerge. Rather than just influencing the system via introduction of new technologies, the niches comprise of novelties in all dimensions of the system. Thus, the actors' output in this level are socio-technical configurations characterized by inferior stability and performance compared to the regime. An essential attribute of the niches is their purpose to act as incubation rooms, which protect underdeveloped configurations from the mainstream market's selection pressures. Indeed, the transformative power of niches is largely attributed to the limited constraining effects of the rules, norms, and practices enforced by the regime, which enables the envisioning of alternative trajectories and the delivery of the necessary configurations. However, once sufficiently developed in terms of performance and social networks, these niches can integrate into regimes or become one itself and simultaneously experience an increase in the constraining influence. To achieve such stature, niche actors need to perform considerable economic, institutional, cognitive, and political work. In this level, the focal actors comprise of small networks of dedicated actors, which are often labeled peripheral or fringe. In practice, these actors may include players such as start-up companies or unestablished ideological movements. (Geels & Schot, 2007).

The final level of analysis is that of socio-technical landscape, which is understood as the exogenous environment beyond the direct influence of the regime or niche actors. This level constitutes of phenomena that can be distributed into two subsections: slow-changing trends, such as demographics or geo-politics; and exogenous shocks, such as wars or economic crises. Thus, a key distinction between the endogenous level and the socio-technical landscape is that the latter does not determine trajectories, but it does provide “deep and structural gradients of force that make some actions easier than others” (Geels & Schot, 2007). Considering the previous, a logical characteristic of the socio-technical landscape is a relatively static form, which is beyond the influence of any short-term action of by the endogenous actors and develops in the time span of decades or more. Reciprocally, the landscape is not able to directly influence niches or regimes, for its developments need to be perceived and translated by actors to exert influence. However, in case of exogenous shocks, such as wars or market collapses, the landscape may set in motion a chain of events that significantly affect niche or regime actor cognition and actions, and thus indirectly steer regime trajectories (Geels & Schot, 2007).

To summarize, the key distinction between the different levels is that they each exhibit a different measure of structuration or institutionalization that enables or constrains actor behavior. Further, this influence makes actors in different levels prone to either reproducing or disrupting dominant practice. (Geels & Schot, 2007; Smink, 2015). As enablers or constraints for actor behavior, these rules and structures are essential to understanding systemic change at the macro-level. For a transition to occur, an escape from the lock-in and deflection from path dependencies is required. While normal innovation patterns tend to reproduce existing regimes, regime shifts happen through inter-linkages and interactions between multiple developments across these levels. Hence, transition processes involve purposeful actors in normative questions operating through structured relations. MLP provides a straight-forward way of ordering and simplifying the analysis of complex, large-scale structural transformation in production and consumption patterns demanded by the normative goal of sustainable development.

### 2.1.3 Systemic change process in multi-level perspective

The MLP is widely considered a useful framework for conceptualizing change and system-level transitions because it considers both the multitude of actors and structures involved and the interplay of actors within and across different levels. (Zolfagharinan, et al., 2019) Thus, the framework accommodates both the challenges related to transformation – which are often related to the inertia, path dependency, and bounded rationality of the actors of the dominant regime –, but also the opportunities that niche

innovations can – given their adequate development – seize and establish new regimes. (Geels & Schot, 2007; Werbeloff, et al., 2016)

The MLP argues that socio-technical transitions come about through interacting processes within and between the incumbent regime, radical niche innovations, and the socio-technical landscape (Berggren, et al., 2015; Geels, 2002; Zolfagharinan, et al., 2019). In summary, a successful socio-technical transition can be described as a four-stage process (Geels, 2018), which begins with the emergence of a niche innovation, proceeds with its full- or partial adoption to the regime, and results to the establishment of a new regime. First, radical innovations emerge in peripheral niches. Given the weakness, or total lack thereof, of established rules and structures, actors improvise and engage in experiments to work out user preferences and a dominant design (Geels, et al., 2007). Acting as an incubation room protecting novelties from the selection pressures of the mainstream market, the niches provide locations for learning processes, such as learning by doing, learning by using, and learning by interacting (Geels, 2002). Additionally, the niche level provides space for constructing the necessary social networks that support innovations, e.g., supply chains and user producer relationships (Geels, 2002). The key objective for innovations at this level is to stabilize and attain legitimacy, to enable its breakthrough to the market-niche level.

Given that these socio-technical innovations have sufficiently stabilized in terms of internal organization, they enter small market-niches in phase two. In this phase the new innovation is used in small market niches, which provide resources for further technological development and specialization (Geels, et al., 2007). Given the convergence to a dominant design, the niche will develop a technological trajectory of its own and consequently the rules and structure begin to form around it (Geels, et al., 2007). However, if there is a mismatch of requirements between the niche, regime and the landscape level, the innovations may remain stuck in a niche for extended periods of time or fail to escape this position altogether (Geels, et al., 2007).

The third phase is breakthrough to the mainstream market, which depends on several niche-internal drivers but also on external factors, named windows of opportunity (Geels, et al., 2007). The former component covers typical innovation performance measurement attributes such as price-performance -improvements, the emergence of complementary technologies and infrastructures, positive cultural discourses, and support from powerful actors, whereas the latter is closely knitted to the stability of the existing regime in a given time period (Geels & Schot, 2007; Berggren, et al., 2015). The stability of the regime is determined by its internal resilience to withstand pressures

exerted by the socio-technical landscape and the niche regime (Geels & Schot, 2007). Given the sufficient development of the niche innovation to make it competitive against the regime, and an adequate state of disruption within the regime, a niche innovation can exploit this window of opportunity and succeed in a breakthrough (Geels, 2018). Finally, a regime transformation occurs in phase 4, which entails the emergence of new order within the regime, including adjustments in infrastructures, policies and lifestyles (Geels, 2018). A visual description of the process described above is provided in figure 2 below.

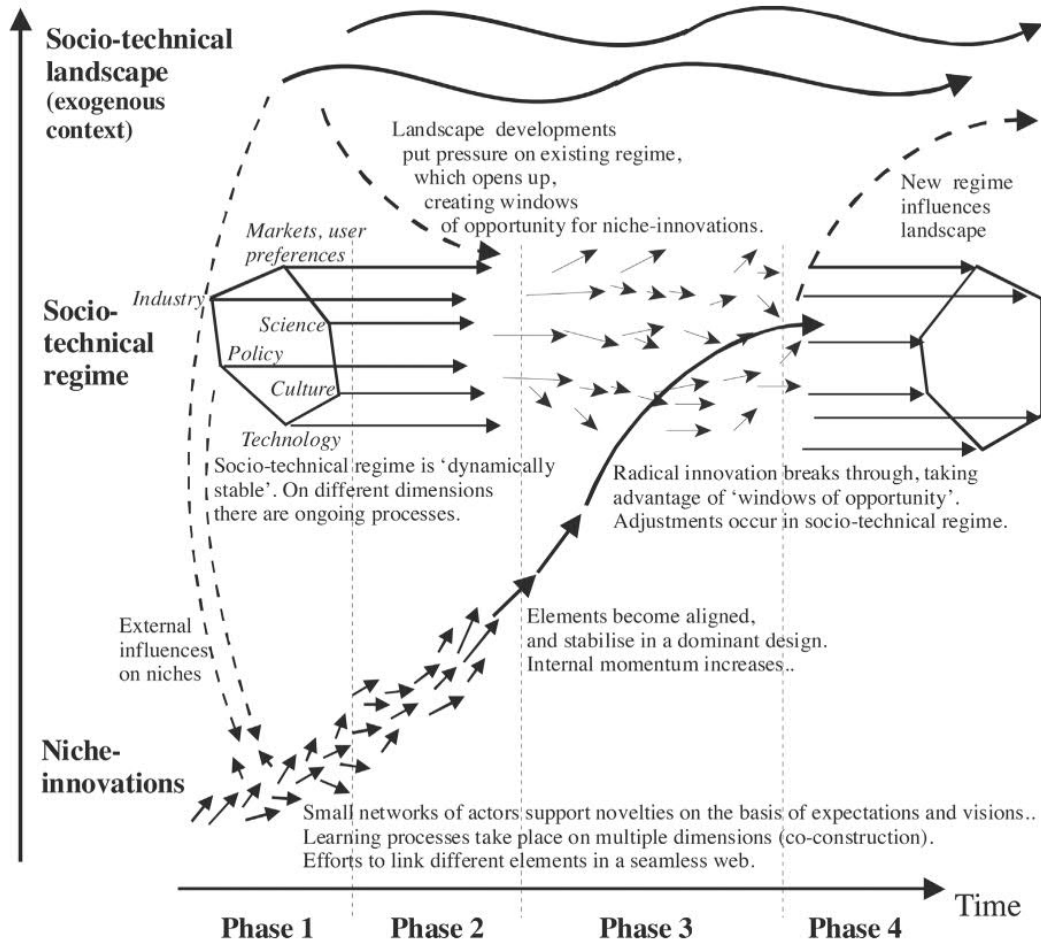


Figure 1: Multi-level perspective on change (Geels, 2018, p.226)

Further, Geels & Schot (2007) have identified four different types of transition pathways, that distinguish transitions by the nature of interaction between the analytical levels. First, landscape developments can either have stabilizing or disruptive effects on the regime, thus forming a no-driver or exerting impulses of change to the regime, respectively. Second, the niche-innovations can engage in a competitive or symbiotic relationship with the regime, thus seeking either the direct replacement of the regime or

mere improvement of its performance or practices. The combinations across these dimensions yield four distinct transition pathways: transformation, technological substitution, reconfiguration, and de-alignment and re-alignment. When no significant pressure is exerted on the regime by neither the niche nor the landscape, the system will continue to reproduce itself. Additionally, a transition may unfold as a sequence of these four combinations.

In *transformation pathway* regime actors adjust established technologies and practices in response to external pressures (Geels & Schot, 2007; Smith, et al., 2010). This happens when the regime is confronted with moderate landscape pressure at a moment when niche innovations have not yet been sufficiently developed to challenge the regime. The landscape changes prompt action from the regime, which leads to reorientations by the regime actors. In this type of transition the niches play a minor role, although some symbiotic innovations may be incorporated to the regime given it does not disrupt its core architecture. On the contrary, the influence of outsider groups, such as activists groupings, may be instrumental as they act as interpreters of the landscape changes and consequently seek to influence the regime rules directly and prompt the reorientation exercises from the incumbents. The cumulative effect of these heterogeneous reorientations and adjustments will lead to a new regime growing out of the old regime. A key characteristic of this pathway is that the regime actors will largely survive the transition, yet some changes in the organization of social networks may occur. An illustrative example of such transition is the emergence of organic foods (Smith, 2006), which began with niche players' decade-long efforts in mainstreaming the segment. However, pressure from social groupings ultimately led to the incumbents adopting the new segment to their core offerings without having much impact on the core architecture of the regime. (Geels & Schot, 2007).

*Technological substitution* happens when incumbent firms promoting regime technologies compete with new firms promoting alternative technologies (Smith, et al., 2010). This pathway surfaces when the regime is confronted by significant landscape pressures at a moment when niche is highly developed. This pathway assumes well-developed niches exist, but they are trapped in the niche due to the stability of the regime. However, the pressures exerted by the landscape will open up a window of opportunity for the prepared niche to seize, which will then lead to the niche will directly compete with, and potentially take over, the regime. This competition will prompt the incumbents to engage in defensive action to maintain the status quo, which manifests in terms of exercising of institutional power and investments to improve the current system

incrementally. Should the niche succeed in overthrowing the existing regime, it may also lead to knock-on effects and wider regime changes. Thus, this pathway emphasizes the competition between the regime and the niche, which can entail the fall of the incumbent companies. An illustrative example of this sort of transition could be that of touchscreen smartphones, which eventually saw an industry giant Nokia fall completely out of the market, due to late adjustments to changing customer preferences, which were caught by the niche. (Geels & Schot, 2007).

The system enters a *reconfiguration* pathway when the regime actors adopt component innovations developed by niches, often serving a supplier role to the regime. In this pathway, symbiotic innovations developed in the niches are initially adopted to the regime to solve local and isolated problems. However, the simultaneous adoption of these innovations across the regime trigger further adjustments and influence the core regime architecture. Initially, the symbiotic niches are incorporated into the regime by mostly economic incentives, such as problem-solving and performance improvements, to drive incremental improvements and thus maintain the regime unchanged. However, when incumbents explore new combinations between old and new practices, perceptions, or material aspects, this may extend opportunities for another layer of new niches. These sequences of component innovations can thus over time and under the influence of landscape pressures accumulate to major reconfigurations and regime changes, leading to a new regime growing out of the old regime. Similarly to a transformation pathway, the incumbents mostly survive this type of change given a willingness to pursue incremental innovations that emerge in the market. An example of this type of transition is the American transition from traditional factories to mass production. In this transition, sequential incremental developments across multiple dimensions (e.g., economic growth, population growth, various technological developments and emergence of efficiency principles) ultimately led to a transition to mass-production lines, which has since been a standard for an uncountable number of industries. (Geels & Schot, 2007).

*De-alignment and re-alignment* pathways happen when the regime completely loses its legitimacy, and competition ensues among the new niche actors promoting various alternative technologies. This is prompted by a single large landscape shock or multiple divergent changes when no single dominant niche innovation is in place to act as a substitute for the regime. The changing landscape exercises significant pressure to the regime, which starts to lose faith in the effectiveness of current practices and structures. This perception is often signaled by decreasing R&D expenditure. The erosion of the

regime creates space for the emergence of multiple niche-innovations that co-exist and compete for dominance in terms of attention and resources. In this moment, the rules and structures have destabilized, thus prompting exploration of multiple directions and innovation trajectories. As the effort is distributed across multiple directions, certainty regarding the regime's future trajectory is low. However, the system will eventually converge to a dominant design, which will form a core for a new alignment process and trajectory of the regime. In this pathway, old regime actors often face difficulties in surviving the transitions, unless they are able to adapt to the new dominant trajectory effectively. The American transition from horse carriages to automobiles can be considered an example of a transition of this type. The transition was characterized by numerous societal reforms (e.g., urbanization, immigration and changes in values), as well as the emergence of electricity as a pervasive technology. What began as a battle between many niche innovations, such as electric trams and the bicycle, ultimately saw the automobile becoming the dominant means of transport, not least because of the introduction of the T-Ford. (Geels & Schot, 2007)

Finally, a transition may also occur via a *sequence of transition pathways*, when the system is confronted with a specific type of disruptive landscape change. Then the system may undergo a sequence of transformation, reconfiguration, and possibly substitution or de-alignment and re-alignment. Characteristic to this change, is the gradual and slow-paced building up of highly directional landscape pressures. As the landscape pressures continue to advance in a certain direction, it intensifies and becomes increasingly disruptive. Due to the landscape pressures evolving in a gradual manner, the regime actors initially respond to moderate landscape pressures by adapting their practices development activities for increased alignment. Thus, resulting to circumstances equivalent to a transformation pathway. However, should the landscape pressures continue to increase despite these adaptive measures, the regime actors are likely to respond to these disruptive forces by increased collaboration and experimentation with symbiotic niche-innovations. Should this experimentation lead to significant changes in the core regime architecture (i.e., reconfiguration of supply chain roles), the result is a reconfiguration pathway. Now, if the landscape pressures still continue to intensify, the regime may begin to lose its perception of internal competence, opening up a window of opportunity for niche innovations. Given the occurrence of established niche-innovations the system advances to a technological substitution. If no established niche-innovations exists, then the system will likely undergo a de- and re-alignment process. Existing literature has not been able to provide empirical evidence of such transitions thus far. However, Geels & Schot (2007) suggest that climate change may well be a source



for a highly directional, global, longstanding, and disruptive pressure, to prompt a sequence of pathways in the domains of energy or transportation. Further, this observation implies that jumps between pathways may occur.

To summarize, MLP views socio-technical transitions as a four-stage process in which the incumbent regime, radical niche innovations, and the socio-technical landscape interact so that a new regime either surfaces as a consequence of a mutation of the existing regime or the emergence of a radical niche that manages to stabilize and overthrow the old regime. The type of the resulting regime depends on the nature of the relationship the niche seeks to pursue with the regime, the maturity of the niche, and the stability of the regime, which is largely influenced by external landscape pressures. While individual actors have little means for influencing landscape developments and thus have to resort to a “sense and react” role in managing the landscape pressures, they possess significant power over the development of niche innovations as well as the outcomes of transition processes. Consequently, understanding of the niche-internal development processes and how to support their successful throughput is of essence for actors seeking to accelerate transitions.

Considering that the regime-niche interaction plays a major role both enabling transitions and in steering transitions to certain pathways, it is important to understand the subprocesses by which radical innovations develop into market niches (Phase 2 in the four-stage model), or in other words, develop necessary performance and converge towards a dominant design. According to Geels (2010), there exists three such processes: the articulation of expectations and visions, learning processes, and building of social networks. First, articulation of expectations and visions is crucial as they provide direction to learning processes, attract attention, and legitimate protection and funding. In a way, this facilitates the sensemaking process of stakeholders who seek to interpret and evaluate the meaning, purpose, and usefulness of the innovation. Further, by drawing on findings of Hoogma et al. (2002), one can identify three key activities contributing to the success of this process: sharing the articulation for more actors and thus making the expectations more robust; increasing the specificity of expectations to enhance the guiding property; and improving the quality of the expectations by substantiating them by ongoing projects (Hoogma et al., 2002).

Second, various types of learning processes need to occur to improve the price and performance attributes of the innovation. The types of processes can be categorized into material aspects and institutional aspects. The first includes dimensions such as technical aspects and design specifications, infrastructure networks, and industry, and

production networks. The latter considers aspects such as increased understanding of market and user preferences, formulation of cultural and symbolic meaning, regulation and government policy, and societal and environmental effects (Geels, 2010). The objective of these activities is not only about accumulating facts and data, i.e., first-order learning, but more importantly, to enable changes in cognitive frames and assumptions, i.e., second-order learning (Bidmon & Knab, 2018). Effectively the purpose of these learning processes is to improve understanding of what is the best way to apply the innovation and how to maximize its performance.

Finally, to attract support behind the new innovation and facilitate interactions between relevant stakeholders and provide the necessary resources, an appropriate social network must be built around it. In constructing the social network, two key dimensions must be considered. First, the network should involve various types of stakeholders (Bidmon & Knab, 2008; Geels, 2010). Involving various actors facilitates the articulation of different views and voices and thus may be helpful in broadening cognitive frames and accelerating second-order learning. Second, the networks should have sufficient depth (Bidmon & Knab, 2008; Geels, 2010), which means that the actors involved in the network should have the capacity to mobilize commitment and resources to support the innovation either internally, or by extending to their individual networks.

To summarize, the successful development of niche innovation into a market niche entails not only the development of a technically viable and potentially superior alternative to the regime solution but also and more importantly, the mobilization of various types of resources to secure support for the emerging solution and to drive its acceptance in the wider institutional environment. While these higher-level implications are well studied and understood in the MLP scene, there remains a knowledge gap how this understanding can be operationalized from an individual company's perspective.

## **2.2 Industry incumbents as drivers of sustainable systemic change**

This section establishes how industry incumbents can be exercise their agency to drive systemic change and their incentives to engage in such action. First, I will integrate findings from the MLP, institutional entrepreneurship, and strategic management studies to shed light on how individual actors can bring about changes to the wider system. Second, I will closer examine the transformative capability of established incumbents. Finally, I will analyze the drivers for incumbents to drive wider sustainability initiatives.

### 2.2.1 Agency and systemic change

Despite the MLP perspective having emerged as a central concept for understanding how change unfolds in socio-technical fields, it has received criticism for its negligence of agency. In fact, according to Geels et al. (2015) the MLP perspective strictly and by design denies simple causality in transitions, thus fortifying the argument of those advocating for the limitedness of the model. This negligence of agency is apparent in at least two levels. Firstly, some authors argue the framework – and especially the determination of a particular transition pathway – is biased towards exogenous explanations of change, by placing emphasis on the environmental changes affecting socio-technical landscape (Werbeloff, et al., 2016; Zolfagharinan, et al., 2019; Smith, et al., 2010), thus undermining the power on individuals or groups to leverage resources to transform or create new regimes. For example, while the concept of “windows of opportunity” created by favorable regime conditions is useful in highlighting the timing aspect related to successful transitions, it simultaneously places additional weight for the exogenous events as catalysts for change, while undermining the capability of niche actors to create such opportunities themselves. Secondly, the MLP perspective places almost exclusive emphasis on the niche players as the source of innovation and consequently perceives regime actors (i.e., incumbents) as conservative forces who resist change unless forced to act otherwise by pressures exerted by the environment or the niche players (Brodnik & Brown, 2018; Werbeloff, et al., 2016; Berggren, et al., 2015). Considering the previous and the aims of this study, the MLP literature does not provide a satisfiable link between agency and systemic change. It hence is incapable of providing an exhaustive explanation to how individual actors, especially industry incumbents, may act as initiators or accelerators of change.

While the negligence of agency remains a limitation for examining change from the MLP, institutional entrepreneurship scholars provide interesting accounts for how individual agents may shape the very systems they are embedded in. Known generally as the paradox of embedded agency, the institutional entrepreneurship scholars highlight the inherent issues with agency and system-level change. Institutional scholars maintain that actors are embedded in their institutional fields, meaning that their reality, rationale, and behavior are shaped by their institutional environment (Garud, et al., 2007; Sitaloppi & Wieland, 2018). Hence, it is paradoxical how these embedded actors may envision or develop novel practices, let alone be motivated to pursue such change. Like the general arm of MLP scholars, also the institutional entrepreneurship scholars generally maintain that institutions are highly prone to reproducing the established rules

of the game and structures, and thus induce path dependency or change-related inertia to the involved agents (e.g., Garud, et al., 2007; Geels, 2004; Werbeloff, et al., 2016; Lawrence, 2006). However, an essential starting point put forth by institutional entrepreneurship research in explaining this paradox lies in the notion that while institutions influence actors' behavior, the institutions themselves are shaped by the very same actors (Lawrence, 2006). Further, a noteworthy remark is that whatever constraint there exists in a social group or organization, some interest group has had to have managed to have that constraint imposed (Pfeffer & Salanick, 1978). Building on this idea, several authors have proposed solutions to this paradox, and most compelling accounts attribute individual actors' capacity for change to actors' reality often spanning multiple institutions either simultaneously or sequentially (Siltaloppi & Wieland, 2018; Greenwood & Suddaby, 2006; Tracey, et al., 2011). Shaped by these various context, individual agents possess the capacity to observe contradictions in institutions and perceive alternative practices (Siltaloppi & Wieland, 2018; Tracey, et al., 2011). Hence, by mobilizing their resources – either individually or combined to a collective – actors can enable institutional change (Siltaloppi & Wieland, 2018).

