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Exploring incumbent firm and disruptive innovation factors and reactions: A preliminary literature review of disruption research in the last 20 years

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Abstract

In an era characterized by digital transformation and rapid technological advancement, understanding the phenomenon of disruptive innovation (DI) and shedding light on its evolution and implication for incumbent firms is paramount. This study employs a preliminary literature review to identify key works and methodologies in DI research; it delves into empirical analyses, qualitative studies, and theoretical reviews to identify key trigger events, domains, and methodologies associated with DI. Cross-industry findings reveal the critical importance of aligning innovation with domains related to value creation models, digital technologies, and organizational culture. Incumbent firms face challenges from overlooked trigger events such as customer changing needs, business model innovation by entrants, new disruptive technologies, management perception and business performance. The research underscores the complexity of DI and suggests a need for business model adaptation from incumbent firms, emphasizing a shift towards customer orientation and dynamic capabilities. This study contributes to the strategic management literature by proposing avenues for further exploration, including the development of a conceptual model to guide strategic decision making in a situation of disruption.

Keywords: *disruptive innovation, market disruption, business model adaptation, value creation, incumbent*

Introduction

The world has continued to move towards a digital future over the years. We are living in an era of transformational change, rapid advances in technology and unprecedented access to information, talent, and digital resources. Therefore, today's customers are more informed than ever before; they grow increasingly tech-savvy and demand fast, seamless and well-informed digital experiences. This constant revolution enables relatively small companies, startups, or even individuals to disrupt the status quo and challenge established services and companies. In response, such ongoing disruptions require new approaches on the part of companies, regulators, market, individuals and the society. In this context, this study outlines the research questions and research methodology (planning and conducting the review, content analysis) to explain the process of finding relevant articles from leading databases. The main aim of our work is to conduct a review of disruptive innovation (DI), identifying major works in order to answer what is DI, the evolution of the theory (antecedents of change and definitions), its domains and applied methodologies. Therefore, this study aims to comprehensively report on areas of interest, key trigger events and the main disruption factors as well as explicate the applied methodologies of conducting disruptive innovation and track their evolution over time.

Methodology

Given the broad coverage of disruptive innovation research, a preliminary cross-disciplinary and multi-field literature review was used. Specifically, this study is focused on strategic management, marketing and innovation research disciplines and covers a variety of important views to conceptualize strategic decision making in a situation of disruption. Until now, customer preferences, personalization of marketing mix elements, co-creation design and effective firm-customer engagement have received the most attention from marketing researchers. The strategic management literature has mostly focused on the conceptualization, operationalization and adaptation of business models. In the innovation literature, researchers have paid strong attention to disruptive innovation, new age technologies and specific strategic alliances with IT providers or startups. Drawing on the above-mentioned research disciplines, the researcher also uses a cross-industry approach in order to identify common patterns and better understand the existent knowledge on disruptive innovation. To perform our study and answer the research questions, we used the Web of Science (WoS) master journal list to identify relevant articles because this database is "popularly used in systematic reviews". As a result, 100 peer-reviewed studies published between 1990 and 2023 were selected. The reason for the year 1990 as a cut-off line is that the 1990s saw the advent of disruptive technologies (latter disruptive innovations), a concept that Christensen (1997) introduced to explore why incumbents may lose ground to innovations introduced by challengers. The 21st century is best described as an era of continual disruption in which technological changes and new business models are affecting not just

individual firms, but entire industries and ecosystems (Kumaraswamy et al., 2018). We searched the database for academic articles containing the term “Disruptive Innovation” or “digital transformation” in the title, abstract or keywords. The larger set of the reviewed leading articles dates from 2010 onwards due to the growing importance of digital transformation and the notion of disruptive innovation. Concepts and terms such as “Business Model Innovation”, “Radical Product Innovation”, “Technological Innovation”, “Disruptive technologies” and “New Market Disruption” are often used interchangeably to describe what is effectively DI, strategic change and digital transformation.