In addition to the general drawback of failing to attribute responsibility of transitions to individual agents, another limitation of the MLP perspective lies in its inflexible perspective on the roles of niche and regime actors. The socio-technical systems perspective often attributes transformative capacity almost exclusively to niches (Geels, 2004; Smink, 2015), and the main arguments supporting this view can be distinguished into two key areas. Firstly, MLP scholars view regime actors, or incumbents, as path-dependent powerhouses that seek to sustain the environment in which they are established (Geels & Schot, 2007; Bolton & Hannon, 2016). Highly embedded in their current environment, their cognitive capability to envision novel solutions is bounded to the present regime, and their organizational structure that is geared towards exploiting the present is ridden with inertia (Bolton & Hannon, 2016; Geels, 2018). Secondly, to maintain the status quo, these actors focus their development efforts solely on incremental change that targets efficiency gains, and in some cases on incentives seeking to deter regime-breaking innovation attempts by the niches (Zolfagharinan, et al., 2019; Geels, 2018; Eggers & Park, 2018). However, these views are challenged by scholars both within and outside the MLP scene (Bidmon & Knab, 2018; Bohnsack & Pinkse, 2017; Bohnsack, et al., 2019; Dangelico & Pujari, 2010). For example, based on a comparative analysis of technology strategies and sustainable transitions in the heavy vehicle industry Berggren et al. (2015) posit that incumbents not only engage in activities to maintain the regime but also in innovation activities that seek to disrupt the regime. Moreover, by

employing an institutional entrepreneurship perspective in their study of the Big Five Accounting firms, Greenwood & Suddaby (2006) demonstrated that established incumbents with low embeddedness combined with a motivation to change are capable of industry disrupting behavior.

While one may agree that niche players likely have more incentive to introduce innovations that challenge the fundamental structures of a regime and thus drive system-level change (Geels, et al., 2015), their capability to deliver such solutions is questionable and even more so in industries driven by economies of scale. In this context, niche players may be important in signaling new technological opportunities, but they face extreme obstacles in their efforts compete and gain market share due to the vast resources and complex knowledge required to compete against a highly developed and performance-oriented regime (Berggren, et al., 2015). While the previous does not indicate that it is certainly impossible for a niche player to succeed in overthrowing the dominant regime, it does suggest that an appropriately motivated incumbent might be in a more fruitful position to initiate and accelerate change in the regime, given their established networks, access to powerful organizations, acquired knowledge, and extensive resources (Bocken, et al., 2014).

### 2.2.2 Incumbents as change agents and incentives for change-advocacy

In order to make a case for the incumbents as a catalyst for system-level change, it is necessary to establish understanding of the drivers that incentivize incumbents to pursue sustainable strategies, even at the expense of profitability losses. Authors spanning multiple fields of study such as sustainability transitions (Werbeloff, et al., 2016; Bohnsack, et al., 2019), legitimacy (Suchman, 1995), institutional entrepreneurship (Greenwood & Suddaby, 2006; Berggren, et al., 2015), strategy (Böttcher & Müller, 2015; Wesseling, et al., 2015; Husted & de Jesus Salazar, 2006), and innovation (Dangelico & Pujari, 2010; Bohnsack & Pinkse, 2017), have contributed to this cause. To accommodate for the broad variety of incentives, a useful framework is introduced by Böttcher & Müller (2015). In their analysis of the approaches employed by German automotive suppliers to cutting down carbon emissions, they distinguished two types of drivers pushing incumbents for more sustainable operations: internal competitive expectations and external stakeholder pressures. Building on this structure, I propose a two-sided framework for structuring the types of drivers that distinguishes between business drivers and institutional drivers.

Business drivers comprise of the costs and revenues linked to direct or indirect benefits, that a company expects from a sustainability transition. In the revenue-side, this relates to the increased perceived or realized value-added to the product, and on the cost side to the efficiency increases or avoidance of financial penalties (Böttcher & Müller, 2015; Siegel, 2009; Husted & de Jesus Salazar, 2006; Schaltegger, et al., 2012). Indirect benefits entail actions that seek to improve the company position in its operational environment. Key drivers in this sense relate to risk management and raising barriers of entry for competitors (Schaltegger, et al., 2012; Böttcher & Müller, 2015; Siegel, 2009). The former refers to compliance with the existing environment with regards to environmental and regulative factors, and the anticipation or precautionary measures to account for future developments in this context, thus mitigating operational risks. The latter refers to practices which seek to increase competitor costs or altogether block market entry, by means of regulator collaboration or standardization.

On the contrary, institutional pressures include all exogenous coercive and normative influence directed at the company that encourages sustainable action. Key sources for these pressures include governments, investors, customers, media, the general public, suppliers, business associations, and competitors, and their modes of action span from coercive regulation to conceptions and consumption habits (Böttcher & Müller, 2015; Suchman, 1995; Pacheco, et al., 2010). Interestingly, the case study conducted by Böttcher & Müller (2015) indicates sustainability incentives put forth by the incumbents are more driven by the external stakeholder pressures than the economic drivers (Böttcher & Müller, 2015). While this particular finding is likely at least partly explained by the long-term basis of sustainability investments (Böttcher & Müller, 2015), the underlying claim is in-line with the general view of organizational legitimacy research. Instead of perceiving organizations as “rational systems” (Suchman, 1995) that are driven by purely economic rationale, this field of study assumes that organizational decision-making and action is highly influenced by a need to invoke a perception of different forms of legitimacy from various stakeholders (Suchman, 1995; Pacheco, et al., 2010).

Further, building on these drivers, one can suggest between two dimensions of strategic behavior a company can employ to drive systemic change: First, business configuration approaches, which define value as a combination of economic and social factors and seek to configure value capture and creation mechanisms, such that they maximize across these aspects. Second, institutional tactics that are concerned with managing the

institutional structures within which firms compete, by influencing the external environment of the firm (Smink, 2015).

## **2.3 Exercising agency to drive sustainable systemic change**

This section describes how incumbents can drive systemic change by introducing changes to business configuration and deploying institutional tactics. First, I will formalize business model as a construct for analyzing how organizational action links to systemic outcomes. Second, I will define a structuration for business model that distinguishes between *business configuration* and *institutional tactics* to enable holistic understanding of the mechanisms involved in driving systemic change and how change advocacy manifests in practice.

### **2.3.1 Business model as the nexus between companies and transitions**

In order to zoom in on individual organizations, while simultaneously maintaining the systemic perspective, it is necessary to establish a construct that focuses on the local level and links the actions of a focal company to the macro- and meso-levels of the wider system (Bidmon & Knab, 2018). Therefore, this section will refer to business model literature to form a connection between an organization and its broader system to enable closer inspection of how individual actors' influence can lead to systemic outcomes.

It is widely acknowledged that a shift towards sustainable development can only be achieved by systemic change to current production and consumption patterns, consequently prompting the interest of many scholars (e.g., Bohnsack, et al., 2019; Bidmon & Knab, 2018; Schaltegger, et al., 2016; Lüdeke-Freund, 2019). However, the focus of past literature has largely been on the role of novel technologies as catalysts for change (Bidmon & Knab, 2018; Geels & Schot, 2007). Given that a regime shift is characterized by a co-evolution of technical, economic, and behavioral change in the spheres of production, distribution, consumption, and ways of life (Brodnik & Brown, 2018; Geels, 2018), research has converged on the idea that technology alone will not suffice to achieve wider systemic shifts. Consequently, recent sustainability transition research has turned to business models as an intermediary device between an organization and the system.

As a concept, business model has been subject to various definitions and use cases, spanning disciplines including entrepreneurship, innovation, strategy, and organizational planning and decision-making (Geissdoerfer, et al., 2018). Generally,

researchers agree that a business model is a concept inherent to all organizations that describes of how an organization works and how it creates and captures value – either economic, social, or both – for its stakeholders (Bidmon & Knab, 2018; Schaltegger, et al., 2012). By noting that a key aspect in describing an organization and its purpose is to establish its positioning and aims with regards to its environment, it can be argued that business models account for not only the underlying economic rationale of organization but also the individual pains, gains, competencies, and limitations of the multiple value network actors (Osterwalder & Pigneur, 2010). By this way, business models are connected to wider systems and its actors, norms, rules, and traditions (Boons, et al., 2013; Zott & Amit, 2010). Given this perspective, business models can be perceived as serving a dual role of being a representative cognitive device as well as a construct of material aspects (Bidmon & Knab, 2018).

The material aspects cover the resource configurations and exchange relations needed to create, capture, and distribute value within the value network, thus depicting business models as systems of interdependent activity systems that extend beyond the focal company (Bidmon & Knab, 2018; Zott & Amit, 2010). As a cognitive representation, they provide the understanding how business works and serves as a facilitating mechanism, that enables the articulation of business ideas to and collective sense-making for stakeholders by means of narration (Doganova & Eyquem-Renalut, 2009). Hence, by employing this dual perspective, business models provide a fruitful conceptualization for exploring how change unfolds as a result of organizational actions in the organization-system interface.

When considering business models from the perspective of socio-technical transitions, a useful categorization of business model functions is provided by Bidmon & Knab (2018). Building on the definitions of Spieth et al. (2014) and Spietch & Schinder (2016), they propose that business models serve functions in a three-fold manner. As constructs, business models reflect articulated and operationalized hypotheses about how to best deliver value to its customers. If this hypothesis survives a sustained period of time, it becomes embedded into a dominant business model logic, which represents an established understanding how a particular type of an organization works. Over time and by the influence of competitive pressures, these logics tend to converge within an industry towards a dominant industry logic or “industry recipe”. As an industry recipe, business models act as an institutionalized understanding of how companies within an industry work and as a guide for how to best capture value in the given business environment.



The second function is to act as a device to commercialize technology. From a business perspective, mere superior technology is not able to guarantee sustainable competitive advantage (Schaltegger, et al., 2016). Instead, it needs to be contextualized, introduced to markets, and connected to value creation and capture mechanisms. In other words, in order for companies or consumers to benefit from a new technology – in terms of financial gains or enhanced life-value – it needs to be linked to a value proposition and the key processes and activities must be planned and executed for its production and distribution. Thus, only when linked to an existing or novel business model, can a technology realize its life-enhancing properties and create value.

Third, business models can be subject to innovation themselves independently of emergence of new technologies (Keeley, et al., 2013; Zott & Amit, 2010). By developing a new business model, or in other words redefining how the organization works, companies can unlock significant competitive advantages and even disrupt entire industries. For example, by transforming their business model from a traditional engine retailer to a service provider of aerial thrust that effectively leases the engines to airlines, Rolls-Royce was able to improve its profitability. The new operating model allowed the company to achieve cost-savings by optimization of the service process, as well as penetrate new customer segments due to the smaller one-time fees attached to the service. Although new business models may often be enabled by novel technologies, it is not a requirement for business model innovation. Hence, new business models and new technologies need to be viewed as inherently linked yet completely separate concepts.

Building on the previous characteristics, I argue that business models provide a useful analytical concept for linking organizational action to wider system, as well as a solid framework for identifying practices by which individual organizations may influence systemic change. When considered in the dual-role suggested by Bidmon & Knab (2018), business models themselves constitute of a managerial account of how value is best created and captured in a given domain, taking into account the various systemic dynamics of material exchange relationships, organizational interaction, and the environmental constraints and pressures. In this way an established business model in itself constitutes of the same components as a socio-technical regime (Bidmon & Knab, 2018). To illustrate, both established regimes and business models are dominant rule and resource structures that by large revolve around a technology or material artifact such as a product or service, and guide actor understanding how to best capture and create value in the system. Moreover, they both span a broad variety of actors and exert interdependence among actors and reinforcement of existing practices and cognitive

frames (Bidmon & Knab, 2018). Drawing on these dynamics, a business model can be utilized as a construct for understanding how actors may contribute to the stability of a regime and its reproduction.

As a logical consequence to the previous, any successful business model that seeks to bring about change in a system must then explicitly and individually address the tactics an organization seeks to employ in all system dimensions to realize its aspirations and combine these tactics into a holistic and well-articulated approach (Osterwalder & Pigneur, 2010). Considering the function of a business model (i.e., a boundary spanning representation that explains how an organization creates value for its stakeholders by the means of coordinated partnerships and activities) and key support mechanisms to niche-internal processes (articulation of visions and expectations, support of learning processes and building of social networks) one can make a case for business models as a facilitating device for driving change. For instance, Bidmon & Knab (2018) argue that business models have an essential role in commercializing, or supporting the stability of, a technological innovation and facilitating its breakthrough to regime level. More specifically, they argue that business models contribute to the niche-internal processes by in a three-fold manner: By serving as a reference language that facilitates collective sense-making; by allowing the discussion of market and user preferences and supporting the attraction of funding and, by demonstrating the value of novel technology to actors across the system and establishing links between various actors in value network (Bidmon & Knab, 2018). Moreover, a valuable notion is that a business model perspective emphasizes that niche-innovation may also emerge independently of technologies, as a consequence of redefinition of value capturing or creation mechanisms (Bidmon & Knab, 2018). Taking the previous into account, a novel yet sufficiently developed business model can be deemed as an implication of the emergence of novel rules and structures, that enable alternative ways of creating and capturing value. In this way, a business model can act as a vehicle for a niche innovation that significantly contributes to the increase of its stability by attracting material as well as institutional support around it. Thus, one can conclude business models are not only useful in studying practices leading to regime stability but also, and arguably more importantly, in studying how system-wide change may be efficiently brought about by individual actors.

As such, business model as a unit of analysis not only encapsulates an exhaustive plan how an organization seeks to challenge a regime but also how this plan materializes and manifests into grassroot level decisions and actions within an organization. Hence, I

argue that business models are a versatile device for analyzing how an organization may initiate or accelerate systemic change. The following sections will extend this argument, by employing business models as the unit of analysis for understanding how individual actors can bring about change in their system by employing various types of institutional and business configuration-related practices.

### 2.3.2 Driving change through business configuration and institutional tactics

By combining insights from business model innovation, strategic management, ecosystem orchestration, and institutions literature, I propose a structuration that divides the practices companies may employ to drive system-wide change into two analytical levels: *business configuration* and *institutional tactics*. In utilizing this division, I seek to contribute to a holistic understanding of the key components that need to be addressed to drive systemic change, as well as shed light on the highly context-dependent strategic planning activity of how to effectively deploy of the means outlined in this section.

I define *business configuration* to involve all actions related to definition of the value proposition and the consequent necessary configurations of resources and processes. Thus, this definition accounts for the description by Bidmon & Knab (2018) of business models as a construct of material aspects. In terms of the functional purpose of this construct, I draw on Osterwalder & Pigneur's (2010) definition of business model, which describes "*the rationale how an organization creates, delivers and captures value*" as a configuration of value proposition, activities, and resources. More specifically, I define the scope of analysis to not only consider the resources, processes, or their configuration strictly internal to their company, but also those that it sources or produces in concert with its broader activity system of business partners, that transcend the focal firm and span its boundaries (Zott & Amit, 2010). Thus, the most important stakeholders at this level include the suppliers, customers, and vendors of the focal company. To elaborate on the previous, analysis at this level covers the configuration of all resources, activities, and interactions across the network of the focal company and its direct stakeholders that are necessary to realize the defined value proposition. Hence, I echo Zott & Amit (2010) and Osterwalder & Pigneur (2010) by considering that a value proposition not only considers the simple pain relieving and gain creating relationships between a vendor and a customer, but also a more holistic conceptualization how value is appropriated and distributed across all relevant business partners.

Although these configurations can be formed in a myriad of ways, building on Keeley et al. (2013) framework for innovation, one may distinguish between three main types of innovation domains. Firstly, *configuration development* considers innovative activity that involves the reconfiguration of profit model, value network, organization structure, or processes. Thus, this element addresses what is produced and with whom, how value is captured to the involved players, and how the exchange relationships between involved actors are defined, e.g., in terms of contracts or agreements. This innovation domain highlights the perspective of Bidmon & Knab (2018), stating that a business model in itself can be subject to innovation, independent of technological novelties. Second, *offering innovation* involves activities related to developing superior or novel products or services. For example, the introduction of novel technologies in products with improved price-performance attributes. Finally, *delivery redesign* involves all activities related to managing the delivery, and experience related to the consummation of the company's offering. This includes factors such as channel and service model innovation, brand development, and customer engagement.

The key analytical rationale for the this level of analysis is to highlight the underlying assumption of this study that any successful sustainability initiative must be accompanied by an attractive business case (Lüdeke-Freund, 2019; Siegel, 2009; Husted & de Jesus Salazar, 2006). Moreover, as established companies tend to incorporate sustainability elements to their existing business models rather than creating new radical configurations (Schaltegger, et al., 2012), it is the very definition of business configuration that guides the form of the institutional environment in terms of who are involved and in what roles, as well as what institutional practices are at the focal company's disposal. While recent studies converge on the idea that business model innovation is a promising approach for delivering sustainable innovation (Boons & Lüdenke-Freund, 2013; Bidmon & Knab, 2018; Shaltegger et al., 2012), little is known of the most viable practices that contribute to this cause, or their perceived effectiveness by the focal companies. To highlight this gap the key practices identified by earlier literature associated with this level as well as a summary of the two constructs discussed in this section are described below in table 1.

**Table 1: Summary of practices for driving systemic change**

	<b>Business configuration</b>	<b>Institutional tactics</b>
<i>Key elements to influence</i>	<ul style="list-style-type: none"> <li>▪ Value proposition</li> <li>▪ Resources</li> <li>▪ Activities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Industry norms and standards</li> <li>▪ Shared attitudes and understandings</li> <li>▪ Regulation</li> </ul>
<i>Key approach of influence</i>	<p><b>Business model innovation</b></p> <p>“Reconfiguring the material exchange processes and relationships”</p>	<p><b>Institutional work</b></p> <p>“Influencing the wider environment for acceptance and support”</p>
<i>Key practices</i>	<p><b>Configuration development:</b> development of processes, organizational structure, value network or profit model</p> <p><i>Process innovation to improve efficiency, M&amp;A, ecosystem models, redefinition of value as social and economic construct</i></p> <p><b>Offering innovation:</b> product or product system innovation</p> <p><i>Improving price-performance characteristics, servitization, utilization of sustainable materials</i></p> <p><b>Delivery redesign:</b> development of the means of delivering the goods and engaging with the customer</p> <p><i>Customer education (e.g., labeling, informative marketing, advisory services), branding for sustainability (in exchange for price premium), reducing packaging, online channels</i></p>	<p><b>Meaning construction:</b> creating and articulating a new vision for an institutional arrangement to facilitate collective sense-making and attract acceptance (legitimacy) and support</p> <p><i>Pitching, advertising, sharing the vision with stakeholders</i></p> <p><b>Collaboration inducement:</b> efforts at sustaining a collective identity and finding ways to bring together the interests of different groups, by finding common solutions for collective problems</p> <p><i>Organizational matchmaking (e.g., meetings, workshops), gathering information and targeting companies for collaboration</i></p> <p><b>Political tactics:</b> activities to shape formal rules and regulation more favorable to the focal company by lobbying or influencing the wider public through the media</p> <p><i>Lobbying, partaking in political discourse, providing expert statements or research data, media appearances</i></p>

The second level proposed is that of institutional tactics, which involves the management of all immaterial interaction with external organizations and institutions. Hence, this level models the business model's function as a representative cognitive model or frame for value creation within an industry that seeks to gather support from actors external to the focal company, as described by Bidmon & Knab (2018). More specifically, I define institutional tactics to concern the patterns of action that are concerned with managing the institutional structures within which the firms compete. These structures include both the regulative dimensions (e.g., laws, regulations, technical standards) and normative and cognitive dimensions (e.g., binding expectations, common beliefs). The essence of institutional tactics is that they provide an essential complement to the business strategies manifested in the business configurations, by explicitly accounting for the regulative, cognitive, and normative dimensions of the system. In other words, the institutional perspective accounts for the means by which an organization seeks to attain legitimacy and support for its endeavors (Sitaloppi & Weiland, 2018; Hardy & Maguire, 2008; Lawrence & Suddaby, 2006) to shape the industry conditions towards a more favorable orientation from the focal company's perspective (Siegel & de Jésus Salazar, 2006; Smink, 2015; Pacheco et al., 2010). The analytical rationale for this level of analysis is well summarized by Farla et al. (2012), who observed that successful change-advocating ventures "all reach out to the broader environment" and that this focus is especially relevant for sustainable innovation as they are likely to be more dependent on policy support than mainstream innovation (Geels, 2011).

The groups of actors-to-be-addressed in this domain are the direct stakeholders (e.g., suppliers and customers), the industry (e.g., market players, industry associations, policymakers), and the wider public (e.g., social movements and voters). A key distinction between this and the business configuration level is, that whereas the latter involves the strategic consideration of what types of linkages are needed to enable the material exchange relationships necessitated by the business model, as well as how the consequent network distributes financial rewards (e.g., contracts), this level considers how these linkages are established or managed, and how this broader network of actors and its established rules and practices are influenced by engaging in specific types of institutional work. Or in other words, while the business configuration accounts for the means of how existing resources or governance structures can be leveraged in favor of the focal company, this level accounts for "*the social and discursive challenge*" (Sitaloppi & Weiland, 2018) of how to initiate favorable behavior in other actors and maintain it.

The generally accepted definition for institutional work refers to the wide set of purposive actions of actors that seek to create, maintain, or disrupt the institutions of a dominant regime (Lawrence & Suddaby, 2006). According to the common understanding of institutional entrepreneurship studies, institutions comprise of three critical dimensions of shared attitudes and understandings, industry norms and standards, and regulation (e.g., Lawrence & Suddaby, 2006; Maguire & Hardy, 2006; Scott, 2014). When advocating for change, past research suggests the one ought to engage in behavior that, on the one hand, attacks these three foundational pillars of an institution and, on the other hand, constructs an attractive account of alternative ways of thinking and doing (Lawrence & Suddaby, 2006; Maguire & Hardy, 2009; Smink, 2015). In other words, to disrupt and overthrow an established regime, an actor needs to acknowledge, problematize and offer alternatives for three established paradigms: How actors in the system perceive and attribute meaning; what is deemed acceptable, valuable or legitimate in the given context; and the formal rules and sanctions of the environment (Scott, 2014; Smink, 2015). Further, these views need to be conveyed to a wide and heterogenous audience of actors in a manner that persuades them to take action.

Institutional influencing is an extremely challenging task, not least because it involves simultaneous consideration of three theoretically separate, yet practically highly intertwined dimensions of normative, cognitive, and regulative aspects. Although the structuring of institutional tactics into conceptually sound categories can be done in numerous ways (e.g., Sitaloppi & Weiland, 2018; Smink, 2015; Pacheco et al., 2010; Maguire & Hardy, 2009; Lawrence & Suddaby, 2006; Bidmon & Knab, 2018), the formulation of a mutually exclusive, yet conceptually accurate and intuitive segmentation is a complex if not altogether impossible task. This is highlighted by the notions of overlap mutual dependence among categories (e.g., Sitaloppi & Weiland, 2018; Smink, 2015; Pacheco et al., 2010). Drawing on existing literature, one may distinguish three dimensions that are essential in achieving systemic change: symbolic meaning construction or framing (Sitaloppi & Weiland, 2018; Lawrence & Suddaby, 2006), relationship reconfiguration or collaboration (Sitaloppi & Weiland, 2018; Pacheco et al., 2010; Lawrence et al., 2002) and political tactics (Pacheco et al., 2010). For the purposes of this thesis, I will propose a framework that segments the approaches identified by existing literature according to their practical objective and target of influence. This constitutes to three categories: first, *meaning construction*, which targets influencing the meanings and values of actors that underlie action; second, *collaboration inducement*, which focuses on influencing the ways actors form linkages to pursue collective goals; and third, *political tactics* that aim at influencing the formal rules and

structures that prevail in the system. Hence, a noteworthy consequence is that the practices that contribute to the aforementioned objectives tend to apply simultaneously to many categories.

*Meaning construction* entails influencing the meanings, values, and beliefs that underlie collective thinking and action (Sitaloppi & Wieland, 2018). The objective of activities in this category is to create a new vision for institutional arrangements to gain acceptance and ultimately encourage other actors to join in on the change-advocacy. Hence, this definition of meaning construction largely echoes the framing (e.g., Phillips et al., 2004; Pacheco et al., 2010), which constitutes of activities that seek to depict a novel institution as appealing as possible to the widest possible audience (Pacheco et al., 2010). By engaging in meaning construction, change-advocating actors seek to influence the ways others interpret and make sense of a prevailing context (Sitaloppi & Wieland, 2018). Moreover, change-advocates strive to bring forth the problems in current arrangements, introduce attractive alternative solutions and convince others of the superiority of the proposed course of action (Pacheco et al., 2010; Sitaloppi & Wieland, 2018).

The practices for engaging in meaning construction involve mainly rhetorical and discursive tactics that are “concerned with providing a legitimating account for institutional change that enables others to make sense of new solutions and act in accordance”. (Sitaloppi & Wieland, 2018). Hence, successful meaning construction often builds on the intelligent combination of new ideas and processes with commonly accepted narratives (Pacheco et al., 2010). For example, according to Bidmon & Knab (2018), business models that introduce new value capturing mechanisms yet still seamlessly integrate to existing industry rationales and infrastructures are more likely to find success than those that drive radical innovation, because they build on what is already deemed legitimate and familiar and thus are more easily adopted. Considering the previous, an important notion is that meaning construction is not only about formulating a compelling account or narrative (Phillips et al., 2004). Instead it also involves the challenge of conveying the message to a wide as possible audience of key actors, such as those who are deemed legitimate and thus withhold significant social power in engrossing the followership of an initiative (Pacheco et al., 2010; Smink, 2015).

In order to induce change, the change-advocate’s efforts in shaping meanings and understandings must ultimately lead to collective action. Thus, the second key dimension of *collaboration inducement* effectively involves the activities that seek to create, maintain and reconfigure social networks that contribute to the change-advocating vision of the focal company. Building strongly upon the same social capabilities required



for meaning construction and its success, these activities involve actors' efforts at sustaining a collective identity and finding ways to bring together the interests of different groups (Smink, 2010; Siltaloppi & Weiland, 2018; Pacheco et al., 2010; Lawrence, 2002). An illustrative example is Pacheco et al. (2010) description of firms engaging in this sort of collaboration as "active arbitrageurs that intervene to find common solutions to collective problems", by forming new or configuring existing social relationships with external actors. The proposed definition for collaboration inducement draws on the notion of Siltaloppi & Weiland (2018), that relations and collaboration should not only be seen as means for incentivizing others to mobilize their resources for support of the proposed arrangements, but also "as a site for bringing new institutional arrangements to life through new relational configurations". Thus, the argument is that by engaging in interaction with another organization that involves knowledge-sharing and shared hypothesizing of alternative arrangements, organizations may discover novel forums to discuss solutions and arrangements to contribute to wider change. For example, a consensus of a preferable new institutional arrangement between a focal company and its second-order supplier may incentivize the "middle-man" – the first order supplier – to partake in driving the initiative. Thus, collaboration inducement involves a creative construction of new institutional templates around which collective action can emerge (Siltaloppi & Weiland, 2018; Pacheco et al., 2010; Lawrence et al., 2002).

The key distinction between this type of influencing and the network management at the business configuration level lies in the lack of coercive power or formal governance levers (Hardy & Maguire, 2008; Siltaloppi & Weiland, 2018). In the absence of material incentives or sanctions, the foundation for inducing collaboration thus relies on the change-advocates discursive capabilities to initiate negotiation, compromising, and establishing cooperation on mutually agreeable terms between the involved parties (Fligstein, 2001; Siltaloppi & Weiland, 2018). Thus, the activities in this domain can be seen as a form of organizational matchmaking that seeks to identify top-targets or groupings for collaboration and then bring these actors together in social interaction to engage in visioning, planning, and ultimately the implementation (Paquin & Howard-Grenville, 2013).

While the previously introduced dimensions involve influencing the understandings and taken-for-granted assumptions of an institution, the final dimension considered in this thesis is that of *political tactics*, which seeks to influence the laws, regulations, policies, standards as well as widely accepted norms, which are enforced by direct sanctions or

rewards. Thus, following the definitions of Siegel & de Jesús Salazar (2006) and Pacheco et al. (2010), I define political tactics as corporate attempts to shape the regulative institutional environment towards a more favorable orientation. While the deployment of these tactics builds upon the meaning construction and collaboration activities, it provides yet another instrument for companies to drive institutional change. For instance, from an economic perspective, the rationale for companies to engage in this type of behavior is based on two distinct types of benefits. First, novel laws and standards may raise additional barriers of entry for newcomers in an industry or provide a company with exclusive access to a market. For example, by setting a minimum threshold for the performance attributes for a given technology, standards may be deployed to delay the introduction of novel innovations or raise their costs beyond market price sensitivity (Siegel & de Jesús Salazar, 2006; Smink, 2015). Second, favorable regulation may draw direct financial benefits for a company in the form of subsidies (Siegel & de Jesús Salazar, 2006; Smink, 2015).

Considering that sustainable solutions are often characterized by inferior price-performance attributes to established technologies, it can be argued that the importance of political tactics is heightened in the context of sustainable change. In deploying these tactics, companies may either lobby the policymakers directly or indirectly by, for example, engaging with professional or industrial associations or influencing the wider public via media (Smink, 2018; Greenwood et al., 2002). Examples of practices conducted in this vein include: engaging in societal discourse in media or political forums, releasing publications or research results to establish a position on a societal issue, negotiations with policymakers, collaborating in projects with government or industry associations, or advertising (Smink, 2015; Greenwood et al., 2002; Helfen & Sydow, 2013).

Although this section has provided an initial framework for identifying the key operational areas that a sustainability-seeking strategy ought to address, it is important to note that the relative importance of the identified areas and the tailored deployment of the related means is a highly context-dependent activity. Drawing on the “kernel of strategy” concept put forth by Rumelt (2011), this framework seeks to merely shed light on the dimensions that should be addressed in strategic planning activity aimed at economically viable sustainability. However, any effective deployment of the means introduced in this section requires a thorough diagnosis of the operational context and the development of hypotheses of appropriate actions. Only then can a decision-maker outline a guiding policy and a consequent set of coherent actions that seek to realize the

organizational aims. This dependency of applicable means to the focal actors and the operational context is highlighted by past literature.

For instance, in their case study of sustainable stormwater management in Australian municipalities, Werbeloff et al. (2016) identified three types of strategies for driving sustainable transitions, which were deployed by distinct municipalities. These strategies included a culture-led strategy (that emphasizes the creation of a strongly aligned multi-stakeholder network), a structure-led strategy (that emphasizes the utilization of political tactics to transform institutional settings), and a practice-led strategy (that highlights innovation and exploitation of material opportunities, such as funding). Moreover, their study suggests that these strategies can be mixed and deployed sequentially in a transition. In another case study, Garoud et al. (2002) explored Sun Microsystems's sponsorship of the standardization of its Java technology, which elaborated on the importance of social and political skills in persuading and maintaining cooptation, and thus driving wider change. As a final example of the equivocality of the applicability of these means is a study involving accounting firms by Greenwood et al. (2002), which found that professional associations have a significant role in legitimizing change in organizational fields, thus indicating yet another potential point of emphasis for a change-advocating company. Taking the previous into account, it is clear that a mere wide-scale deployment of the practices identified in this section will not suffice to achieve systemic change. Instead, the initiation of systemic change entails a purposeful deployment of means that are aligned with the nature of the operating environment.

To summarize the previous and synthesize the findings of this literature review, I posit that in order to act as an advocate for systemic change, a focal company must employ a socio-economic lens and address both institutional and economic aspects. This literature review has established that systemic shifts towards a more sustainable orientation unfold as a result of the interplay between a socio-technological regime, a socio-technological niche, and socio-technical landscape. While exogenous events beyond the influence of individual or groups of actors play a substantial role in steering the directionality of a system, actors' transformative capability to steer the trajectory of a system is far from trivial. As the very constructors and forgers of the institutions that comprise a regime, individual actors not only have various incentives to initiate sustainability-seeking change, but also a multitude of means at their disposal to realize these aims. Moreover, the incumbents' solidified status in an established regime provides them with enabling advantages, such as access to powerful actors that may be leveraged to drive their ventures. However, considering the breadth of dimensions actors need to account for in

their change-advocating behavior, succeeding in their aims is an enormous challenge of context-dependent planning and configuration. To address the latest and contribute to better understanding of how consumer goods industry incumbents can advance profitable ventures towards a more sustainable plastics future, the following empirical section of this study explores the key issues and opportunities these players face in their operating environment. Consequently, the overarching objective for the remainder of this study is to discover economically viable, practically feasible and effective means for unlocking the challenging bio-plastics equation.

### **3 Methodology**

This section will describe and justify the methodology of this study. First, I will justify the choice of abductive research as a viable research approach and describe the research procedure. Second, I will detail the data collection, which involves semi-structured interviews of industry experts, followed by a presentation of the analysis procedures. Finally, I will establish the validity and reliability of the research procedure.

#### **3.1 Research approach**

This study was conducted with an abductive research approach, which combines data-driven observations and theoretically-grounded reasoning to deliver insights (Dubois & Gadde, 2002). Essential to this approach is continuous circulation between empirical observations and theoretical concepts. During this process, the research issues and the analytical framework are successively reoriented when confronted with observations from the empirical world, (Dubois & Gadde, 2002). In this approach, the focus is on theory development, which manifests as a definition of an initial analytical framework based on literature, which is successively modified based on unanticipated empirical findings and theoretical insights gained during the study (Dubois & Gadde, 2002).

This decision was guided by the motivation of this research as well as its formal objective. To elaborate, the overarching objective of the study was to provide insights into how industry incumbents can combine their primary aim of profitability to that of improved environmental performance by mapping out the incentives for such behavior, identifying the appropriate means, and finally combining these insights to strategic approaches. Hence, the research can be regarded as a theory development effort, where frameworks constructed in the literature review provide an initial analytical structure for the study, which are then modified and refined throughout the study to generate findings.

Similarly to grounded theory, which has been commonly utilized in the context of business and economics (Dey, 2004), this abductive approach provides a feasible methodological framework for establishing an understanding of contemporary phenomena (Dubois & Gadde, 2002). In grounded theory, the researcher is not aiming to formulate a single “truth” but rather seeks to conceptualize an understanding of a phenomenon based on empirical data and inductive analysis. In other words, the critical questions involved in grounded theory research are commonly “What is going on?” and “What is the main problem of the participants and how are they trying to solve it?”. While

abduction-oriented approach seeks to fulfill the same end, it differs from grounded theory by building insights based on a guiding framework (Dubois & Gadde, 2002). In other words, where grounded theory seeks to generate new theories strictly by empirical findings, the abductive research approach seeks theory development, in which established theoretical models are combined to new concepts derived from empirical observations.

Considering the nature of the formulated research questions (i.e., what are the drivers, what are the means, and how can the incumbents influence), the abductive research approach provides a highly complementary method to these aims. The first two research questions draw on existing literature and abduction to construct analytical frameworks for identifying drivers and means for change advocacy. However, the final research question follows a more inductive and grounded theory-like approach in deriving strategic approaches from the empirical evidence without a guiding framework. As the systemic combining approach affords the employment of both of these methods, it provides a sound methodological toolkit for the purposes of this study.

The research was conducted over a timeframe of six months and was characterized by an abductive approach in circulating between the interview and archival data. The study began with a literature review to construct a theoretical framework for the study and formulate the research questions. An iterative approach was employed to enable refining of the objective and research questions, as understanding was accumulated from past research. After the literature review, the focus shifted to an empirical orientation, which began by making an industry analysis to improve contextual understanding and map the relevant industry players. The findings from the industry analysis and literature review were then utilized in theoretical sampling, which was also guided by research objectives as outlined above. This was followed by the creation of an initial interview structure, provided in Appendix 1. The interviews were conducted between June and August 2020. Throughout this time, data was collected and analyzed in an iterative manner to complement progressive development of new theory on the basis of saturation (Saaranen-Kauppinen & Puusiniikka, 2006). Finally, having completed all the interviews, final data analysis was conducted by circulating between insights from existing literature and empirical evidence. The next sections will discuss the data collection and analysis in greater detail.

## 3.2 Data collection

**Table 2: Summary of interview data**

Acronym	Informant Role	Company	Duration (min)	Type
B1	VP of Innovations and Development	Brand owner	55	Primary
B2	Junior Trade Brand Manager	Brand owner	60	Primary
I1	Managing director	Industry association	71	Primary
R1	Sustainability director	Retailer	55	Primary
B3	Business area marketing director	Brand owner	52	Secondary
B4	Manager of Public Affairs	Brand owner	87	Secondary
S1	Managing director	Circular solutions start-up	45	Secondary
C1	Principal	Consulting	67	Secondary
I2	Managing director	Industry association	87	Secondary
I3	Managing director	Industry association	84	Secondary
M1	Foreman of plastics function	Plastics product manufacturer	91	Secondary
M2	Managing director	Plastics product manufacturer	65	Secondary
M3	Chief Marketing officer	Plastics product manufacturer	64	Secondary
<b>Total length</b>			<b>14h 43min</b>	

To establish an understanding of the FMCG industry conditions and brand owners' perspectives regarding change-advocacy, this study leveraged semi-structured expert interviews and various types of archival data. As the study's theoretical context is that of

systemic change, which describes transitions resulting from interplay across events and actors in an organizational field, a focus on the FMCG industry from the brand owner perspective arguably complements the research aims and theoretical context the most. This was achieved by explicitly expanding out of an individual organization's exclusive perspective to emphasize the inward influences exerted by and outward interactions with the system. Given this assumption of interdependency of actors' actions in a system, the targeted sample was designed to include organizations from different industry positions to allow a more comprehensive understanding of the context. More specifically, the inclusion of players adjacent to the brand owner (e.g., retailers and plastics products manufacturers) and other influential industry players (e.g., industry associations and consulting companies) to the sample enables improved understanding of the different roles, interests, and challenges the individual players have in the value chain. Consequently, enabling expanded consideration of how modifications to existing practices cascade implications across the value chain. Hence, the approached companies included brand owners, plastics product manufacturers, a retailer, industry associations, and a consulting company. Furthermore, the interview data was complemented with various archival data sources, including company annual reports, industry reports, and company websites. A summary of the interview data is provided above in Table 2, and the secondary data sources are summarized in Table 3 below.

The interviews were designed as semi-structured to encourage the participants to lead the conversation to previously unidentified key themes. To leverage the participant's substance expertise, the interview templates were adjusted according to the participants' organizational role and the company's position in the industry. Moreover, the general interview structure was iteratively developed according to the insights discovered in preceding interviews and findings from secondary data, thus catering to the abductive approach targeted by the study. (Saaranen-Kauppinen & Puusiniikka, 2006; Dubois & Gadde, 2002). The interview data consisted of a total of 13 interviews. Four interviews were conducted during the research and transcriptions of nine additional interviews, produced by the ValueBioMat project between December 2019 and May 2020, were utilized. The targeted interviewees were contacted via email or phone and were provided with a summary of the interview topics upon the initial contact. Due to exceptional circumstances<sup>1</sup>, all the interviews were carried over video calls and each approximately

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<sup>1</sup> Following recommendations from the Finnish Government, all work was to be conducted remotely due to the 2020 COVID-19 outbreak.



hour-long interview session was recorded and transcribed. All four interviews were conducted in Finnish, and thus some quotes featured later in the study are translations made by the author, and as such, not exact word-to-word quotations. Furthermore, all the interview sessions involved one informant and two researchers to enable careful listening and consideration for follow-up questions.

Additionally, various types of secondary data sources were utilized for the empirical study. On the one hand, this data enabled an improved understanding of the industry conditions and new information discovery. On the other hand, it enabled validation of some of the claims made by the informants. The secondary data consisted of mainly of brand owners' annual reports and industry reports but were also complemented by media releases and information provided by company websites.

**Table 3: Summary of secondary data sources**

<b>Data type</b>	<b>Length in pages</b>
Annual reports, not inc. financial statements (2016-2019)	1701
Industry reports (2018-2020)	239
Media releases	N/A
Company websites	N/A
<b>Total length</b>	<b>1940</b>

### 3.3 Analysis

Following the abductive research approach, the data analysis involved iteration between theoretical concepts and frameworks and empirical observations. To derive findings from the research data, coding was the key analysis technique employed in this thesis. Generally, coding involves conceptualization, decomposition, redefinition, and structuring of the research data (Strauss & Corbin, 1998) to construct an account of the studied phenomenon based on common observations from multiple sources (Alasuutari, 1994). The coding process involves three fundamental processes, which were all utilized in this analysis (Strauss & Corbin, 1998): First, producing descriptive codes from individual datapoints by open coding. Second, constructing categories of first-order codes by axial coding. Essential to axial coding is the identification of contiguous first-

order codes to induce depth into the categories, thus reinforcing its explanatory power. Third, engagement in selective coding, which involves the derivation of the overarching core theory targeted by the study.

As the study featured two research questions, which were primarily guided by frameworks based on existing literature (research questions 1 and 2) and one involving a more explorative topic based on empirical evidence (research question 3), the data analysis was conducted in two distinct streams. The first two questions (i.e., the drivers and means for incumbents to advocate for a sustainable transition) were addressed by following an abductive approach leveraging existing literature as the guiding framework, and the final question (i.e., the strategic approaches for initiating or accelerating a transition) was addressed with an inductive approach building exclusively on findings yielded by preceding questions and secondary empirical evidence.

In the analysis of drivers and means, the first order coding involved the identification of highly granular motivational factors or individual activities. Then, guided by the frameworks constructed in the literature review, these codes were merged in categories falling under either the institutional or business-centric domains. Finally, the categories were merged into themes, such that they provide a mutually exclusive yet collectively exhaustive description of the drivers and means in their respective domains to derive a holistic understanding of the drivers incentivizing incumbent action and the means available for realizing the perceived benefits. In the final form, the drivers were compartmentalized in the institutional drivers of *normative, cultural-cognitive, regulative factors*, and business incentives of *positive bottom-line impact* and *asset development*. Similarly, the means were distributed into institutional tactics of *meaning construction, collaboration inducement, and political tactics*. Especially in defining the final themes, findings from past literature and archival data were utilized to complement the analysis.

The analysis for the final research question involved a more inductive analytical process, employing a data-driven approach while drawing on the observations emerging from the previous steps of the analysis. In this case, the axial coding involved the identification of solution components that connect underlying drivers (research question 1), industry challenges (industry analysis in section 4.1.), identified potential solution mechanisms (research question 2) and conditions for systemic change (transformation pathways 2.1.2). After the solution components were identified (ultimately in the form of *limited scale ventures* and *collaboration*), the analysis followed a similar pattern as the prior coding exercises, to finally derive *competitive sustainability* as a key approach for

driving systemic change. Further, the source data was also utilized to expand the concept with the two orientations of *infrastructure establishment* and *demand development*.

### **3.4 Research assessment**

To evaluate the reliability and validity of a qualitative research, the researcher should consider the implications of study design to credibility, transferability and dependability (Simon & Goes, 2016).

To assure credibility, or internal validity, causality between an outcome and the factors assumed to cause that result must be established. This study has sought to achieve this by two ways: First, the utilized concepts are rooted in established theories that surfaced in the literature review. For example, in evaluating the strategies, the research has sought to utilize established and exhaustive frameworks (e.g., Geels & Schot, 2007; Keeley, et al., 2013; Smink, 2015) to deal with the threat of alternative explanations. Second, the study has sought to provide empirical evidence for the causal relationships inferred by the study, for example, by linking the suggested strategies to the interviewed experts' perspectives.

Transferability, or external validity, refers to the degree to which the results can be generalized or transferred to other contexts (Simon & Goes, 2016). Thus, underlining the importance of consideration related to the rationale of the theoretical sampling (Strauss & Corbin, 1998). To enable a comprehensive perspective of the industry conditions, this study targeted a sample that includes not only the brand owners but also players from different industry positions. Moreover, to account for different organizational profiles within the brand owners and hence a more generalizable view of the brand owner perspective, the study has targeted brand owners that differ by size, the geographical scope of operations, and primary product categories. Additionally, improved transferability has been sought by continuously linking the findings to extant theories.

Dependability, or reliability, reflects the study's trustworthiness by establishing the extent to which the findings are repeatable and consistent. Hence, clear documentation of the research process and utilization of consistent research techniques form the foundation for a dependable study. This study has sought to improve its reliability in numerous ways, not least by employing an iterative approach to analysis, which enables frequent contestation of previous perspectives and rechecking the basis for formulated arguments. More specifically, this study has followed established coding techniques, which allow back-tracking of the findings to their raw material sources and improving

the results' traceability. Additionally, interview data has been collected with a rigid interview structure to produce comparable data points and consistent analysis. Moreover, all interviews were transcribed to ensure the findings reflect the participants' narratives rather than those of the researcher. Furthermore, the study has sought to leverage triangulation by interviewing informants from different organizational and industrial backgrounds and utilizing secondary data sources to validate the inferred findings. Finally, the analysis has been conducted in continuous dialogue with the thesis's advisor to account for alternative explanations and reduce exposure to subjective biases, which is especially important for studies employing an abductive approach (Saaranen-Kauppinen & Puusiniikka, 2006).