Findings and Discussion

This section presents the findings with respect to the proposed research questions starting with a preliminary review of the literature on disruptions and the need for strategic change.

1.1. What is disruptive innovation?

Strategic discontinuities and disruptions often challenge incumbent firm’s ability to adapt and survive (Cozzolino et al., 2018). Under these circumstances, organizations can show ‘active inertia’, which is their inability to take the appropriate action in the face of shifting market and business changes (Morgan and Page, 2008). Dalpiaz et al. (2018) referred to strategic change as transformative when it is characterized by constant, evolving and cumulative changes that lead to a radical organizational business transformation over years. In other words, transformative changes occur through continuous instances of change over the years and are documented in different contexts, including top performing environments and traditional industries. Drawing from "Perspectives on Disruptive Innovations" (Kumaraswamy et al, 2018), disruptive innovation, represents a transformative force that fundamentally alters established markets or industries through the introduction of novel products, services, or business models. It is a distinct transformative process that redefines performance metrics or alters value creation and capture, ultimately ‘disturbing’ established markets or industries (Cozzolino et al., 2018). While disruption was initially examined through the lens of technological evolution and dominant designs in prior decades, the concept of disruptive technologies, introduced by Christensen in the 1990s, reshaped this discourse. More specifically, it initially centered on "disruptive technology," referring to technologies initially inferior in attributes valued by mainstream consumers but excelling in overlooked aspects. Disruptive innovation initially developed by Schumpeter in 1942 as a guide for early works around this theory.

Over time, these technologies evolved, surpassing dominant ones in specific markets. The concept, as articulated by Clayton M. Christensen, extends beyond technological disruptions, encompassing product and business model shifts. It transforms markets by making products simpler and more affordable, broadening accessibility to a new demographic historically excluded due to cost or expertise. Christensen's theory, presented in "The Innovator’s Dilemma" (1997) and expanded upon in other works like "The Innovator’s Solution" (co-authored with Michael E. Raynor, 2003), changes the term “disruptive technology” to “disruptive innovation”, broadens the application to include not only technological products, but also services and business models as well as explores why incumbents often fail to anticipate disruptive shifts, guiding companies on embracing disruption as innovators. For our research study, it is important to craft a novel definition of disruptive innovation that encompasses the introduction of novel products, services, or business models that initially serve niche markets, challenging existing norms and gradually gaining momentum and ascending to disrupt established industry incumbents. Gha et al (2023) seek to distinguish disruptive innovation from radical innovation. Radical innovations introduce entirely new ideas or products, focusing on understanding organizational behaviours facilitating their implementation (Hopp et al., 2018). Disruption does not necessarily align with radical innovations; rather, it involves the introduction of distinct attributes in a low-end or new market, differentiating it from sustaining technologies that enhance existing products (Christensen et al., 2015). Incumbents, tend to overlook disruptive innovations initially (Bower & Christensen, 1995). The distinction between the two innovations becomes apparent in the behaviours of early adopters who possess deeper product knowledge compared to those adopting sustaining products (Reinhardt & Gurtner, 2015). It commences with innovators identifying and appealing to niche markets, eventually attracting mainstream consumers, thereby creating a new market space (Bower & Christensen, 1995; Gha et al, 2023). In the literature review of Steve Si and Hi Chen (2020) state that it occurs when a new technology outperforms the prevailing one, leading to firm disruptions when market shares of new technology beneficiaries exceed incumbents. Disruptive innovation is not confined to technology; it fundamentally alters paradigms, creating new demands, competitors, and operational methods.

At its core, disruptive innovation challenges the status quo by presenting novel products and services that, although initially inferior in terms of performance or features compared to existing mainstream and well-established offerings, possess the advantage of being more affordable or accessible. These innovations carve a niche within market or customer segments that are either overserved or overlooked by established incumbent firms. The critical essence of disruptive innovation lies in its evolutionary trajectory. The literature review in the "Journal of Engineering" (2020) expands on this by emphasizing the distinctive traits of DI. It highlights how these innovations, while initially catering to unmet needs or overlooked market segments, gradually gain traction and disrupt incumbent market leaders. They reinterpret 'creative destruction,' initially entering simpler market segments and progressively displacing existing competition as they move upmarket. Over time, these initially inferior innovations steadily improve their performance and become a significant threat to incumbents, while remaining cost-effective or more accessible compared to incumbents' offerings (Kumaraswamy et al, 2018). Eventually, this progression reaches a pivotal point where the DI attains a level of quality that mainstream customers choose this alternative unsettling the established market dynamics (Petzold et al., 2019).