## 4 Findings

This chapter will analyze the empirical data to contribute to the literature review's theoretical frameworks and draw conclusions on how systemic change can be accelerated in the FMCG industry by the brand owners. This section is divided into four parts. The first part provides an industry analysis focusing on the fast-moving consumer goods industry. The following two parts correspond to the research questions formulated in the literature review. They will consider the drivers and challenges involved in driving systemic change and present the identified means for advancing systemic sustainability. The final part will induce strategic approaches to provide a perspective rooted in empirical evidence for how systemic change may unfold and be accelerated in the industry.

### 4.1 Industry analysis

The section features a deep dive into the fast-moving-consumer-goods industry (FMCG), focusing on the brand owners. The FMCG industry has a track record of delivering reliable growth for mass brands. Indeed, by 2010 23 of the world's top 100 were operating in the FMCF industry, and the total return to shareholders has grown at a rate of almost 15% per annum for 45 years (McKinsey&Company, 2018). The value-creation model for these players has mainly remained unchanged throughout this time, benefiting from long-term macro trends of population growth, urbanization, and expanding middle-class. According to a study by McKinsey & Company, the best-performing brands in this industry have primarily relied on five key value-principles: sophisticated mass-market brand building, close relationships with key retailers, aggressive expansion to developing markets, cost-efficiency, and market consolidation by M&A activities.

By leveraging extensive knowledge of consumer behavior and efficient product innovation capability, major brands are capable of delivering sustained growth and achieving gross margins that exceed nonbranded goods by 25% (McKinsey&Company, 2018). To distribute the goods efficiently to consumers and derive consumer insights, the top performers build strong relationships with mass retailers and grocers, which involve cooperation in distributing consumer insights, in-store execution, and supply chain planning. Thus, these players achieve almost exclusive access to consumer shopping baskets and valuable consumer insights to fuel novel innovation. Moreover, instead of only growth by increased consumer penetration, best-in-class brands are also aggressive

in expanding to geographical markets with a distinct tendency of entering developing markets early. Having established a solid foundation for a customer base, the companies have then enjoyed a reliable growth source as the consumers become wealthier by simple replication of the existing value creation model. These brands' economic strength also allows the management of competitive pressure by expanding portfolios with acquisitions, thus alleviating the pressures from newcomers. Further, by extending their expertise in cost reduction and operational efficiency attributed to centralization, these companies are efficient in applying best practices to novel brands and thus proficient in achieving growth in new product categories. (McKinsey&Company, 2018).

FMCG brand owners' long-term success is also reflected in the surge of plastics production, which has increased twenty-fold between 1964 to 2014 to reach an annual production volume of 311 million tonnes (Ellen MacArthur Foundation, 2016). This growth has been driven by plastics' unique price-performance characteristics, which allow for high levels of customization at a low cost. Unintuitively, plastics' versatility as a packaging material is highlighted by its capability to deliver environmentally beneficial outcomes such as improved shelf-lives and reduced logistics emissions due to low weight. Packaging plastics, the main application of plastics for FMCG brand owners, account for 26% of the total annual volume (Ellen MacArthur Foundation, 2016). Although the replacement of packaging plastics with more sustainable alternatives seems like an attractive starting point, the current plastics economy's underlying problem is its overall fragmentation from materials production to recycling and reprocessing. The value chain is stamped with a lack of global standards and coordination, which has resulted in the proliferation of materials, formats, labelling, collection schemes, and sorting and reprocessing systems (Ellen MacArthur Foundation, 2016).

Considering the high contribution of FMCG players to total annual plastics production volume, combined with 84% of global packaging plastics being exclusively single-use, the increasing public concern for better plastics utilization exerts pressure on the brand owners to deliver more sustainable plastics solutions. These concerns are also reflected in consumer preferences. According to a study by Deloitte (2020), 48% of UK and USA based consumers are willing to change their consumption habits to reduce their environmental impacts. While the market share of sustainability-marketed products remains below 20 percent, they accounted for almost half of the total market growth between 2013-2018 (Deloitte, 2020). The strategic importance of this trend has been recognized by the largest players, who have all elevated the plastics issue on the agenda of their annual report material in recent years, simultaneously highlighting the issue's

novelty. Interestingly, the companies have been highly aligned in the timing and the nature of their response, as made evident by the table below.

**Table 4: Plastics sustainability in annual reports of Top 6 FMCG brand owners**

	-2016	2017	2018	2019
Henkel			<b>C, A</b>	<b>R</b>
Unilever	<b>A</b> (‘15)	<b>C</b>	<b>R</b>	<b>R</b>
Nestle		<b>A</b>	<b>R, C</b>	<b>F, R</b>
P&G	<b>N/A</b>	<b>N/A</b>	<b>R</b>	<b>C, A</b>
Colgate-Palmolive			<b>C, A</b>	<b>R</b>
L’Oréal		<b>C</b>	<b>R</b>	<b>R</b>

**Legend**

**C:** Commitment to reduce fossil-based plastics utilization

**R:** Report of sustainable plastics innovation

**FC:** Further commitment to reduce fossil-based plastics utilization

**A:** Participation in plastics sustainability alliance

From the packaging materials perspective, the brand owners operate in long multi-stakeholder value chains, where the number of upstream suppliers decreases approximately ten-fold in each activity (EASAC, 2020). The brand owners situate downstream of the value chain in between the packaging producers and retailers. While brand owners are generally proficient in understanding consumer needs and optimizing performance in the retailer interface, their visibility to and bargaining power to upstream operations is questionable beyond their direct supplier relationships. Thus, although the plastics utilization and external pressure over sustainability concerns converge to the brand owners, they face a challenging circumstance in extending their sustainability aims to their upstream suppliers, which typically operate on increasingly tighter margins (EASAC, 2020).

## Production to use value chain

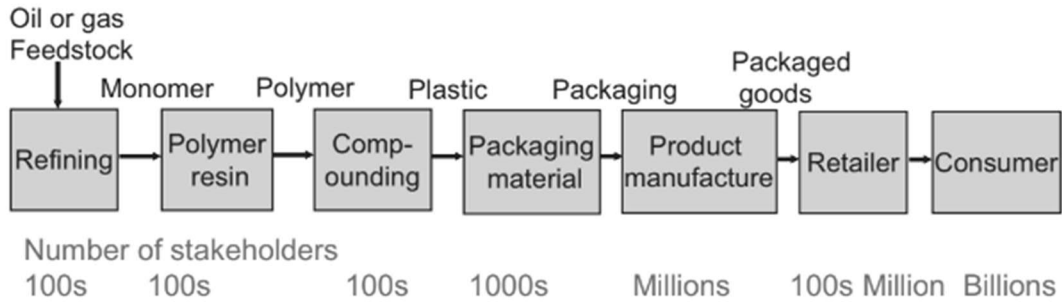


Figure 2: Production to use value chain (EASAC, 2020, p. 12)

Despite these developments, the current modus operandi of fast-paced innovation cycles sees the industry facing a situation where plastics material innovation is developing at a higher pace than the corresponding recycling infrastructure, and thus adding further complexity to the hopes of achieving a plastic neutral future (Ellen MacArthur Foundation, 2013). Potentially further stalling the rise of sustainability-oriented products, is the growing private label segment standing at approximately 17% of FMCG sales (Deloitte, 2020). With a three-fold growth rate compared to standard branded goods, these selections that leverage consumer insights and operational excellence are expected to capture a fourth of the total market in the next decade (Deloitte, 2020). Another front exercising pressure over the FMCG incumbents is the threat of BigTech players of Amazon and Alibaba entering the grocery market (Deloitte, 2020). Given these companies' expertise in data governance, utilization, and managing consumer decision journeys, the FMCG's must be adaptive in their channel strategies to avoid losing access to consumer insights and, ultimately, the share of wallet. Further aggravating the situation from the FMCG perspective is the COVID-19 outbreak, which has already seen delivery apps surge in the marketplace (Tinuitti, 2020). While delivery models remain a niche in the FMCG markets, the shock provided by the global pandemic, which saw consumers opting for delivery models instead of brick and mortar stores, may well accelerate a transition.

Digitalization and changing consumer preferences may pose challenges to FMCG players that may be deemed more immediate in the short term than sustainability issues. The imminent buying power shift from boomers to millennials is expected to see a shift in consumer preference from mass brands and traditional channels to small brands leveraging tight consumer interaction and transparency, as well as non-conventional



channels such as direct-to-consumer online models and small boutiques. Moreover, according to research by McKinsey & Company (2018), millennials are more resistant to brand-owned marketing and instead look for knowledge and recommendations from their peers. Additionally, the research indicates that millennials are more willing to pay more for “special things”, including daily groceries, and thus prefer not to utilize mass channels. With digital channels being the critical point of interaction for millennials in marketing, purchasing, and peer-to-peer recommendations, the FMCG incumbents may well face a challenge in adjusting their value creation model from retailer-centric to supporting more direct consumer interaction.

To synthesize, the industry's future outlook remains positive for the established incumbents, and the traditional value creation formula of FMCG giants will likely continue to yield financial success. Although pressures from consumers and policymakers keep sustainability issues on FMCG executives' table, it may be likely that the issues of digitalization, generational shifts in consumer preferences, and competitive pressure from discounters and private labels keep sustainability-issues at a lower business priority. Barring any significant regulative changes or drastic consumer preference changes towards sustainability-oriented products, the infrastructural problems regarding after-use plastics processing may render it difficult to attract the FMCG players to depart from their current lucrative value creation formula. However, considering the long-term economic and environmental risks related to sustainable inaction, there is motivation for businesses to overcome the incremental development models and fragmentation of today's sustainability initiatives. To break this deadlock, further urgency for sustainability issues and common directionality will likely have to be brought onto the brand owners to incentivize them to take the lead on taking bold actions and driving the systemic change.

## **4.2 Drivers and challenges for initiating or accelerating systemic change**

This section describes the drivers for initiating or accelerating systemic change for a better plastics economy, which surfaced during the expert interviews. Building on the framework constructed in the literature review, the findings are categorized under business incentives and institutional drivers. A full list of identified drivers is provided below in table 5, followed by a closer textual description.

**Table 5: Summary of Identified Drivers**

Analytical dimension	Theme	Attribute	Description
<i>Business incentives</i>	Positive bottom-line impact	<b>Commercial potential</b>	Sustainability as a mean for increasing market share, differentiation or as a value-adding component
		<b>Risk-mitigation</b>	Utilizing sustainable materials to avoid future consumer rejection or material supply issues
		<b>Cost-efficiency</b>	Replacement, reduction, or recycling of plastics to decrease material costs
	Asset development	<b>Brand value</b>	Leveraging sustainability to improve the brand value as perceived by consumers
		<b>Capability building</b>	Development of proprietary technologies or capabilities supporting a plastics-free environment
<i>Institutional drivers</i>	Regulative	<b>Avoidance of penalties</b>	Incorporating sustainability as an obligation or to pre-empt future compliance
	Normative	<b>Customer expectations</b>	Consumers increasingly expect sustainable action from companies
		<b>Public image</b>	Pressure from media, policymakers, and the wider public to pursue sustainability
	Cultural-cognitive	<b>Bandwagon effects</b>	Imitating competitor sustainability-oriented action to avoid reputation losses
		<b>Organizational identity</b>	Sustainability as a core organizational value incentivizing internal initiatives

### 4.2.1 Business incentives

Rather than engaging in corporate altruism (Husted & de Jesus Salazar, 2006) the interviews suggest that brand owners act strategically in managing their sustainability incentives, and thus prioritize establishing a commercial base for any sustainability-oriented initiative. While expectations for a net-positive investment was deemed a minimum requirement for undertaking new initiatives by the informants, the potential of *positive bottom-line impact* or *development of valuable assets* were identified as further drivers to engage in initiatives pursuing better plastics economy. Considering the previous, the findings agree with the initial proposition of this thesis that any sustainability discussion involving for-profit organizations must include a consideration of the commercial rationale.

#### **Positive bottom-line impact**

The interviewees underlined that any sustainability initiative must deliver a positive bottom-line impact, highlighting that the business rationale also extends to sustainability-related decision-making. This categorical requirement is well-illustrated by the notions below:

*“It [a sustainability initiative] needs to have a commercial business case, because no one will benefit if we are (...) doing all the things we can do but if [we] go bankrupt in six months, then we won’t help anyone. (...) So again, it has to be integrated into the business model, otherwise it’s just charity and yeah, charity is not a commercial operation.” - Interviewee B1*

The *commercial potential* of sustainability-marketed products was recognized as a key incentive. Firstly, these offerings were recognized as a mean for retaining customers with increasing sustainability expectations and penetrating the growing environmentally conscious customer segments. Secondly, in some applications, sustainable product variations were also considered a potential means of differentiation, as well as a value-adding component that could be leveraged for a price premium.

The interviewees also reported synergies between increased sustainability and improved cost-efficiency. In the most basic form, this entailed reducing or replacing plastics in the production line or in the finished item to reduce the material cost. For example, the interviewed companies had experience of removing some of the plastic wrapping utilized

in transportation, by adjusting the design of the cardboard boxes. Additionally, the informants reported of reducing the amount of plastics utilized in a product by adjusting the product design, such that redundant plastic parts were removed completely. For example, an informant reported of introducing holes or hollow parts to plastic handles. Moreover, a more advanced take on optimizing for cost-efficiency was the introduction of closed-loop recycling in internal processes. This involved the recycling of plastics waste generated as a byproduct by the manufacturing process for internal reutilization.

*Risk-mitigation* of operational as well as reputational risks, were also discussed as key motivating factors for engaging in sustainability initiatives. Concerns over potential bans for utilizing fossil-based plastics was dubbed as an important driver for adopting or preparing the adoption of recycling or bio-based solutions in the long-term. Additionally, as many of the interviewees conceded that customers increasingly expect sustainability from their products, the interviewees also highlighted that the inability to actively demonstrate and advance sustainable operations could result in a decline in sales attributed to the perception of unsustainable practices. Moreover, concerns over potential regulation-based price increases for utilization of fossil-based solutions, and consequent negative impacts on profitability, were also voiced by the interviewees.

*“(...) given a future transformation [of the plastics industry] (...) opting in [for utilization of sustainable materials] may well even prove to be a key survival factor (...) for which companies should prepare.” – Interviewee I1*

This finding was also supported by the risk assessments in the company's annual reports, which consistently put forth the inability to respond to consumer sustainability expectations as a major business risk for sustaining sales.

### **Development of valuable assets**

The informants also reported of indirect financial incentives as a motivating factor for advancing sustainability aims, attributing the motivation to the development of valuable assets. Communicated ambition to address the plastics issue was discussed as a means for contributing to *increased brand value*. Drawing on the increasing customer expectations for sustainable operations, the interviewees argued that demonstrated sustainability aims positively affect consumer perceptions of a company, thus increasing the brand value. Conversely, considering the long-term risks related to the failure of addressing the issues pertaining to fossil-based plastics use, sustainability-oriented

actions were also deemed to invoke long-term operational stability in the eyes of shareholders.

*“The youngsters and teenagers say, we love this brand, we want to be with this brand and the only way you can keep that magic up is being relevant and being sustainable is being relevant today.” –*

*Interviewee B4*

The informants highlighted the generation of indirect benefits through *building capabilities* that contribute to success in a future business environment as a motivation to pursue improved plastics-related sustainability. Experimenting with new bio-based or recycled materials was deemed to accumulate technical knowledge and experience that might be useful if the market experiences a rapid shock towards renewable materials.

*“[O]bviously we are learning by doing and I’ve been here now for 17 years and I would say that during these years things have gotten much easier from what it was early 2000. (...) You see giant leaps happening every year so I think we have more opportunities and chances to develop our business towards more sustainable than ever before. (...) We find a solution but it doesn’t mean that it’s easy.” –*

*Interviewee B4*

Value was not attributed only to the technical knowledge involved in managing materials and processes, but also experience in undertaking such initiatives and implementing them successfully in collaboration with the business partners.

*“[On utilizing recycled materials] We learn it and then we can use it both in our own section and I mean, we use multiple different bottle suppliers, so of course when we develop recycled plastic bottles, or our suppliers do, we can coach them with what we have learned on the way, obviously.” – B3*

Organization-wide sustainability orientation was also perceived as a key means for *attracting top talent* for the organization, especially at the senior levels. Given the broader cognitive shift towards increased environmental consciousness, the interviewees also put forth notions that high performing senior-level talent wants to work in organizations with a clear vision of contributing to a healthier environmental footprint, to satisfy their individual beliefs and values. Moreover, the interviews revealed an interesting synergistic relationship between the ability to recruit top talent and

advancing sustainability aims. While a high performing senior employee is generally expected to contribute to positive business outcomes, it was noted that such employee with a strong sustainability mindset might additionally play a significant role in advancing sustainability at the organizational level. Thus, a top-tier recruit may be not only a catalyst for positive business outcomes based on conventional business expertise but also an enabler for increased value capturing based on the sustainability-related value proposition elements discussed above.

*“She [the CEO] genuinely has a strong vision for the environmental aspects. Not only business-wise, but also on a broader, deeper level. (When she started) 10% of our utilized plastics were recyclable (...) and that’s when we set a goal of increasing that number to 30% by 2021. (...) [A]nd when I recently ran the numbers, I saw noticed that we are already surpassing that goal this year.” – Interviewee M1*

#### 4.2.2 Institutional drivers

In addition to strictly commercial incentives, the respondents provided descriptions of various coercive and normative influences directed at the company, that encourage sustainable action. The respondents revealed various drivers across all traditional dimensions of institutions: regulative, normative, and cultural-cognitive (Scott, 2014).

##### **Regulative**

Compliance with current or potential future regulation in order to *avoid penalties* was mentioned by various interviewees as a significant driver to engage in more sustainable orientations. These penalties included financial penalties, such as Pigovian taxes for utilization of certain materials, or outright bans of materials or products, such as the EU ban on single-use plastics in 2016. Although the respondents did not suggest that there is business threatening regulation in sight on the short-term, the experts seemed to converge on the view that such regulation is plausible or even likely to surface in medium or long-term. While compliance to current regulation is obligatory, the interviewees highlighted the motivating power of potential future regulation. To avoid potential future financial penalties or to ensure the security of future operations, companies are incentivized to monitor regulative developments as well as adjust their practices to maintain alignment with the demands of future operational environment. In practice, this entails preparing for a business environment where fossil-based plastics may no longer suffice as the primary material, by, e.g., incremental incorporation of renewable plastics to current offerings or processes.

## **Normative**

External normative pressures were among the most discussed drivers for engaging in sustainability initiatives. The most notable source of normative pressure, as deemed by the companies, were the *consumer expectations*. According to customer surveys conducted by the informant's companies, the consumers increasingly expect sustainability from the offerings they consume. This increased interest was commonly attributed to a heightened awareness of sustainability issues related to plastics, driven by wider publicity on general sustainability issues in the news as well as social media. The importance of customer exerted normative pressures are highlighted by the following quote.

*“I believe that the industry is facing a revolution in a sense. I think it's likely that in the next 10 years a player that does not utilize recycled or bio-based materials, will likely be avoided by consumers” - Interviewee M2*

In addition to customer-based pressures, the interviewees indicated that companies are mindful of the *public image* of the company as perceived by the wider public. Any perceived deviation from the commonly accepted norms of seeking to reduce environmental footprint was dubbed as business threatening. Thus, further incentivizing companies to engage in and inform about sustainability initiatives.

*“Everyone knows the situation with Brazil, the rainforests (...) these are matters of public image. We closely monitor the public discussions and send enquiries to our suppliers how we cope with the trending topics. It's a requirement and its importance is ever-increasing.” - Interviewee M3*

## **Cultural-cognitive**

The final drivers identified from the interviews relate to the cultural-cognitive pressures stemming from within and outside the company. The interviewees discussed sustainability as an essential part of the *organizational identity* or sustainability as an integral part of the company vision. Especially the representatives of the smaller players were explicit in stating that sustainability is and should be “a standard procedure rather than, an optional, value-adding module”. According to the interviewees, this sustainability-as-identity was manifested not only in the objectives and targets of the top-level management but also in the day-to-day activities in positions below it. Sporadic

meetings, emphasizing carbon footprint or material choices in procurement criteria, strategic focus in undertaking sustainability-oriented projects, product design, and internal employee expectations were among the examples named by the interviewees. In a similar vein, interviewees from the larger companies maintained that sustainability is a critical survival factor for any company in the industry, especially in the long-term, occasionally referring to the company's formal vision and mission statements. While these statements often lacked similar practical examples as provided by the smaller players, a noteworthy remark is that while globally-led large FMCG companies may lack the organizational agility to integrate sustainability into its practices, the mere acknowledgment of sustainable values in the company's strategic aims may well have symbolic value in driving increased plastics-related sustainability.

Pressures stemming from broader cultural development towards emphasizing environmental and societal impacts of business operations were also identified as a motivating factor for engaging in sustainability initiatives. More specifically, the interviews suggest that the most influential source for these pressures is the practices and developments of competitors. While interviewees discussed their participation in sustainability initiatives, such as global pledges for reduced fossil-based plastics utilization or non-profit plastic collection schemes, they commonly commented or reflected their actions against key competitors' responses to similar arrangements. Similar patterns were identified in the company annual reports, which often utilized comparative phrasing, such as "the first industry player" or "most sophisticated solution" for describing their sustainability projects. These statements indicate a prevalence of *bandwagon effects* related to taking a stance in societal issues already addressed by competitors seem to also act as an important motivating power for the incumbents. The previous is highlighted by repeated notions of the interviewees, that maintain that large brands have no choice but to continuously seek for more sustainable solutions given their public exposure and stature, as well as the sheer scale of their operations and its consequent environmental impacts.

*"(...) [I]f you are big you need to be responsible, you are kind of more accountable for your actions than any other. I'm not saying this like with whining or critical mind, it is a thing that you need to understand that when you are big you need be accountable and you need to be, if you want to also stay relevant." - Interviewee B4*



### 4.2.3 Challenges in bringing about systemic change

In this section, I will present a summary of challenges inhibiting systemic change that surfaced during the interviews to establish an understanding of the limitations of the FMCG brand owners' operational environment. A full list of identified challenges is provided below in table 6. The interviews revealed challenges at four analytical levels: technology, company, market, and ecosystem.

**Table 6: Summary of identified challenges**

Analytical dimension	Theme	Description
<i>Technological</i>	<b>Inferior technical quality of renewable alternatives</b>	Recycled materials underperform fossil-based alternatives across various key purchase criteria
	<b>Immaturity of recycling solutions</b>	Current recycling technologies not capable of meeting price-performance requirements or providing an adequate supply of materials
<i>Company</i>	<b>Risk-aversion to depart from current value equation</b>	Brand owners are reluctant to take large risks to advance sustainability, given the success of the established operating model
	<b>Difficulty of inimitable packaging innovation</b>	Packaging innovation diffuses rapidly in the established FMCG industry, thus offering little source for competitive advantage
<i>Market</i>	<b>Consumer preference not driving purchase decision</b>	Consumer preference for sustainable goods not driving purchase decision over i.e., price
	<b>Shortage in supply of high-quality recycled materials</b>	Current supply of recycled materials meeting the quality requirements inadequate to incumbent needs
<i>Ecosystem</i>	<b>Negative externalities of bio-plastics utilization</b>	Utilization of bio-based materials do not contribute to increased circularity and involve uncertainty over environmental impacts
	<b>Lack of global recycling infrastructure</b>	Current recycling infrastructure incapable of meeting the demands for effective circular economy
	<b>Lack of facilitating or incentivizing regulation</b>	Current regulation incapable of enforcing, incentivizing or facilitating broader systemic change toward plastic-free economy

## Technological

A common challenge in replacing fossil-based materials was *inferior quality of renewable materials*. The informants reported issues related to the technical and perceived quality of both bio-based and recycled materials. Bio-based materials were reported being largely applicable as a drop-in material, but respondents also noted that in some applications, they have issues in delivering certain performance characteristics, such as durability or inconsistent processing temperatures. On the other hand, recycled materials were reported to have greater issues in delivering the required technical performance due to the deterioration of quality in recycling processes. Hence, the incorporation of recycled materials entails more extensive reconfiguration of the manufacturing machinery. Additionally, the experts conceded that a significant barrier to recycled materials utilization is its current inapplicability for food-grade applications due to existing regulation.

Inferior perceived quality attributed to inferior product appearance surfaced as a key challenge for both renewable materials. The deficiencies in product appearance were attributed to inability to produce transparent textures as well as inferior coloring options, the latter being a recycled-materials specific issue. While these issues may seem trivial from an operational standpoint, the appearance of the end product was repeatedly mentioned as a key purchasing criterion for the consumers. Hence, companies are generally hesitant of compromising such a central product feature, as highlighted by the comment below:

*“It’s a big one. When considering the recycled materials, the film will not have the same appearance as virgin material. (...) The fear is that the appearance will be inferior to the virgin-materials in the shelf, and that the consumers will consider that as the critical selection criterion. This remains a concern and an inhibitor to wider adoption.” – Interviewee M3*

The informants noted that despite the advancements in mechanical and chemical recycling in the last decade, the *immaturity of recycling solutions* remains a challenge in the industry. Especially chemical recycling methods have thus far failed to meet its expectations as a potential near-future source for high-quality recycled materials.

*“(...) it will be interesting to see which [recycling] technology emerges as the dominant design that is capable of meeting industrial scale... The initial assumption was that the chemical*

*recycling plants would be able to process materials rejected by the mechanical processes. (...) however, according to my understanding, the requirements for input material are currently higher for chemical recycling than mechanical recycling” –*

*Interviewee I3*

According to the interviewees, the current chemical recycling processes lose to fossil-based alternatives in both prices as well as energy efficiency. Although the general outlook regarding the development of recycling technologies is deemed positive, the interviews indicate that such solutions will not suffice as a means for accelerating a transition on a short-term basis.

### **Company-level challenges**

The interviews suggest that the brand owners employ a *risk-averse attitude towards sustainability initiatives*, which prioritizes uninterrupted current operations over potentially larger future gains. This behavior was implied by the various concerns raised by the brand owner informants regarding the initiation of sustainability initiatives. First, as consumers are not generally willing to pay a premium for sustainability-oriented products, offsetting the upfront investment costs for improved sustainability was raised as a key hurdle for development. Second, the informants were concerned about disrupting the reliability of delivery by introducing changes to the established supply chains. Third, uncertainty over future regulation was deemed as a barrier to making large commitments. Finally, as the reported initiatives were mostly conducted on a product line or business region basis, there exist concerns of maintaining alignment within the entire brand portfolio. For instance, introducing recycled packaging only in a single business region or product line can alter to greenwash accusations or cannibalization of other own brands. These concerns are highlighted by the comment below:

*“Whatever [an individual brand] does, the company needs to do. Whatever company does, [an individual brand] needs to do. But then as we cant have dual standards, we need to kind of spread the thing cover all our product lines.” – B4*

The experts also expressed the *difficulty of inimitable packaging* innovation as a considerable hurdle for wider adoption of renewable packaging materials. As the players in a mature market are highly proficient in identifying attractive new trends, and capable of rapidly translating those observations to new product segments, there exists very limited potential for companies to leverage sustainability, and especially sustainable

packaging, as a differentiating competitive advantage in the current market. More specifically, one of the informants noted that there is a “brief window of opportunity” for being a first-mover in introducing sustainable product categories in a given segment, but given there are often no unique technological capabilities required to deliver such novelties, the competitors are expected to quickly imitate such moves. Moreover, given that the incumbents have great incentives in scaling-up successful innovations across product segments and that they are utilizing multiple suppliers that often also serve their competitors, solutions tend to spill over to competitors via mutual suppliers.

*“(...) even if we partner up with a start-up and develop some wonderful material (...) the fact of the matter is, that our largest competitors have the capability of producing the same material very quickly. (...) no matter how confidential the information is, they can accurately analyze the content in a lab and start producing the same material.” – Interviewee B2*

Further, the interviews suggest that brand owners place little strategic value for their packaging selections in winning customers, but instead focus on the societal consideration of the utilized materials as a whole. Consequently, rather than being able to exploit increased sustainability as a competitive advantage, the companies face a race against its peers in introducing and imitating incremental developments.

### **Market-based challenges**

The interviews indicate that consumers are increasingly expecting sustainable behavior from brands and are generally keen on signaling their green preferences in consumer surveys. However, the accounts of the interviewees suggest that this *consumer preference is not driving purchase decision*. Considering the cost increases linked to the utilization of sustainable materials, the companies face a problematic scenario, where increased expectations – and ultimately increased costs – do not translate to consumer willingness to pay a premium.

*“(...)[E]very time we do consumer research, consumers tell us that you know, they value sustainability, they value sustainable innovations but when we do those we see that they actually are not driving preference.” - B4*

The informants were in a consensus that the industry is experiencing a significant *shortage of high-quality recycled material supply*. An issue, which some of the

respondents deemed as the most pressing challenge for advancing systemic change in the current operating environment. The root causes for the low supply was attributed to two key factors: The lack of industrial-scale recycling solutions and lack of holistic collection schemes that incentivize and enable efficient recycling.

*“(...) recycled plastic is being implemented everywhere across categories, uh, and across different products, erm, the- the challenge still remains that there is a big shortage on the market of recycled plastics, so yeah, that’s where I- I mean I would say the entire industry sits right now that how can we make people recycle more so we can actually use it again.” – Interviewee B3*

This lack of supply combined with high demand from the brand owners has resulted in market conditions where companies have to not only accept a high price for recycled materials, but also make big upfront commitments in materials procurement. Hence, the brand owners must bear significant commercial risks in their efforts of increasing the adoption of renewable plastics.

*“[On procuring recycled materials] the problem at the time was (...) there’s a big shortage in recycled plastic on the market. (...) And they said, if you can commit to a certain volume, then they will give you a price, but you have to buy it then. Because it was such a seller’s market. So at that time, no one in Europe wanted to take the commercial risk, because of course it would- it would have been super expensive” – Interviewee B3*

### **Ecosystem challenges**

Despite the informants reporting their companies’ interests in investigating the opportunities related to the replacement of fossil-based plastics with bio-based solutions and engaging in initiatives contributing to that cause, *negative externalities* associated with the utilization of bio-plastics surfaced as a key issue for the brand owners. The negative externalities were attributed to the inability to contribute to increased circularity and environmental concerns. While overall sentiment among the experts was that recyclable bio-based plastics will likely have a role in a potential circular economy for some targeted applications, such as food items packaging, they were not deemed as attractive a solution for improving the plastics economy as recycled materials. From an environmental perspective, the experts underlined the difficulty of determining life-cycle implications related to bio-based material substitution, thus making it hard to establish

conclusive evidence of improved environmental performance. Additionally, given that bio-plastics draw onto edible feedstocks, the experts raised concerns of broader societal implications of increased bio-plastics adoption, as underlined in the comment below.

*“I am a bit hesitant to the bioplastic, because A, you take away land where you can grow food, and B, if it becomes uh, profitable enough, yeah, people will do stupid stuff with forests and the rainforests and other areas that should just be left alone for the good of the planet.”*

*– Interviewee B3*

The interviews provided further confirmation to the challenges related to *the lack of global recycling infrastructure*. The development of industrial-scale collection, sorting and processing capability was deemed a critical enabler for a transition towards a plastics economy. The rationale for such infrastructure is clear: improved the renewable material supply, lower materials prices, and thus stronger business cases for a better plastics economy. However, the development of the necessary infrastructure would require massive investments at a continental scope, which are well beyond individual companies' influence. The technologies are not only insufficiently developed for efficient industrial-scale recycling, but the ecosystem is also challenged by a highly dispersed footprint of current waste management systems that do not meet the requirements for a sufficient after-use infrastructure.

*Lack of facilitating or incentivizing regulation* was recognized as an underdeveloped area in the industry. The interviewees discussed two key areas where regulation has failed to advance better plastics utilization. First, the industry is ridden with a lack on universal definitions and standards that is not only hindering the current sustainability aims of companies but also stalling the development of sustainability-advancing regulation. For example, the interviewees called for standardization for eco-labels to avoid consumer confusion, stricter definitions on what constitutes as recycling to avoid circumvention of current guidelines, and updates to what is classified as single-use plastics to enforce greater producer responsibility. Second, the interviewees were in consensus in calls for regulation that incentivizes the utilization of renewable materials and circular consumption, such as Pigovian taxes or tax-reliefs.

### **4.3 Means for driving sustainability**

This section will discuss the means contributing to bringing about sustainable systemic change, as discussed by the interviewees. Following the initial framework constructed in

the literature review, the section will categorize these means into two sections: business configuration related means and institutional tactics. A summary of the identified findings is provided in table 7 below.

**Table 7: Summary of identified means**

Analytical dimension	Category	Theme	Description
<i>Business configuration</i>	Configuration development	<b>Strategic emphasis</b>	Sustainability as a strategic objective or key value proposition element
		<b>Process improvement</b>	Reducing, replacing, or recycling plastics in internal processes such as transportation or manufacturing
	Offering innovation	<b>Product characteristics development</b>	Reducing or replacing plastics with recyclable, bio-based, or alternative materials. Improving product longevity.
		<b>New products</b>	Introducing new sustainability-oriented offerings
	Delivery redesign	<b>Channel innovation</b>	Replacing single-use consumer packaging with refill-based or multi-use delivery models
		<b>Consumer engagement beyond POS</b>	Encouraging and facilitating after-use responsibility to support circular consumption habits
<i>Institutional tactics</i>	Meaning construction	<b>Partner attraction</b>	Communication of company's sustainability aims to provide exposure for sustainability issues and promote mutual problem-solving
		<b>Consumer education</b>	Advertising or external communication to increase consumer awareness of sustainability issues and encourage sustainable choices
	Collaboration inducement	<b>Assuming responsibility</b>	Assuming responsibilities beyond traditional operations to incentivize partners into sustainability initiatives
		<b>Distributing knowledge</b>	Distributing knowledge or sharing IPR to encourage collective problem solving
	Political tactics	<b>Engaging with policymakers</b>	Influencing policymakers to advance favorable regulation

### 4.3.1 Business configuration

*Business configuration* related means are defined as involving all actions related to (re-)definition of the value proposition and the consequent necessary (re-)configurations of resources and processes. Given the informant companies' commercial incentives, very little value was placed on driving systemic change as such. Instead, the companies were mostly demonstrating a company-centric perspective to sustainability, which emphasizes low-disruption to business-as-usual as well as short-term profitability. This section will describe these means in three layers described earlier in the literature review: *configuration development*, *offering innovation*, and *delivery redesign*.

#### **Configuration development**

The emergence of the plastics issue as a topic of *strategic emphasis* was repeatedly put forth by the informants. The informants reported of companies taking part in global commitments to replace fossil-based plastic materials and defining formal strategic objectives to reducing plastics waste. This finding was supported by a review of the annual reports of the top 6 FMCG industry players between 2015-2019. By 2019, all of the companies had elevated improved plastics utilization as a key strategic theme, as illustrated by the table 4 in section 4.1. Also the informants provided descriptions how increased plastics-related sustainability had emerged as a key theme in across business functions, ranging from branding and procurement to supplier contracts. Hence suggesting improved environmental performance gaining importance as a core value proposition element, as highlighted in the comment below.

*“Anytime the global organization offers us new product innovations, there is always emphasis on sustainability. In practice, we cannot launch new products if it does not contribute to advancing sustainable development. It’s among the first criteria that needs to be fulfilled when we consider a business case for new products. “ –  
Interviewee B2*

Furthermore, the informants provided accounts of how these sustainability-oriented organizational aims influence the management of supplier relationships:

*“[T]o some extent we have focused our business to suppliers that have the ambition, meet the prerequisites, have the opportunities for, and will to implement it [increased sustainability]. (...) So yeah,*



*in practice this means that some suppliers are inevitably left behind.” – Interviewee B1*

Building on potential efficiencies attributed to lower processing and material costs, the interviewees reported means for contributing to sustainability by *process improvement*. The reported means included optimizing utilization of transportation packaging (i.e., reduction of plastic film utilized in transportation pellets or replacing transportation packaging plastics with other materials, such as cardboard), reusing waste from internal processes, and utilizing reusable transportation packaging. Considering the technological sophistication in the industry’s production systems, these means may seem rather insignificant from the outset. However, even the simplest adjustments to the systems have cascading implications, thus potentially making even the slightest development considerable supply chain challenges, as illustrated in the comment below.

*“Anything we do that becomes a sort of off that standard type of production will become more complex. No matter what you do. (...) Erm, so that’s- that’s always a challenge and anything we do that is different from what we do today, even if it’s less packaging, less labour, whatever, it will be more expensive in the beginning.” – Interviewee B3*

While more advanced means of process innovation, such as redesign or manufacturing equipment investments, have the inarguable capability of delivering increased performance both financially and environmentally, the interviews did not reveal that such investments are made with a sustainability agenda. Thus, indicating that those means rather are employed as a part of standard business development activities.

### **Offering innovation**

The sustainability aims of the informant companies largely materialized by trialing with existing or new offerings. The interviews revealed *product characteristic improvements* as a common means for advancing sustainability within the company. The improvements were related to reduced utilization of plastics (i.e., thinner layers of plastics in products or discarding non-value-adding plastic parts), replacing fossil-based plastics with other materials (i.e., opting for recycled or bio-plastics or cardboard), improving the recyclability of the product (i.e., opting for materials that are better processed with current mechanical recycling technology or incorporating chemical markers that facilitate material identification), or enhancing the longevity of the product. Instead of drastically changing the existing value proposition for an offering, these developments

seek to deliver incremental sustainability-oriented developments to already accepted products to meet internal plastics reduction targets as well as cater to evolving consumer expectations.

Another approach was product innovation or the *introduction of new sustainability-oriented offerings*. Sold at a premium price, the key marketing pitch for these novel variations of standard offerings was their improved sustainable performance compared to standard offerings to tap into the sustainability-sensitive consumer segments. While these product categories were subject to increasing inquiries and indirect demand from both the customers and retailers, the informants agreed that the market share and the realized pull of these products still remain modest, which is reflected in the comment below.

*“Based on consumer data and surveys, we can see that the consumer expects more sustainable products and packaging (...) and that there exists market demand for them, and that’s why we have introduced these [sustainability-marketed] product lines. However, at the same time I have to say that the pull for these items has not been, like, effusive. (...) The consumers expect green products, recycled plastics and recycled packaging, but that does not necessarily translate into a purchasing decision.” – B2*

### **Delivery redesign**

The interviewees reported of sustainability-advancing means related to the delivery of goods or engaging with the customer. *Channel innovation* for traditional offerings surfaced as a means for delivering improved sustainability while keeping the core offering or product very much intact. An illuminating example of such approach is the replacement of single-use packages with refill stations, which had been piloted by an informant company. These solutions offer two-fold benefits for the manufacturing companies, as they allow larger volume on on-time sales while also reducing the per-unit plastics amount.

*“[T]ypically the plastic used for a pouch compared to the hard bottle might be somewhere (...) between 60 and 80 %. (...) [A]s a company we are piloting both in Europe and globally, if there is a case to build sort of a filling station in the stores. (...) So you- I mean, you don’t have to recycle the, uh, bottle, you can just reuse it.” –*

*Interviewee B3*

Despite these incentives, these new models pose significant challenges to the current supply chain organization, which are optimized to deliver single-use packages in the order of magnitude of millions. Thus, any deviation from the current production methods entails a high initial investment cost and, consequently, has a strong negative impact on such initiatives' attractiveness. To illustrate the previous, the above-described initiative entailed changes across the production process from internal logistics and the production line to the in-store delivery.

*Consumer engagement beyond the point of sale* was also discussed as a means for driving systemic change. Consumer engagement in traditional linear FMCG consumption models ends at the point of purchase, thus leaving the responsibility for finding out the best way for after-use processing (i.e., disposal or recycling), as well as the actual delivery to collection point solely in the hands of the individual customers. However, while the expert consensus is largely focused on recycling as the designated mean for improving sustainability, the consumers generally accept mere bio- or eco-labeling as an indication for sustainability without deeper knowledge of the practical implications. Hence, the companies face a challenge in advocating for a consumption model where recycling becomes an integral part of the customer journey. From a brand owner's perspective, this entails the association of recycling to the conventional consumption procedure and establishing reverse-delivery methods that connect used materials back to the production process. Although solutions catering to these needs were still largely at a conceptual level, and often related to the broader issue of consumer education, some interviewees did report of already implemented practical solutions. For instance, one company had established plastics collection points at the point of sale to promote consumption habits where recycling of consumed goods is linked directly to the purchase of new goods. While this type of action was deemed unlikely to yield a significant amount of recycled material for the company, its importance in catering to a more sustainable consumption model was recognized as a contributor to a transition towards increased circularity.

#### 4.3.2 Institutional tactics

Institutional tactics were defined as the means that seek to influence the wider business environment for acceptance and support. This section will present findings from the interviews in three areas, which describe the means for meaning construction, collaboration inducement, and political tactics.

##### **Meaning construction**

Meaning construction entails the means for articulating a new vision for the current system to attract acceptance and support for the proposed new arrangements. In this context, this involves the means related to increasing the awareness and perceived relevance of the issues of fossil-based plastics economy as well as making sustainability-oriented actions and offerings desirable. The study suggests that meaning construction was conducted on two different orientations: to educate consumers and to attract partners.

The interviewed companies were keen on highlighting the importance of the commercial factors associated with sustainability initiatives and consequently, means for driving up consumer demand, or *consumer education* were highlighted on various occasions. Based on the interviews, two types of objectives for customer education can be identified. First, increasing awareness of sustainability issues and consequently establishing sustainability as a driver for consumer preference. Second, improving consumer knowledge of plastics and its utilization as well as the alternatives by providing fact-based descriptions of the alternatives and their negative externalities. Mentioned means included marketing, social media presence, and labeling. While the importance of consumer education in enabling a broader shift towards sustainable plastics use was broadly accentuated, the interviews did not offer many insights about the relative efficiency of the means for achieving this aim. By drawing on the comments of one interviewee, this might be related to the inherent difficulty and inertia related to influencing the fundamental values, beliefs, and habits of the common public, as well as to the limited capability of private companies to influence the public compared to the influence of mass media.

*“(...)[T]he more difficult part is actually changing consumer behaviors quick enough so that they sometimes are willing to pay more for a sustainable solution. Because if you look at so big parts of the society, the only thing that we fight about is who can produce the cheapest goods (...)” – Interviewee B3.*

The analysis also suggests that companies employ different forms of external communication to *attract business partners*, to advance the sustainability agenda among immediate business partners. Given the intertwined nature of the established supply chains, support from supply chain partners and direct stakeholders is needed to advance sustainability aims, as highlighted in the quote below.

*“Obviously we can’t do that [advance sustainability initiatives] on our own, we somehow need to motivate and invite our partners, business partners to be part of (...).” - Interviewee B4*

Based on the interviews, two central activities emerged: First, the demonstration of organizational values and attitude towards sustainability issues, to communicate organizational directionality, and to explicate prerequisites for collaboration. This is materialized by increased exposure to sustainability issues in public documents, such as company websites and annual reports. Second, setting practical examples of behavior that is deemed desirable to facilitate followership. For instance, this involves partaking in broader commitments for increased sustainability or other activities that provide easily replicable behavioral patterns that seek to establish alignment behind a common ideal.

### **Collaboration inducement**

Players across the supply chain face individual pressures to engage in projects or ventures that seek to improve their sustainability, and as discussed above, the realization of these initiatives often necessitates the involvement of players across the supply chain. While meaning construction involves the articulation of a new vision in order to attract ideological support, collaboration inducement involves activities that seek to elicit collaborative action that materializes as commitment of resources for mutual benefit. The interviews revealed two means that are employed for this cause: distribution of knowledge and assuming responsibilities.

*Distribution of knowledge* was portrayed by the interviewees as a key means to induce change-advocating collaboration among supply chain partners. In practice, this entails sharing information – that is likely otherwise unattainable to the other party – to incentivize collaboration in favor of mutual aims. For brand owners, this meant engaging in discussions of experienced problems or extending previously found solutions to new potential partners, or even opening up own intellectual property to invite industry players to collaborate on a wider scope. From a supplier perspective, these practices mostly involved knowledge-sharing, or pitching, related to novel ideas or material innovations. Based on the interviews, an important forum for engaging in knowledge sharing was industry conventions. According to an informant, participation in industry conventions was essential for learning of new solutions and challenges in the industry, and consequently, an essential platform for organizational matching.