The 'Innovator's Dilemma' encapsulates the predicament faced by incumbents in responding to disruptive innovation. Incumbents, deeply entrenched in refining their existing solutions, often overlook or disregard these initially inferior innovations, which later evolve to challenge their market dominance. Attempting to compete directly with these disruptive newcomers might mean cannibalizing their own profitable offerings, leading to a reluctance to embrace change. This model of disruption introduces a temporal facet to the concept, emphasizing the evolution of disruptive products or services over time rather than solely focusing on the outcome of unseating incumbents. It outlines a path from the periphery to the mainstream, acknowledging disruptions as a continuous process rather than a singular, outcome-driven event (Kumaraswamy et al, 2018). However, the outcome of disruptive innovation is not fixed; it varies depending on individual business structures, being disruptive to some and sustainable to others (Christensen et al., 2018). Danneels (2004) offers an alternate perspective, stating that disruptive technology changes competitive dynamics by altering performance metrics. New innovations, possess different attributes with lower mainstream market performance but higher potential in emerging markets. Over time, these innovations meet mainstream market demands, intensifying competition for incumbents (Gha et al, 2023). In navigating this landscape, incumbents are advised to proactively engage with disruptive innovation by fostering separate organizational units to manage and potentially adopt these innovations. This proactive approach aims to pre-empt the decline faced by incumbents when confronted by matured disruptive innovations. Thus, disruptive innovation delineates a transformative, evolutionary force that reshapes industries by gradually appealing to mainstream markets, challenging incumbents, and necessitating proactive strategic responses to avoid obsolescence.
This theory has spurred a wealth of research and resources aiding businesses in recognizing and leveraging disruptive innovations. However, critiques, notably MaryAnne M. Gobble's exploration challenges Christensen's theory, highlighting instances where the term "disruptive innovation" is inaccurately applied to any industry upheaval, regardless of the presence of a genuine DI. It underscores the evolving nature of disruptive innovation, questioning the applicability of traditional theories in a rapidly changing business landscape, thereby highlighting the necessity for continual reassessment and adaptation of established concepts. Disruptive innovation, as conceptualized by Christensen et al (2018), has undergone evolution and interpretation but remains enshrouded in vagueness and post hoc definitions. Despite its widespread recognition, misinterpretations persist while misapplications undermine managerial decisions clouding the concept's core and impacting success rates. The lack of conceptual clarity impedes theory advancement, necessitating a comprehensive understanding and precise definition to guide effective managerial responses amid industry upheavals (Si & Chen, 2020). Christensen tried to clarify that not every innovation is disruptive; it evolves as a process, originating in low-end or emerging markets and entering the mainstream only when quality matches consumers' expectations (Christensen et al., 2015). He emphasizes that not every disruptive product or service is innovative, highlighting cases like Uber, a popular service not initially from a low-end market or inferior compared to existing options.

1.2. What are the trigger events identified for market disruption?
Given history and ongoing challenges, why call for transformational change? What are the antecedents of change? In other words, what are the "unfiltered" views of the internal/external environment that challenge existing orthodoxies and strategic development processes, leading to the need for transformational change? It would be helpful to understand how much research attention has been given to each trigger event, analyze and explain the most important factors that influence disruptive innovation. Some researchers simply categorize them into two dimensions, i.e. external and internal (Steven Si & Hui Chen, 2020). Below we mention five (5) external and two (2) internal trigger events driven by digital transformation to illustrate the different types of disruptions that incumbent firms are experiencing during extraordinary times, which call for theorizing the antecedents of change in Disruptive Innovation research.