*“Almost all relevant actors in the industry attend the convention, and naturally we also attend them whenever possible. (...) That’s where we make the connection, and then they approach us directly to pitch their new ideas and solutions. (...) So, these conventions are important for us in initiating collaboration. (...)” – Interviewee B1*

Another mean reported by the informants involved the companies *assuming responsibilities* beyond their traditional operational roles in efforts of incentivizing collaboration. For example, to convince their packaging supplier to cooperate in a project that sought to replace all fossil-based plastics with renewable alternatives in one factory, a brand owner made an upfront investment to purchase the annual volume of recycled materials for the utilization of the supplier. Thus, the brand owner overtook the financial risk associated with material commitments on behalf of the supplier to induce collaboration. Additionally, to further facilitate the adoption of new materials, the brand owner agreed to extend its own R&D resources to the supplier to provide technical support throughout the project.

### **Political tactics**

The all-encompassing nature of issues related to fossil-based plastics use saw the interviewees being largely unequivocal in calls for regulative changes to contribute to sustainable change. The key themes discussed by the informants were: regulative rewards for sustainable practices (i.e., tax deductions), regulative sanctions for unsustainable practices (i.e., fossil-based taxes), regulation that enables wider utilization of recycled or bio-plastics (i.e., alleviating current directives over plastics use in applications such as construction), and regulation that levels the playing field across geographical areas (i.e., adjusting current producer responsibility schemes to allocate equal responsibilities to EU and non-EU players). An interesting notion is that while the interviewees commonly discussed these political measures, they were able to provide very little concrete specifications for the legislative changes they would endorse. This is potentially related to the informants not having the appropriate visibility or expertise to comment on the regulative issues. Nevertheless, the informants did describe actions to *engage with policymakers* to advance favorable regulation, which included providing data and expert opinions on plastics related initiatives, engaging in public discussion forums and active engaging with individual policymakers. However, an analysis of the publicly available corporate material revealed that the organizations represented by the informants were common to participate in non-profit coalitions or alliances seeking to advance a more sustainable plastics economy. This may indicate that instead of

influencing with policymakers directly, these companies seek to advance their regulative will via these broader entities.

#### **4.4 Incumbents as drivers of systemic change**

Based on the identified drivers, challenges, and means, this section will discuss the strategies brand owners may employ to initiate or accelerate systemic change. First, this section will provide a description of competitive sustainability as a conceptualization of how incumbents in the FMCG industry simultaneously pursue economic profits and positive environmental outcomes. Second, this section discusses two strategic orientations that brand owners may pursue to advocate for radical systemic change. Finally, this section will provide a perspective on how systemic change may unfold in the FMCG industry by drawing on the heuristics of the MLP.

##### **4.4.1 Competitive sustainability**

The conducted analysis indicates that industry incumbents are driven by various institutional pressures and economic incentives to pursue increased sustainability in their operations. Institutional pressures stemming from within and outside the organization push players across the supply chain to take action to avoid rejection by key stakeholders and regulatory sanctions. Simultaneously, the potential of improving profitability, development of valuable assets, and consequent long-term stability of business operations incentivize companies to explore sustainability-oriented solutions.

Despite these drivers, the incumbents are challenged by an operational environment that offers little premise for sustainability-oriented business models that cater to the established value creation formula, as described in section 4.2. On the one hand, the broader infrastructural challenges related to renewable materials supply and circulation systems constrain companies' capability of adopting renewable plastics at scale. On the other hand, fierce competition within the fast-moving industry, consumer unwillingness to pay a premium for sustainability, and the low strategic significance of packaging choices all contribute to making differentiation-based competitive advantage extremely difficult to achieve.

While the empirical study identified various means for pursuing increased sustainability that span all dimensions of the conceptualized business model, the analytical conclusion remains that within the predominant logics for value creation, there exists a void for strong sustainability-oriented business cases that could drive the industry towards an

accelerated systemic change. However, the informant accounts point towards a particular approach that the brand owners apply in their pursuit of delivering simultaneous positive economic and environmental outcomes. Labeled here as *competitive sustainability*, I refer to the approach to advancing sustainability that is simultaneously:

- *Adaptive*
- *Incremental*
- *Conservative*

By utilizing the term competitive sustainability, I describe the observed brand owner behavior that aims at concurrent exploitation of the established business model and its dynamic adaptation to the evolving institutional environment. As the operational environment is shaped by the evolving values, attitudes, and formal regulation, any company seeking to win in the market must seek alignment with these sentiments in an *adaptive* manner. Thus, the companies are active in monitoring changes in the operating environment, and thanks to their proficiency in identifying consumer needs and delivering fast innovation cycles, and able to rapidly introduce new products that incorporate renewable plastics solutions. Moreover, these adjustments are not only reactive but are also at times conducted proactively by the incumbents. This is evidenced by the informant companies engaging in initiatives aiming to incorporate renewable plastics based on long-term intangible benefits, such as capability development or establishing a green organizational identity.

Yet, locked-in in their successful business models and intertwined in the complex supply chains optimized for efficiency, the brand owners do not seek – nor have strong market-based incentives – to disrupt their dominant value creation logics for radically increasing their utilization of renewable plastics. Instead, they seek incremental ways to reduce or improve plastics utilization that caters to, or at least complies with, the established industry recipe and the maintenance of its relevance. In practice, this manifests as a focus on product characteristics development, which was put forth as a favorable approach to advance improved plastics utilization by many interviewed experts.

Simultaneously, the brand owner approach to increased plastics-related sustainability is epitomized by simultaneous *conservatism* for disruption, embodied as risk aversion in the scope and cost of initiatives, but also proactivity in finding low-hanging fruit opportunities with their business partners, demonstrated by willingness to collaboration. Moreover, these dynamics are compounded with strong and mature competition in the



industry, which sees the players engaging in constant imitation of or responses to competitor moves. Hence, causing solutions to rapidly diffuse across the industry.

This competitive sustainability is manifested by two key practices that encompass the various sustainability-advancing targeted means employed by the interviewed companies. First, the interviews point to incumbents advancing increased utilization of renewable plastics largely through *limited scale ventures*, which limit the operational risks related to supply chain disruptions as well as risks related to commercial performance. Second, to conduct these ventures, companies engage in *inter-organizational collaboration* with their supply chain partners and other industry players to further distribute risks and leverage knowledge across the supply chain.

Engaging in *limited scale ventures*, typically led by regional senior managers or project managers, was a seemingly favored approach to advance increased plastics sustainability. These ventures involved, for example, the replacement of fossil-based materials or the introduction of novel delivery methods in selected product segments or geographical areas. For instance, one of the respondents provided a description of how the company transferred one product line in the Nordic region to run with 97-99% recycled plastics. This initiative involved a local senior manager advocating for increased utilization of recycled materials in one factory and a consequent joint-effort between the supplier and the brand owner's R&D resources in realizing that goal. The rationale for engaging in these ventures was attributed to three factors: First, introducing targeted pilots helped to overcome the overall lack of supply for sustainable materials in the packaging materials market. Second, the risks associated with these limited scale pilots were smaller than those that involve broader changes to the global supply chains of the brand owners, thus catering to the risk-averse tendencies of the companies to depart from their current well-established and profitable value creation model. Third, albeit being of limited scope, these ventures help the participating players in learning more of the benefits and challenges related to the transition to sustainable materials.

*“But obviously we are learning by doing and I’ve been here now for 17 years and I would say that during these years things have gotten much easier from what it was early 2000. (...) You see giant leaps happening every year so I think we have more opportunities and chances to develop our business towards more sustainable than ever before. And that is like, that is the good news here. Obviously anything you do, like I said there is always this price tag and then we end up into this discussion, who pays for that but eventually we*

*always agree. We find a solution but it doesn't mean that it's easy."*

*– Interviewee B3*

The value attributed to learning was surprisingly significant, as none of the individual initiatives was lauded as a commercial blockbuster. Yet, the overall sentiment regarding these initiatives was a perception of positive impact due to advancements in the learning curve. This positive sentiment sustained even in the case of sustainability-oriented projects that were later rolled-back due to failure in meeting the set business objectives. Specific explanations for this rather optimistic stance were attributed to two critical consumer-facing aspects. First, mere engagement in these low-risk ventures withholds symbolic value that appeals to the consumers with increasing environmental concerns. Second, the pilots provided practical insights into consumer responses to sustainability-oriented offerings.

*"[We are] looking at the trends, learning from the other markets, making our own estimate and strategy how to bring this kind of new novelties, sometimes, like you know with any new innovation sometimes they succeed sometimes they fail so like you know they are just, okay, we rotate it."* – Interviewee B4

Despite the traditionally siloed nature of the FMCG industry, an interesting finding from the interviews was the extent of *inter-organizational collaboration* with supply chain partners and other industry players that were employed to find solutions for improved plastics economy. For example, the brand owners reported of partnering up with start-ups, NGOs, and even industry peers to explore solutions for improved plastics utilization. By participating in inter-organizational collaboration that extracts knowledge and distributes risks across the participating parties, the informant companies afford explorative behavior seeking to deliver novelties for improved plastics utilization.

The conducted analysis suggests both institutional and business-centric explanations for this activity. From an institutional perspective, while the pressures experienced by the industry players vary according to their position in the supply chain, the players share a mutual impetus for a better plastics economy. On the one hand, companies face strong stakeholder pressures to address the growing concerns of the global climate crisis. On the other hand, companies are incentivized to preserve current business as well as enable sustainability-based value capturing in future markets. From a business-centric standpoint, the limited scale approach for sustainability initiatives that has been employed by the companies likely facilitates the negotiation of terms and responsibilities

among the participating players, thus providing a fruitful platform for collaboration. Furthermore, the distribution of development and deployment-related costs and risks of sustainability initiatives, as well as the opportunity of leveraging expertise across the actor-network, both incentivize collaborative behavior. Considering this all-encompassing nature of the plastics problem and the aforementioned benefits, there exist fruitful preconditions for inter-organizational collaboration in the current industry, as highlighted in the comment below:

*“we probably try to live the way we preach meaning that we’ll always tend to say that the challenges of current world are so big that no one can solve them on their own and building on that, that’s how we have been working many areas cooperating with other companies, with non-governmental organisations, with governmental organisations also, in many markets.” – Interviewee*

*B4*

Collaboration with other actors was conducted for different purposes. Start-ups were utilized as a source for technological innovation and participated in collaboration in hopes of scaling-up their solutions. An example of a start-up developed application was an advanced deposit scheme for plastics packaging. In terms of supply chain partners, raw materials suppliers and packaging suppliers were reported of pitching new materials or technological solutions for the brand owners, while retailers were deemed an important informant to consumer preferences. Additionally, the expertise and operations of non-profit organizations were leveraged for LCA assessments when considering switching to new plastic types and establishing infrastructure for recycled materials. To illustrate the latter, an informant reported that their company is partaking in a plastics recycling scheme, which enables people in low-income areas to collect and recycle plastics in exchange for monetary benefits, and simultaneously providing recycled material for the brand owners.

An insightful account of the depth and benefits of collaboration was provided by one informant, which underlines the difficulty of implementing sustainability initiatives in the FMCG industry's established and complex supply chains. A decision to replace all fossil-based plastics with recycled alternatives in one of the informant companies' product lines entailed a broader technical reconfiguration of the packaging production system. In this case, the brand owner procured recycled raw materials and delivered them to its suppliers for utilization. To facilitate the transition to new, more sustainable materials, the brand owner worked closely with its supplier and sent personnel from its

own R&D department to the supplier's facilities. The on-site collaboration covered design, process configuration, testing, and innovation. The key challenge was to achieve technical performance for the recycled-material packages that equals that of the fossil-based counterparts. According to the respondent, this joint effort not only succeeded in meeting the set objectives, but it was also helpful in providing insights into the process that could be extended to other suppliers, as highlighted by the comment below.

*“We learn it and then we can use it both in our own section and I mean, we use multiple different bottle suppliers, so of course when we develop recycled plastic [solutions], or our suppliers do, we can coach them with what we have learned on the way, obviously.” –*

*Interviewee B3*

By collaborating with other industry players and conducting limited scale ventures, it seems that the industry incumbents, and especially the brand owners, have found a strategic approach that manages to exploit their current efficient value creation model and simultaneously explore sustainability-oriented development. While improved environmental performance is yet to establish as a pivotal competitive factor in the industry, the research points towards expectations of such transition eventually taking place and the industry incumbents taking not only reactive but also proactive measures to prepare for such market conditions.

#### 4.4.2 Strategic approaches for accelerating systemic change

Despite the observed approach of the industry incumbents being unlikely to in itself initiate rapid systemic change for a better plastics economy, the research suggests two divergent strategies that a change advocate organization can employ for its acceleration while catering to the identified competitive sustainability approach. Drawing on the challenges of lack of consumer demand and immaturity of recycling infrastructure, this section will discuss *demand development* and *infrastructure establishment* as distinct yet complementary strategic approaches for bringing about systemic change in the FMCG industry.

##### **Demand development**

The inherent issue with sustainability-oriented initiatives is the formulation of business cases capable of delivering improved environmental performance and a strong commercial rationale. As confirmed by the interviews, sustainability initiatives entail initial investment costs to reconfigure the existing production processes and increases to

the material costs. However, while these efforts are expected as well as desired by the consumers, they remain unwilling to indicate this preference with their purchasing decisions. Hence, to improve the business cases for a sustainable plastics economy and accelerate wider systemic change, a radical change advocate can engage in demand development that seeks to leverage the increasing societal concern for global warming and plastics utilization to ramp up the demand for sustainable solutions.

The cornerstone for this strategy is simultaneous engagement in various institutional work types to convince consumers of making more sustainable purchasing decisions and introducing offerings that cater to such behavior. Based on the conducted analysis, three key practices can be identified: Increasing awareness, providing information for better-informed decisions, and developing sustainability-enabling offerings and consumption models.

Although the past decade has seen plastics utilization rise as a subject of public concern and seen the emergence of sustainability-oriented consumer segments, the mass market is yet to move towards more sustainable consumption habits<sup>2</sup>, as highlighted by the comment below.

*“What’s good, is that the prices [for bio-based or renewable] products are no longer much more expensive than traditional products. If the price is similar, we see that the consumer has a preference for green choices. However, the realized price sensitivity is about 5-10%. When we do consumer surveys the reported figure is about 20-50% but this does not translate to the purchase decision.” – Interviewee M2*

The empirical study suggests that to establish sustainability as a key purchasing criterion, awareness of the plastics issue beyond the sustainability-oriented consumer segments must first be increased. Thus, a change advocating company must engage in meaning construction that seeks to problematize the current circumstances and offer a compelling vision for alternative arrangements to the widest possible audience. To achieve this, companies must increase the exposure of plastics related subjects in their external communication channels directed at the mass market. These channels include company websites, traditional and digital marketing channels, and in-store advertisements and

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<sup>2</sup> Bain & Company, 2018. Transforming Business for a Sustainable Economy. Available at: <https://www.bain.com/insights/transforming-business-for-a-sustainable-economy/>

campaigns. Additionally, indirect avenues of influence can be employed. These include collaboration in high visibility initiatives with non-profit organizations or other broader coalitions. For example, the interviewed companies had formed strategic partnerships with Ellen MacArthur foundation's New Plastics Economy initiative, The Plastic Bank initiative, and WWF.

Mere awareness of the problems related to the utilization of fossil-based plastics will not likely suffice for developing demand for sustainable products. Instead, the study indicates that consumers must also be provided with information that allows them to make well-informed purchasing decisions and be less vulnerable to greenwashing. For instance, the informants raised concerns about the effects of unsophisticated discourse that depicts the utilization of plastics categorically harmful and potentially steers consumers to alternatives with equally adverse or worse environmental cradle-to-grave implications. Additionally, the general lack of standardization for plastics types contributes to increased consumer confusion and hinders the recyclability of products. Hence, companies ought to commit to improved transparency of utilized materials and fact-based communication of the environmental implications of different plastic types. To advance these aims, companies should not only introduce ingenuous labelling to their offerings but also seek to develop them together with industry peers to establish a market-wide common language. Consequently, collaboration with industry associations may be a key aspect in implementing this strategy.

In addition to influencing and informing the consumers, change advocating companies must take action to support, enable, and encourage more sustainable consumption habits. At the crudest level, this entails at least partially assuming the responsibility for sustainable choices from the consumer by improving the environmental performance of existing offerings with proactive incremental developments, as well as defining aggressive internal sustainability criteria for novel innovations. For example, this can involve the voluntary introduction of product characteristics improvements across product lines. More sophisticated approaches involve product and channel innovation, such as refill-based models or digital direct-to-consumer channels, which allow novel ways of deriving value from the market by enabling lower material costs or by bypassing retailers for increased margins and improved access to consumer data, respectively.

### **Infrastructure establishment**

The analysis highlights the existence of significant limitations with the established recycling infrastructure, which, according to the interviewees, inhibit a systemic

transformation towards a circular plastics economy. Difficulty in recycling some utilized plastic mixes, inadequate collection and sorting capability, and immaturity of industrial-scale recycling technologies all contribute to the status quo, which sees the market suffer from low supply of high-quality recycled materials. Consequently, companies are incapable of advancing their ambitions for improved plastics sustainability due to the sheer unavailability of material or due to its high costs. Hence, a change-advocating company could seek to target these issues in a manner that is proactive, yet complementary to the existing operating model, in an effort of contributing to the establishment of infrastructure needed for a circular economy. Drawing on previously identified challenges and means, there exist feasible mechanisms for the realization of this strategy across key business areas of production, offering, and delivery.

In production, measures in process improvement should be taken to facilitate the adoption of renewable plastic materials. As highlighted by company B4's above described project that saw a factory make a successful transition to the utilization of recyclable plastics, the role of modifying and adjusting manufacturing processes, such as accommodation of slight contamination in raw materials, is significant in enabling a factory-level transition. The same also applies to the utilization of bio-based materials, which are commonly subject to different processing characteristics than fossil-based materials, such as processing temperatures and time. The informants did not report that the increased utilization of renewable plastics required notable investments to new manufacturing equipment, yet often emphasized the importance of technical expertise in reconfiguring the processes. Hence, the capability of process improvement together with supply chain partners, will likely be instrumental in enabling this strategy. In practice, this entails engaging in the collaboration inducing practices of distribution of knowledge and assuming responsibilities. The former may involve informing of supply chain partners of the problems-to-be-solved and extending existing solutions – even non-business critical IPR – to provide a platform for further developments, while the latter may involve increased attention to technical knowledge to packaging material innovation by brand owner, as well as increased responsibility in raw materials sourcing.

To contribute to an improved supply of high-quality recycled materials, it is essential that companies dedicate to improving the recyclability of their own offerings. The interviews surfaced three types of product characteristics improvements that front runners can employ. First, by decreasing the variety of utilized materials in a given product, such as replacing metallic lids with plastic parts uniform to the rest of the product. Moreover, similar benefits can be unlocked by modular designs that facilitate the appropriate

sorting of waste. Second, by opting for materials with improved recyclability despite minor appearance deficits, such as color. Thirdly, packaging can be equipped with additional technology to facilitate sorting, such as barcodes, readable chips or chemical markers that provide information of the packaging content.

Implementing delivery or reverse-logistics mechanisms that enable and incentivize the consumers to return used packages back to the production cycle are essential in enabling a circular economy transition. Additionally, focus on consumer engagement beyond the point-of-sale, and specifically in establishing a closed-loop between the producer and the consumer, may also open novel opportunities, such as control over valuable material sources and improved collection of consumer data. Drawing on the efficiency of the Finnish bottle deposit system, which has achieved an annual retention rate of plastic bottles as high as 92%<sup>3</sup>, the development of deposit schemes can be considered as an opportunity for brand owners to encourage circular consumption habits and secure a sustained supply flow of recycled materials.

Although the deployment of such a system at an industrial scale is likely well-beyond the interests and capabilities of individual companies, the study revealed that brand owners are engaging in the development of such solutions on a limited scale. For instance, an informant company reported of cooperation with a start-up that is developing a deposit scheme for plastics packaging in Sweden. Similarly to the Nordic bottle deposit schemes, this initiative features collection points at the retailer to enable a closed-loop for packaging material. While such limited-scale approach is unlikely to provide a significant source of recycled material in the short-term, it may possess transformative power in acting as proof of concept for technical feasibility to incentivize public-led scaling-up, as well as in institutional sense by encouraging novel consumption habits. Building on the latter, consideration should involve not only the enabling of reverse-logistics by material investments but also the advocacy for cultural change of incorporating recycling as a routine part of the consumer journey. For example, one of the interviewed companies provides recycling instructions for each of their products on their website to facilitate adopting the new routine. Further, the role of such frontrunner initiatives was also recognized as a potential driver for the introduction of new sustainability-oriented

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<sup>3</sup> Yle, 2019. Kirkas muovipullo voi kiertää ikuisesti. Available at: <https://yle.fi/aihe/artikkeli/2019/05/02/kirkas-muovipullo-voi-kiertaa-ikuisesti-varilliset-pullot-eivat-kierra-samalla>



regulation, which could further accelerate systemic change, as highlighted in the comment below.

*“The ongoing climate issue is a good example of how regulation works in the current market. Industry players themselves have first taken rather aggressive measures [to pursue sustainability] and then regulation has moved to back these frontrunners. (...) So, the situation is quite different to what is used to be, when it was more common for regulation to intervene and companies to adjust to those rules. (...) But nowadays it can be the companies that make the precedents that maybe constitute to the establishment of a norm, and then the regulation may follow.” – Interviewee R1*

## 5 Synthesis

As established in the literature review (section 2.1.2), the multi-level perspective (MLP) understands systemic transitions as an interplay between the socio-technical regime, the technological niche, and the socio-technical landscape. Drawing on these analytical parameters and insights derived from the interviewed experts, this section will first provide a perspective of the prevalent conditions in the FMCG industry (Figure 3) followed by a viewpoint on how sustainable systemic change may unfold given its current trajectory and potential brand owner interventions (Figure 4).

### 5.1 Systemic conditions in FMCG industry from multi-level perspective

The socio-technical regime, consisting of markets, industry, regulative landscape, technologies, and culture, has experienced an extended period of stability. This has seen the top industry players establish all-encompassing and carefully configured complex supply chains geared towards high-frequency product innovation cycles and sophisticated cost optimization. Driven by the globally expanding middle class and increasing disposable income, these production systems have contributed to and benefitted from the settlement of linear consumption models, where the producers have little responsibility for the appropriate disposal of plastic waste generated by their offerings.

The increasing societal scrutiny placed on plastics' environmental impacts has introduced moderate, evolutionary and aligned landscape pressures for the regime to seek more sustainable plastics utilization practices. That is, the current pressures are developing gradually towards a predictable direction (i.e., improved sustainability), but so far have not intensified enough to prompt strong countermeasures from the actors (i.e., radical innovation or departure from the operating model). Stakeholders, especially consumers, place increased emphasis on environmental consideration, and the expert expectations for regulatory development indicates further contribution to that trend. To alleviate these pressures and ensure their near-future competitiveness, brand owners and other players in the FMCG supply chain have undertaken various sustainability-seeking initiatives that seek to replace fossil-based plastics with renewable alternatives and contribute to a circular consumption model, as evidenced by the means identified in section 4.3.

Figure 3: FMCG industry characteristics in MLP framework

FMCG industry characteristics			
	LANDSCAPE CONDITIONS	ROLE OF NICHE	REGIME DYNAMICS
<b>Prevailing landscape conditions</b>	<ul style="list-style-type: none"> <li>Moderate, evolutionary and aligned development for improved plastics sustainability, yet no fully matured mass-market demand or regulatory pressure.</li> </ul>	<ul style="list-style-type: none"> <li>Niche experimenting with alternative materials and sustainability-oriented production methods, yet no indication of disruptive innovations capable of providing exceptional benefits, thus providing low threat</li> </ul>	<ul style="list-style-type: none"> <li>Sustained perception of competence and competition within established rule-sets, manifesting as incremental R&amp;D commitments, efficiency-focused competition and steady financial performance</li> </ul>
<b>Supporting conditions in industry</b>	<ul style="list-style-type: none"> <li>Small but growing sustainability-oriented market segments</li> <li>Ongoing public debate and regulation considerations</li> </ul>	<ul style="list-style-type: none"> <li>Underdeveloped chemical and mechanical recycling capability</li> <li>Opting for plastics-free packaging alternatives</li> </ul>	<ul style="list-style-type: none"> <li>Incremental and low-risk product characteristics improvements, scale and efficiency driven rationale</li> </ul>
<b>Systemic trajectory: Reproduction</b>	<ul style="list-style-type: none"> <li>Given the internal stability of the regime, immaturity of the niche and moderate landscape pressure, the system is likely on track for reproduction, which sees the system pursuing efficiency-improving innovations with limited disruptive potential</li> </ul>		

However, restricted by the capability of current infrastructure to provide an adequate supply of renewable plastics and the underdeveloped consumer demand for more sustainable offerings, a rapid and radical transformation of the system seems unlikely in the short- to medium-term time horizon. Thus, the current environment affords the regime to continue to pursue low-risk and incremental development of new solutions, which seeks to exploit and extend the existing dominant logic for value capturing. Moreover, given the wider infrastructural problems underlying the industry, such as the immaturity of the recycling industry and the needed technologies, the study indicates that there is a low threat of niche players' introducing radical solutions leading to a full technological substitution and, ultimately, the overthrowing of the regime. More specifically, the study provides evidence of no single technology or technological solution that could drive disruptive and abrupt systemic change. Instead, developments across multiple application domains are needed. For example, even if the global chemical recycling capability experienced a giant leap in its price-performance characteristics, the immaturity of current recycled plastics collection infrastructure would still constrain the supply of recycled materials. Consequently, instead of posing a threat of substitution, the innovations produced by the niche (i.e., bio-plastics containers or recycling technologies) are mostly deemed complementary or symbiotic to the existing practices. This symbiotic relationship is indicated by the brand owners' willingness to engage in inter-organizational cooperation with the niche, thus seeing the niche mainly contributing to the regime's perseverance.

As the landscape pressures have not yet sufficiently developed to force extreme reactions from the incumbents, nor is the niche posing a significant threat to the established value creation logic, this study's findings point towards a reproduction process<sup>4</sup> occurring in the FMCG industry. Generally, this involves a shared perception within the regime that it has the competence to deal with the turbulence in the landscape, which manifests as investments to incremental development within the prevailing rule-sets and, consequently, a predictable trajectory for future developments (Geels & Schot, 2007). Thus, the identified incumbent approach of competitive sustainability, which seeks the exploitation and adaptive extension of existing value creation logic, can be viewed as a manifestation of the concept of regime's dynamic stability (Geels & Schot, 2007), which underlies the reproduction dynamics of a regime. This conclusion of reproduction process taking place in the FMCG industry is supported by the informant account below,

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<sup>4</sup> See section 2.1.2. for pathway summaries

which can be deemed as a demonstration of the unwavering confidence in the regime's persistence.

*“A curious anecdote from the industry is, when had discussions with one of the brand owners and confronted them about the potential of local legislation banning the utilization of fossil-based plastics and consequently threatening their business (...) the brand owner told me, without hesitation, even if a small market like Finland makes such decision, it is a no-factor to their business in a big picture, as there still remains plenty of demand in Europe (...) then he followed that by saying that “we are too big to kill”, so that reflects the power and size of these guys (...).” – Interviewee I1*

## **5.2 Scenarios for future developments**

Despite the current industry conditions pointing primarily towards sustained reproduction in the system, there are also indications of dynamics within the regime that may propagate to a systemic transition. While the immaturity of niche technologies and the broader infrastructural problems – that inhibit systemic disruption by a single technology – render the radical, technology-driven, and abrupt transformation pathways of technological substitution and de-alignment and re-alignment highly unlikely in the timeframe considered in the study, there arguably exist conditions that could see a transformation unfold along the transformation or reconfiguration pathways. These pathways are characterized by gradual and evolutionary developments in landscape pressures or the technological domain. Hence, they echo the perspectives of the interviewed experts, as well as the observations from secondary research.

The brand owners are highly aligned in their aims of contributing to a transition towards a better plastics economy and how they seek to fulfill their new dual objectives of profitability and positive environmental impact via competitive sustainability. Hence, the study also – and rather paradoxically – suggests that competitive sustainability may not only contribute to reproduction but also to accumulated momentum within the regime for a change toward increased utilization of sustainable plastics. While the non-radical orientation is employed to maintain the regime players' profitable positioning in the developing operating environment, the engagement in incremental development ultimately seeks to prepare the companies for the inevitable departure from linear consumption models. Additionally, this shared directionality is compounded by the

fierce competitive pressure in the mature market, which according to the interviewed experts, has led to market conditions where innovation is rapidly imitated by competitors or organically spread across the market via mutual suppliers. If these individual and quickly diffusing developments maintain alignment, the MLP suggests that a transition can advance in the system through a long-term sequence of cumulative changes (Geels & Schot, 2007).

More specifically, the study suggests the prevalence of conditions that cater to the unfolding of transformation and reconfiguration pathways conceptualized by Geels & Schot (2007). While the suggestion of a regime actor contributing to the destabilization of the regime is contradictory to the general assumptions of Geels & Schot (2007), this thesis follows the standpoint of Siegel (2009) that given sufficient subjective incentives (i.e., improved economic performance) a change advocating incumbent could act strategically to improve the business cases for sustainable plastics utilization. Thus, the following section will discuss the two strategic orientations (i.e., demand development and infrastructure establishment) for competitive sustainability, which can act as a brand owners' vehicle to guide the system towards the transformation or reconfiguration pathway. Summaries of these two scenarios and the contributing strategic orientations is provided below in figure 4, followed by a closer textual description.

**Figure 4: Scenarios for future developments and connected strategic interventions**

Pathway description: <b>Transformation</b>		<i>Strong landscape pressures, at a moment when niche-innovations have not yet been sufficiently developed, cause regime actors to voluntarily reorient practices and development activities, and consequently the systemic trajectory.</i>		
	<b>LANDSCAPE CONDITIONS</b>	<b>ROLE OF NICHE</b>	<b>REGIME DYNAMICS</b>	
<b>Theoretical preconditions for transition in MLP</b>	<ul style="list-style-type: none"> <li>If current aligned <i>landscape pressures intensify</i> and start contesting established ways of doing</li> </ul>	<ul style="list-style-type: none"> <li>If new niche innovations catering to landscape pressures are developed, yet <i>remain underdeveloped</i> to threaten the regime</li> <li>Drop-in innovations providing incremental developments yet <i>no platform for further progression</i></li> </ul>	<ul style="list-style-type: none"> <li>Given <i>increased landscape pressure and low threat from niche</i>, regime actors employ adaptive capacity to ensure perseverance</li> </ul>	
<b>Supporting conditions in industry</b>	<ul style="list-style-type: none"> <li>Emergence of mass-market sustainability trends or increased consumer activism, increased certainty of impending regulation</li> </ul>	<ul style="list-style-type: none"> <li>Non-radical improvements to drop-in materials or recycling technologies e.g. utilization of renewable or alternative materials in niche segments</li> </ul>	<ul style="list-style-type: none"> <li>Adaptation of established value creation logics with increased value for sustainability, enabling improved business cases with existing technologies</li> </ul>	
Strategic intervention to initiate or accelerate change: <b>Demand Development</b>	<ul style="list-style-type: none"> <li><b>Objective:</b> Stimulation of consumer and public opinion to establish market-based demand for sustainability-oriented offerings</li> <li><b>Orientation:</b> Focus on institutional work aiming to shape values, beliefs and behaviours combined with new behaviour enabling offerings</li> </ul>	<p><b>Key means:</b></p> <ul style="list-style-type: none"> <li>- Consumer education</li> <li>- Product characteristics improvement</li> <li>- Novel offerings</li> <li>- Consumer engagement beyond POS</li> </ul>		

**Figure 4 (continued): Scenarios for future developments and connected strategic interventions**

Pathway description: <b>Reconfiguration</b>		Accumulation of incremental technological developments enable regime actors to explore novel combinations, resulting to changes to regime's basic architecture and new systemic trajectory.	
	LANDSCAPE CONDITIONS	ROLE OF NICHE	REGIME DYNAMICS
<b>Theoretical preconditions for transition in MLP</b>	<ul style="list-style-type: none"> <li>If landscape pressures remain at current moderate levels</li> </ul>	<ul style="list-style-type: none"> <li>If niche innovations catering to landscape pressures are developed, but are <i>symbiotic</i> to regime and thus <i>experimented with</i> by the regime actors</li> <li>Innovations are incremental, but provide a <i>platform for progressive development</i></li> </ul>	<ul style="list-style-type: none"> <li>Given <i>no significant changes to landscape pressures</i> and continued emergence of <i>symbiotic niche innovations</i>, regime engages in progressive experimentation with new solutions and combinations, accumulating to reconfiguration of actor roles</li> </ul>
<b>Supporting conditions in industry</b>	<ul style="list-style-type: none"> <li>Small but growing sustainability-oriented market segments</li> <li>Ongoing public debate and regulation considerations</li> </ul>	<ul style="list-style-type: none"> <li>Developments across multiple domains (e.g. waste collection, sorting and recycling and packaging materials) accumulating to reconfigurations of technologies and systems</li> </ul>	<ul style="list-style-type: none"> <li>By engaging in progressive experimentation, the accumulated developments in circular economy technologies may see brand owners assuming a new role as material suppliers</li> </ul>
Strategic intervention to initiate or accelerate change: <b>Infrastructure establishment</b>	<ul style="list-style-type: none"> <li><b>Objective:</b> Engagement in the development of incremental technological solutions to improve infrastructural premises for circular consumption models</li> <li><b>Orientation:</b> Focus on experimentation with symbiotic innovations with supply chain partners to enable progressive technological development</li> </ul>	<p><b>Key means:</b></p> <ul style="list-style-type: none"> <li>Process improvement</li> <li>Knowledge distribution</li> <li>Assuming responsibilities</li> <li>Product characteristics improvement</li> <li>Channel innovation</li> </ul>	



As described in section 2.1.3, a systemic transition may unfold along the transformation pathway when matured landscape pressures from outside groups (i.e., the consumers and wider public) coincide with underdeveloped niche innovations incapable of threatening the regime. As the landscape pressures poise the regime actors and the market to question established ways of doing (i.e., in the form of new social norms or new regulations), the regime actors need to take adjustive measures to maintain their perseverance or risk economic losses. The regime will likely experience internal power struggles and conflicts, but ultimately competitive regime actors succeed in the non-discontinuous conformation to the adjustments in user preferences and practices, diverting the system from its established trajectory. In other words, the transformation pathway may occur when regime actors harness their adaptive capacity to address institutional pressures, which cannot be satisfied by the underdeveloped niche. (Geels & Schot, 2007)

For example, this type of transition could manifest as pervasive change in consumer and public expectations towards a mass-market sustainability-imperative, which sees the regime actors adjusting their ways of doing and operating models regardless of disruptive technological developments. Drawing on these characteristics, the demand development strategy seeks to influence the regime pillars of user preferences and culture, to contribute to the establishment of institutional arrangements where increased plastics sustainability constitutes as a norm, and hence an uncompromisable competitive factor. As described in the demand development strategy description, this strategic orientation draws on various types of consumer education and offering adaptation to cater to pro-sustainable behavior. On the one hand, this may entail increased consumer demand or increased perceived value for sustainability-oriented offerings, thus enabling improved business cases. On the other hand, the aligned and pervasive pressure may shape supply chain dynamics towards an orientation where regime actors are increasingly incentivized to making compromises that favor increased sustainability, for example in terms of cost-sensitivity for initiatives advancing increased utilization of renewable plastics. These observations are shared by the interviewed experts, as highlighted in the comment below:

*“I think that distribution of fact-based information and increased understanding [of sustainable plastics consumption] are key enabling factors for a transition (...) Not only on the consumer-level but societally as well. (...) The stronger the expectations on the*

*consumer side, the bigger the incentives and thus faster the technical and non-technical development in the industry.” – Interviewee B1*

Alternatively, should a long-term accumulation of incremental technological advancements result in changes in the regime’s core architecture, such as supply chain roles, a transition may unfold along the reconfiguration pathway (Geels & Schot, 2007). Essential to this type of transition is the role of symbiotic innovations that emerge in the socio-technical system and are adopted by the regime to solve local problems. Although none of the novelties in themselves are discontinuous or radical enough to overthrow the regime, their accumulation leads to a progressive development path, in which preceding innovations act as a platform for alternative visions of future arrangements and enable experimentation with novel combinations of practices and technologies. The role of landscape pressures is not paramount in this type of transition, as technological developments are appropriated mostly on the basis of economic rationale. However, they may also provide further momentum to transition as novel combinations propagate changes to consumer behavior. Enabled by this progressive experimentation, a transition may unfold as a result of interplay of sequential technological advancements across multiple domains and evolving practices. In other words, the cumulative effects of the individual technical developments provide a platform for new regime configurations to evolve within the existing regime irrespective of significant landscape pressures, and thus divert the system towards a new trajectory.

For example, sequential incremental developments across the recycling, sorting, and collection infrastructure could see the emergence of a new industry structure, where brand owners assume control over recycled material supply. This type of development would render the role of fossil-based plastics producers increasingly redundant and shape the basic regime architecture. Drawing on these features, the infrastructure development strategy seeks to contribute to the non-radical transition based on the application of new technologies that capitalizes on the immature yet complementary nature of the niche. From a change advocate perspective, the incentives lie in improved supply of recycled materials, as well as in the potential of unlocking new value creation opportunities by control over material sources. While pursuing incremental developments catering to the exploitation of the existing operating model, this approach simultaneously contributes to the progressive experimentation of novel combinations that may cultivate to changes to the core regime structure. According to one informant, indications of this may already be identified in the current market:

*“The way I see it, these large brands have an opportunity to capture market share. And they see it too, they are integrating further down to the plastics industry not only on the basis of increased brand value but also due to savings in materials cost.” – Interviewee C1*

The final observation related to the systemic conditions lies in the possibility of transformation and reconfiguration occurring sequentially or in parallel, and hence the possibility of simultaneous deployment of the identified strategies. As described in section 2.x., a system can experience a sequence of transition pathways, which typically begins with a transformation, is followed by a reconfiguration and possibly by a substitution or de- and re-alignment. This sequential phenomenon is likely, if the landscape pressures take the form of disruptive change, which is defined as highly aligned and gradually developing pressure, that pushes the system towards a certain direction. These observations by Geels & Schot (2007) highlight that the suggested scenarios, and consequently the identified strategies, are not mutually exclusive. Hence, the strategies for driving change can also be pursued simultaneously – and quite possibly in a synergistic manner. For example, successful efforts in demand development likely also contribute to the broader willingness to engage in development of solutions utilizing renewable materials as the efforts are then supported by an increased market-based pull. When discounting the risk-averse tendencies of the brand owners, it can be even argued that the simultaneous deployment of these strategies is not only possible, but expedient for initiating or accelerating systemic change.

## 6 Discussion

By combining high performance, extreme customizability, and low cost, plastics have made a pervasive impact on virtually every industry in the past fifty years. Dubbed as the workhorse material for the modern economy, plastics have contributed to significant business growth over the years. However, this growth has not been achieved without significant drawbacks: 90% of all plastics draw to fossil-based feedstocks, yielding significant greenhouse gas emissions; 32% of the annual production volume leaks to our environment and can persist there for centuries, causing adverse effects to natural systems and in some cases to human health. The plastics problem is a systemic issue, consisting of three major dimensions. First, replacing fossil feedstocks with renewable alternatives. Second, reducing the leakage of plastics to natural systems and the associated negative externalities. Third, creating an efficient circular infrastructure for collection, sorting, and reproduction. With plastics packaging being the largest application for plastics and its use-case being mainly that of single-use, its biggest consumer, the FMCG industry, seems like a fruitful starting point for research on how the ambition for a better plastics economy can be realized.

Against this backdrop, this thesis set out to identify strategic approaches by which the largest companies in the FMCG industry, the brand owners, could pursue improved environmental outcomes while not compromising their *raison d'être* of profitability. To meet this objective, this study formulated three research questions and adopted an abductive research approach to identify what incentives the brand owners have to pursue increased adoption of renewable materials, what means they have at their disposal to advance that aim, and how their strategic approaches can contribute to a transition towards a better plastics economy.

To establish a theoretical basis for the study, the literature review drew on previous socio-technical transitions, institutional entrepreneurship, strategic management, and business model development studies. By utilizing the multi-level perspective as the general academic world view, and extending its analytical framework with insights from institutional entrepreneurship and strategic management literature, it was argued, that given the appropriate incentives the industry incumbents are well-positioned to drive systemic change. Then it was established that a business model can be conceptualized as a device for describing how an organization seeks to create and capture value in a given institutional environment, that consists of a *business configuration* (i.e., the definition of material configurations to realize a value proposition) and *institutional tactics*

(i.e., the management of immaterial interaction with external organizations and environment to gain followership). Further, as it was hereby recognized that this conceptualization of a business model sees an organization consisting of the same elements of its surrounding system, these findings were deployed into frameworks for analyzing what incentivizes the brand owners to act as drivers for systemic change and how such ambition could manifest into a business model.

An empirical study was then conducted to develop insights of the experienced drivers, employed means, and potential strategic approaches. Once an overview of the industry conditions was established via secondary data, industry experts' perspectives were collected by semi-structured interviews, which involved informants from brand owners, plastic product manufacturers, a retailer, a consulting company, and industry associations. An analysis of the revealed numerous institutional and business-centric drivers and means for advancing increased utilization of renewable plastics. These findings were then combined with industry insights to derive strategic approaches for simultaneous pursuit of economic and environmental benefits in an inductive manner. Summary of these findings, and the consequent responses to the research questions are discussed in the section below.

## **6.1 Main findings and contribution to literature**

The current industry conditions and outlook do not suggest that a radical technology-driven transition would unfold in the industry in the short- or medium-term. Instead there exist ample indications for a reproduction process (i.e., a period of slow incremental efficiency-targeting developments) taking place in the system. However, the study also indicates that the initiation of a more gradual and evolutionary type of transition is also plausible in the studied timeframe, given the incumbents' proactivity in introducing incremental sustainability-improving solutions.

The fulfillment of the scenarios mentioned above depends on the developments of systemic conditions, which can arguably be influenced by a change-advocate brand owner. Should the current landscape pressures intensify while the niche remains in its current underdeveloped stage, the system will likely head towards a transformation pathway that sees the system adjust its value creation logics in the current technological sphere due to increased pressures from stakeholders. Alternatively, should the landscape pressures remain at their current moderate levels and should the regime engage in accelerated incremental innovation activities in collaboration with the niche, a

reconfiguration scenario seems likely, which sees an incremental transition unfold as a result of progressive technological experimentation.

To understand how these transitions could unfold as a result of brand owner influence, this study set three research questions aiming to explore drivers for such behavior, identify means enabling systemic impact, and derive strategic approaches for driving a sustainable transition, respectively.

### **I. What factors motivate incumbents to initiate or accelerate system-level sustainable change?**

The factors motivating industry incumbents can be categorized into *business incentives* focusing on positive bottom-line impact and asset development; and *institutional drivers*, consisting of regulative, normative, and cognitive pressures. Although the findings point towards the brand owners placing increased emphasis on more sustainable plastics utilization due to increased awareness of internal and external stakeholders, the decision to engage in sustainability-advancing ventures is primarily dictated by short to medium-term prospects of economic benefits.

With an explicit focus on the practical reality of an organization, these findings portray a snapshot of the FMCG industry's strategic conditions as perceived by the brand owners. Existing research of the FMCG industry has mainly focused on the industry level drivers and barriers for a transition towards improved plastics utilization (e.g., Gong, et al., 2020; Ma, et al., 2020). While these findings are valuable in advancing our understanding of the general industry conditions, they fail to inform of the brand owners' attitudes and rationales, which are fundamental datapoints for any intervention considerations. Consequently, this study's key contribution to improved understanding of plastics utilization in the FMCG industry lies in the observation that although the plastics problem has significant implications for the brand owners, most importantly by consumer demand, the issue is mostly external to the companies. The packaging itself does not constitute as a key competitive factor and is thus outsourced by these players. Despite being the largest consumers of single-use plastics packaging, the fact of the matter is that their competitive performance does not rely on their packaging selections. Acting similarly to the consumers, these players will only shop for more sustainable materials once the market is capable of providing them with value, which is defined by guaranteed availability, adequate quality and competitive price. Hence, this study suggests that although there is a general willingness to spend on these solutions at scale,

the related problem-solving efforts are a responsibility of – and a business opportunity for – other industry players.

On a more general note, existing literature discusses the drivers of sustainability transitions, focusing mainly on the business perspective (e.g., Böttcher & Müller, 2015; Siegel, 2009; Husted & de Jesus Salazar, 2006; Schaltegger, et al., 2012). For instance, Böttcher & Müller (2015) distinguish between internal competitive pressures and external stakeholder pressures as the two key categories of motives to pursue more sustainable business models. This study advances the business-centered and stakeholder-driven perspective of past research by extending the observation scope to consider the drivers stemming from broader institutional pressures. While this study agrees that the business aspects are emphasized in organizational decision-making, I posit that negligence of the institutional drivers may alter researchers and practitioners to making premature assumptions of incumbents' transformative capacity, thus discounting one source of change momentum for systemic transitions.

Further, considering that the existing literature provides no similar framework, this study contributes to the pragmatist transition research by providing a holistic tool for improved problem-solving. First, the categorization of drivers to institutional and business dimensions enables enhanced information of the nature of the pressure and hence an improved understanding of how these pressures can be managed. For instance, acting upon business incentives, such as improved cost-efficiency, the decision-making mainly involves quantitative analysis based on tangible factors. Conversely, while acting upon institutional drivers, such as customer expectations, automatically directs attention to institutional work and influence over intangible measures such as values, beliefs, and behaviors. Second, the proposed framework's two-layered structure divides the drivers into mutually exclusive sub-segments, which may facilitate the identification of previously neglected aspects by decision-makers.

## **II. What means incumbents may employ to initiate or accelerate sustainable change?**

The study found empirical evidence of three types of *business configuration* activities and three types of *institutional tactics*, which companies have employed to initiate or accelerate sustainable change. With regards to business configuration, the study identified means across all key business dimensions of *configuration development*, *offering innovation*, and *delivery redesign*. *Configuration development* involves

revision of the value proposition and the tangible connections and procedures by which the value is created, such as strategic objectives and process improvements. *Offering innovation* seeks to deliver improved sustainability by introducing product characteristics improvements or new sustainability-oriented offerings. Finally, *delivery redesign* consists of the modification of the mechanisms by which the organization delivers the goods to the customer and engages with them. Identified means in this domain include channel innovation for improved sustainability and consumer engagement beyond the point of sale to enable reverse-logistics or support circular consumption habits.

In terms of institutional tactics, three types of key emerged. First, means related to *meaning construction* involve creating and articulating visions of novel institutional arrangements (i.e., values, norms, and beliefs) that seek to invoke increased consumer demand or attract partners for followership to advance increased utilization of renewable plastic materials. Second, *collaboration inducement* involves means aimed at bringing together the interests of different groups and inviting partners for problem-solving of mutual issues, by distributing knowledge or assuming responsibilities beyond traditional roles. Finally, *political tactics* involve activities that seek to shape formal rules and regulations to benefit the focal organization by engaging directly with policymakers.

By identifying economically viable and practically feasible and effective means for advancing increased plastics sustainability in the FMCG industry, this study has broken new ground in the research domain of sustainability transitions by going beyond the high-level approaches (Werbeloff, et al., 2016; Bolton & Hannon, 2016; Gong, et al., 2020). In the context of the FMCG industry, these findings provide a highly valuable reference point as to what can be reasonably expected of these actors, given their competitive aims and conditions of their operating environment. The key observation, however, lies in the ways the brand owners distribute costs and risks of their new ventures to compensate for the lack of strong sustainability-oriented business cases. From the business perspective, it seems that corporate-level objectives for reduced fossil-based plastics utilization are essential for stimulating problem-solving for new solutions, as they encourage business units to seek for local solutions with their key partners and establish winning formulas. Moreover, given the inability of charging a premium for sustainability-oriented offerings, product characteristics improvements seem to fit the bill for current brand owner needs: The accumulated benefits from *limited scale ventures* provide significant progress on the corporate-level, thus contributing to elevated brand value and general perception, while not requiring the same investments



as launching new products. Considering the previous, the institutional means related to meaning construction and collaboration inducement that aim to invoke followership and support from other players play a central role in enabling these ventures.

With regards to business model development research, studies have explored business model development (e.g., Osterwalder & Pigneur, 2010; Keeley, et al., 2013; Schaltegger, et al., 2016) and various forms of institutional work (e.g., Smink, 2015; Pacheco, et al., 2010; Siltaloppi & Wieland, 2018; Lawrence, 2006) in isolation. This thesis provides a novel perspective by integrating these two previously separated dimensions into a single structure that simultaneously connects to the key dimensions of a socio-technical system. Consequently, this study sheds light on how both of these dimensions are essential for advancing sustainability transition in the context of plastics packaging, significantly augmenting the findings of Farla et al. (2012) in one competitive setting.

Taken further, this study suggests a perspective on business models as a conceptualization that ties together technologies; actors, their capabilities and their perceptions of reality and meaning; and the institutions in which the aforementioned factors are embedded, to define an optimal configuration for value creation by either exploiting the operating environment or by seeking its transformation. Hence, this thesis extends the perspective of Bidmon & Knab (2018), which describes the functions and roles a business model may serve in a transition. Combining the material and institutional aspects of a system, I posit that a business model is not only a configuration of activity systems needed to realize a value proposition (Zott & Amit, 2010) or a sense-giving tool to mainstream radical ideas (Doganova & Eyquem-Renalut, 2009), but a comprehensive in-context proposition for how to attribute meaning, attract followership, best create value and organize the required material configurations in a given institutional arrangement. Thus, a successful business model ultimately draws on advocacy for a transition or for reinforcing stability.

### **III. How can the brand owners' strategic approaches contribute to the initiation and acceleration of systemic change?**

Given the characteristics of the current operating environment that sees higher adoption of renewable plastics materials being inhibited by lack of demand and lack of supporting infrastructure, the incumbent companies employ a risk-averse, incremental development-seeking and exploitation-oriented approach to advance improved plastics utilization in the industry. This study characterizes this approach as *competitive*

*sustainability*, which primarily focuses on exploiting the established business model and its incremental adaptation to the evolving operating environment conditions. However, the study also indicates that this approach can be deployed strategically to accelerate systemic change in two ways. First, by engaging in *demand development*, a change-advocate can contribute to the building up of landscape pressures, that play an instrumental role in initiating a systemic transition along the transformation pathway (a transition caused by external pressures, triggering regime players to modify practices) conceptualized by Geels & Schot (2007). Second, by engaging in *infrastructure establishment*, a change-advocate can contribute to the progressive incremental technical development of circularity-enabling infrastructure, which is the key transition driver in the reconfiguration pathway (a transition enabled by progressive technological experimentation yielding novel combinations and reconfiguration of player roles). Moreover, this study suggests that these strategies are not mutually exclusive or disruptive to established operating models, but instead are extensions to competitive sustainability that may – and potentially should – be pursued simultaneously for maximized systemic effects.

Previous research has focused on describing the drivers and challenges involved in advancing improved plastics sustainability management, with a common emphasis on individual innovations or initiatives (Dijkstra, et al., 2020). The identified approach of *competitive sustainability* provides unprecedented insights into how the brand owners interpret the pressures for improved environmental performance in the current FMCG industry and how and to what extent they translate to organizational action as a part of continuous business operations. The recognition of this approach has two significant implications for evaluating the outlook of the industry. First, barring spectacular innovations that could simultaneously solve the issues of renewable materials high prices, low quality, and inadequate supply, it is likely that the FMCG industry transformation to renewable plastics utilization will advance incrementally. Second, given the incumbent relative activity in advancing increased utilization of renewable materials and the fierce competitive dynamics, feasible novel solutions are likely to diffuse rapidly in the environment. Thus, providing antecedents for a scenario where the industry experiences sporadic periods where transition advances in an accelerated fashion. To summarize, the concept of competitive sustainability underpins how the brand owners can act as a source for stability, as well as an engine for change in the industry. These findings are highly valuable to any actor seeking to deliver solutions for improved plastics utilization, as they frame the context for players responsible for the largest application of single-use plastics.

The MLP framework has been criticized for its bias towards exogenous explanations for change (e.g., Werbeloff, et al., 2016; Zolfagharinan, et al., 2019; Smith, et al., 2010) and almost exclusive emphasis on niche players as a source for transformative forces (e.g., Brodnik & Brown, 2018; Werbeloff, et al., 2016; Berggren, et al., 2015). This study contributes to this debate by drawing attention to how organizations may shape their external environment and how regime actors can contribute to the unfolding of systemic change. Although the results do agree with the general consensus of prior institutional entrepreneurship (e.g., Garud, et al. 2007; Lawrence, 2006) and MLP (e.g., Geels, 2004; Werbeloff, et al., 2016) literature in maintaining that the industry incumbents are prone – and highly incentivized – to reproduce the established structures and ways of doing, the essential contribution lies in the divergent observations. This study indicates that given sufficient incentives, the incumbents are willing to voluntarily engage in activities that seek to divert the regime’s trajectory. This is evidenced by the informant companies’ positive attitude towards and activity in conducting sustainability-oriented ventures. Additionally, the study provides evidence of the incumbents’ potential of playing an essential role in advancing change, by acting as an important source for and diffusers of new solutions and perspectives in a system. While some authors have recognized the transformative capacity of incumbents by radical departures from established practices (e.g., Berggren, et al. 2015, Bohnsack & Pinkse, 2017), this study extends this perspective by providing an account how systemic outcomes can also be achieved by incremental development activities that seek to complement existing operating models.

## **6.2 Limitations**

In interpreting the results of this study, some key limitations must be considered regarding its generalizability, validity, and reliability. The generalizability of the findings is limited to large brand owners’ perspective and the researched business environment. The drivers, challenges, and applicable means may vary according to the focal company’s supply chain role, given the differences between business models in each position. For instance, Salminen (2020) thesis describes how raw materials suppliers approach business model development and renewable plastics innovation. The critical functions from their perspective include high exposure to technical R&D, improved transparency and traceability in value chain, creation of separate exploration-oriented business units, and internalization of valuable solutions. This explorative innovation-oriented approach differs vastly from brand owners, who benefit more from the exploitation-oriented

approach of competitive sustainability, which seeks to distribute solutions, risks, and costs among partners.

Furthermore, the sample represents the representatives' perspectives from brand owners, plastics product manufacturers, industry associations, and retailers operating mainly in the FMCG vertical's Northern European business area. Thus, the market conditions (i.e., consumer expectations, regulation, competitive environment), the applicability of identified means, and consequent proposed strategies are contingent to this industrial environment, which is infrastructurally more advanced and societally more sustainability-oriented than many other business areas.

Another limitation involves longitudinal bias influencing the study's validity, which should be considered when interpreting the results. This study was conducted over a limited period of 6 months, whereas socio-technological transitions unfold over timespans typically measured in years or decades. Consequently, the constructed perspective of the industry conditions and its future trajectories is based on retrospective expert accounts of past events and their expectations for future developments. Hence, a more sophisticated understanding of the systemic conditions and actor influence on its development would require repeated observations of the system over an extended period. Moreover, the reliability of the results is exposed to the subjective biases of the informants and the researcher. Thus, the findings' quality depends on the researcher's ability to capture the interviewees' perspectives and analyze them in-context correctly. To overcome these issues, the industry insights put forth by the interviewees were constantly validated in interviewees with representatives from other companies. Additionally, both the interview and the analysis phases involved two researchers engaging in open discussion of the possible interpretations to alleviate the threat of individual biases in data analysis.

## 7 Conclusions

This section will conclude the findings of the study. First, I will discuss how practitioners in the FMCG industry can benefit from the insights generated in this thesis by providing recommendations for managers in the FMCG industry and policymakers. Second, I will provide suggestions for future research agendas in transitions research, business model research, and improved plastics utilization in the FMCG industry.

### 7.1 Implications

A transition from fossil-based plastics is motivated by factors with global influence. Should the utilization of plastics maintain its current high-growth trajectory, by 2050, the sector will account for 20% of the total global oil consumption and 15% of the global annual carbon budget, which needs to be adhered to in order to maintain global warming below the 2°C increase. Additionally, upon writing this thesis, an amount equal to a full garbage truckload of plastics waste leaks to oceans every minute – a staggering pace that is only expected to increase. Given that plastics packaging, the largest plastics' application, constitutes 26 % of the global production volume and is characterized by being almost exclusively single-use, the players in the FMCG industry play a central role in decreasing the utilization of fossil-based feedstock, improving the circularity of plastics and reducing its leakage to the environment.

The findings of this thesis shed light on the drivers for acting as a change-advocate for increased utilization of renewable materials, the means at disposal for realizing these aims, and consequent strategic approaches the FMCG industry's brand owners may pursue to accrue simultaneous success in economic and environmental performance. Hence, this thesis provides valuable insights into how a transition towards increased utilization of renewable plastics can be advanced – even in a competitive setting.

#### **Implications for managers in the FMCG industry**

The findings of this study provide concrete suggestions for managers in FMCG industry to develop or adopt more sustainable plastics solutions, while simultaneously contributing to positive economic performance. First, the findings provide managers with a toolkit of the concrete available to them to advance renewable plastics' adoption. Managers in the FMCG industry are likely well aware of the key challenges as well as the key opportunities related to increased adoption of renewable plastics; tentative demand

and infrastructural challenges make radical moves too expensive or too risky, but addressing the plastics issue proactively may contribute to increased security of long-term business operations or enable new opportunities for value capture. By providing practical examples of how companies have advanced their sustainability-seeking aims in-context, this thesis has shed further light on how FMCG companies may follow their dual aims of improved economic and environmental performance and what kind of outcomes can be expected from such ventures, given the constraints of their operating environment. Although the list of individual means is likely not completely exhaustive, the second-order themes provide a comprehensive framework for describing the scope for activities that should be involved in analysis of how renewable plastics utilization can be advanced in an organization.

Second, the findings encourage managers for increased awareness of how an organization can influence its environment for its competitive benefit. This study connects an individual organization to a broader context of a socio-technical system and its transition. It is likely widely recognized that an organization is shaped by its external environment; however, this study also draws attention to how an organization can shape its external environment. Thus, this study encourages contemporary managerial consideration of when, or under what circumstances, should an organization abandon its reactive responses to developments in its operating environment and instead seek to influence its external environment for its strategic benefit. Drawing on the same dynamics as the frame flexibility concept put forth by Raffaelli et al. (2019), this contemporary thinking may help organizations broaden their innovation practices and consequently yield competitive benefits. To support this analysis, this study provides frameworks that connect a business model to the attributes of a socio-technical system, hence enabling the consideration of what particular means need to be deployed by which business functions to initiate or accelerate company-benefiting systemic change.

Taken further, the recognition demand development as an essential means for creating improved business cases for sustainability-oriented offerings arises an interesting agenda for future business development in the FMCG domain. The BigTech players' services largely thrive on their capability to shape their user's behavioral patterns by introducing ingenious engagement mechanisms such as likes or notifications. In the context of the FMCG industry and improved plastics utilization, there is an opportunity for innovative consideration if, how, and to what extent these mechanisms can be applied in the traditional retail business domain to incentivize beneficial customer behavior.

### **Implications for policymakers**

This study has explored the challenges, opportunities, incentives, and means for brand owners to drive systemic change towards increased renewable plastic materials utilization. Moreover, the study has drawn attention to the significant role brand owners may play in advancing transition as developers and diffusers of new solutions. Thus, the study's findings may help policymakers better understand the strategic motives that guide brand owner action and improve their chances of harnessing that transformative capacity to advance their aims of increased renewable plastics utilization.

An essential observation from the policymakers' perspective is that the brand owners, and quite likely other private organizations in the FMCG industry, ultimately base their decisions of engaging in sustainability-oriented ventures on its implications to business performance. Despite the increased awareness of global warming and the adverse environmental impacts of plastics utilization, the consideration on an executive's table remains strategic: In what circumstances does it pay-off to be proactive and not merely seek compliance with the regulation? In the current circumstances, the investments required to drive abrupt systemic change towards fossil-free plastics economy are simply too large or risky for private companies to be conducted solely on the basis of alleviating external pressures that do not pose an immediate threat to business operations. Hence, the key consideration for policymakers is how the principles of improved plastics economy can be coupled to competitive organizations' aims by means of regulation.

To illustrate the previous, Lauridsen & Jørgensen's (2010) study of the challenges of the European Union's Waste Electrical and Electronic Equipment directive (WEEE) provides an evocative example of how effective top-down policies can be in imposing transitions, yet simultaneously highlights their vulnerability to evoking sub-optimization by the affected companies. In this case, the waste reduction-seeking directive has failed to introduce mechanisms that provide competitive incentives for companies to seek improved product designs to reduce electronic waste. This failure happened due to the collective schemes failing to identify or differentiate the products of different manufacturers in the waste stream. Thus, charging all companies the same flat fee based on trivial measures of total weight or number of products. Considering the previous, the strategic drivers identified by this study can be considered a valuable contribution for policymakers in their efforts to accelerate a transition towards a more sustainable plastics economy.

## 7.2 Suggestions for future research

The observations of this study invoke various suggestions for future research in the domains of transition studies, business model research and the FMCG industry. First, considering that the arguments made for industry incumbents acting as change agents are highly theoretical, future transition research should seek to test this perspective in practice. A fruitful starting point for such research could involve a longitudinal case study looking into transitions of traditional product-oriented mass-production industries, which involve dispersed global supply chains and dependence on broad infrastructural developments. This context is interesting as it offers fewer opportunities for radical internet technology-driven innovation, and therefore could be a feasible domain for further insights of competitive sustainability.

Second, another exciting opportunity lies in a systemic perspective to business model research. Building on the insights of Bidmon & Knab (2018), this study has employed a perspective of business models as a device, which enables focus on the local level of an individual organization yet links its actions to the meso- and macro levels of a broader system. By defining business models as a construct comprising of institutional and economic dimensions, this thesis has made the argument that a business model can be seen constituting of the very same elements and structures as its surrounding system (Geels & Schot, 2007). Therefore, a business model is a useful tool for analyzing the relationship between the actions of individual agents and systemic change. Consequently, an interesting avenue for future research could be to further explore this perspective and employ a systemic lens to business models and business model innovation. An especially intriguing research subject could seek to evaluate how a systemic perspective to business models can improve a focal company's competitive performance.

Finally, future studies could seek to extend this study's perspective to other FMCG industry players to identify systemic interventions to drive a transition towards renewable plastics utilization. This study has contributed to an improved understanding of how brand owners address the plastics issue as a part of their business operations and how they can act as drivers for a transition towards increased renewable plastics' utilization. As the pressures experienced and the business models employed by the organizations depend on their position in the value chain, future research could set out to systematically explore the perspectives of vertically adjacent players to contribute to a more comprehensive snapshot of the industry conditions. Although this thesis and the



thesis of Salminen (2020) have shed light on the perspectives of brand owners and the raw material suppliers, respectively, it remains unclear who are the industry players that occupy the most central position for driving a renewable plastics transition in terms both the order of magnitude of potential influence and size business of opportunity. In other words, future research could seek to complement the aforementioned studies by extending to the perspectives of, for example converters and retailers, to establish who are the players in the industry who are set to benefit the most from a transition? Who is the player driving the material choices in the industry? Or, conversely, who are the ones under the most pressing threat of having to close their shop if they fail to renew their business? By addressing these questions, future research has a significant opportunity to contribute to improved understanding of the context of the plastics problem in the FMCG industry and the involved mechanisms, which provide valuable feedstock for any considerations of future systemic interventions.

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# Appendix

## Appendix 1: Interview guide

### Intro

#### 1. Background and current business

- 1.1. Interviewee: name and title, job description and responsibilities?
- 1.2. Company/organization in brief?
  - 1.2.1. Main products and services?
  - 1.2.2. Main customer segments (industries, markets, consumers)?
  - 1.2.3. Operations (i.e., breadth of processes to deliver the offering)
- 1.3. What is the position of your company in the plastics value chain?
  - 1.3.1. Key offerings that produce or utilize plastics?
  - 1.3.2. Which parts of design and production do you do-in house?
  - 1.3.3. Main partnerships & partners' role
  - 1.3.4. Which parts of your offering or processes utilize bioplastics or circular economy solutions?

### Driving systemic change

#### 2. Company perspective

- 2.1. Are you currently engaged or have you been engaged in initiatives that advocate for more sustainable plastics economy? (processes, marketing, collaboration, lobbying)
- 2.2. What do you consider the most important **means or solution components** at your disposal for driving sustainable change?
  - 2.2.1. Operational aspects (i.e., offering, processes, delivery models, R&D, collaboration)
  - 2.2.2. Influencing the broader environment (i.e., customer education, collaboration, or lobbying)
- 2.3. What are the most interesting **development areas** or key **challenges to solve** to drive sustainable change from your organization's perspective?
  - 2.3.1. Business configuration (offering, processes, delivery models, supply chain)
  - 2.3.2. Institutional environments (regulation, public opinion, reputation)
- 2.4. In your view, what are the main **drivers** that push your company [companies in general] to develop / adopt renewable plastics?
  - 2.4.1. Business incentives (risk mitigation, sales, brand value, regulatory compliance)
  - 2.4.2. Institutional incentives (reputation, acceptance, bandwagon effects)
  - 2.4.3. Is there a business case for more sustainable plastics solutions? (Value prop.-market -fit)
- 2.5. How would you evaluate the success or impact your company's sustainability initiatives?
  - 2.5.1. *Benefits* yielded by initiatives? (commercial, societal, environmental)
  - 2.5.2. *Success factors* or *challenges* related to the aforementioned initiatives?
  - 2.5.3. Contribution to bringing about *systemic change*?

#### 3. Systemic perspective

- 3.1. How relevant a **challenge** or an **opportunity** is the emerging transition towards bio-plastic or circular economy solutions to current business operations of your company? (Short and long-term)
  - 3.1.1. Commercial perspective (customer retention, new market segments)
  - 3.1.2. Societal perspective (reputation, environmental footprint)
- 3.2. What do you consider the **most promising starting points** for drive systemic sustainable change?
  - 3.2.1. Firm's strategies, capabilities and business models?
  - 3.2.2. Inter-organizational collaboration?
  - 3.2.3. Customer education?
  - 3.2.4. Regulative environment?
- 3.3. Conversely, what are the main **challenges / barriers** that inhibit change in the plastics industry toward renewable raw materials?
  - 3.3.1. Technological (after-use infrastructure, technical properties of new materials)
  - 3.3.2. Market (consumer preferences, lack of business cases)
  - 3.3.3. Company (risk-aversion, lack of control, supply chain complexity)
  - 3.3.4. Ecosystem (regulation)
- 3.4. Which actor(s) should be the one driving the development towards a more sustainable plastics economy?
  - 3.4.1. Who stands to benefit most from the increasing use of renewable or bio-plastics?
  - 3.4.2. Who has the most to lose?
  - 3.4.3. Who has most power to accelerate/inhibit systemic change?
- 3.5. How would you describe the assumptions and expectations of you main stakeholders regarding more sustainable plastics utilization?
  - 3.5.1. Have these assumptions changed in recent years? How? Why?
- 3.6. What role do laws, regulations and industry standards play in the wider commercial use of bioplastics?
  - 3.6.1. By what means does your company seek to influence policymakers? Why?