- Disruptive technologies available in the market

Digitization is reshaping everything. The literature highlights that incumbents frequently lose their advantage after discontinuous technological changes. A discontinuity "offers sharp price-performance improvements over existing technologies" because it is a "technical advance so significant that no increase in scale, efficiency, or design can make older technologies competitive with the new technology" (Tushman and Anderson, 1986. A similar example of discontinuity is the initial technological disruption of film photography by digital imaging, which later replaced film-based photography and caused the failure of Kodak. Clearly, the internet is a discontinuous technological change for old-line physical manufacturing and distribution assets held by incumbents in many industries (Cozzolino, 2018). The wide entrance of new technologies into an industry and the speed of their adoption (diffusion) can trigger behaviours of organizations towards business transformation considerations. In the 1990s, Cisco and Microsoft reinvented computing/networking while 10 years later in the 2000s we saw the rise of internet, Web 2.0, voice or wireless technologies disrupting the world business environment (Morgane and Page, 2008). In addition, incumbents fail when innovations introduce a performance relative to the existing mainstream market offers due to the emergence of "disruptive technologies" (Petzold et al, 2019). In the context of technology's increasing importance, four "new-age technologies' ' – the Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), and Blockchain – are particularly noteworthy in the literature as stated by Kumar et al. (2020). Hadengue et al. (2017) highlights the characteristics of the disruptive technologies given by Christensen, who defines them as being "typically cheaper, simpler, smaller, and, frequently, more convenient to use than the existing product".

Disruptive technologies also create different kinds of markets, pose radically different challenges for incumbents, and have different managerial implications; they tend to come first and do not necessarily paralyze established firms, but rather can offer new opportunities to adopt new technologies (Cozzolino et. al., 2018). The availability of disruptive technologies create opportunities and open new markets triggering business model adaptation (BMA) in incumbents (that is, new forms of value creation, experimentation and capture). Contrary to the innovator's dilemma that incumbents do not allocate resources and efforts to technological disruptions (Christensen, 1997), they found that incumbent firms are likely to invest and experiment early when disruptive technologies make new factors of production available, showing an admirable pattern of early innovation and investment. Another example of opportunities is the rise and adoption of the emerging digital technologies that have strengthened the development of e- commerce projected to have far-reaching effects on business (Verhoef et al, 2019). MacCausland (2023) recently stated that "the next great disruptor is already upon us" with references to ChatGPT and DALL-E, a "disruptive innovation" by OpenAI that may produce high disruption across many industries. AI isn't new, but those tools open up access to transformational capabilities, from creative writing to art and computer programming, to a much larger population and at a much lower cost.

- New disruptive business models by entrants

Digitization further attracts newcomers attempting to disrupt existing markets (henceforth disruptors/new entrants) to markets from a broad range of industries (Gauthier et. al, 2018; Kumaraswamy et. al., 2018) through which a specific process of disruptive innovation takes place and incumbents are ultimately disrupted by new entrants. From a theory standpoint, entrants find ways to commercialize previous disruptive technologies, orchestrate external sources of knowledge (rather than produce knowledge inside out) and introduce new disruptive BMs to redefine the meaning of value creation and capture. Therefore, entrants threaten incumbents' established business with the prevailing logic, structure, and culture, while the latter remain trapped in sustaining technologies and eventually fail to react and further adapt their own business models (Cozzolino et. al., 2018; Khanagha et. al, 2018). Theoretically, we distinguish the first two types of disruption between the emergence of disruptive technologies and the arrival of entrants introducing disruptive BMs to exploit new-age technologies. These first two phenomena have different effects on incumbents, are likely to occur during different moments in time, and only the second type can threaten them and lead to failure—if established organizations do not adapt their business models. Therefore, the emergence of entrants employing new disruptive models tends to represent a threat and induces incumbents to respond more defensively, through 'alliances and acquisitions' to speed up the adaptation process. Moreover, the eventual substitution of old-line incumbents by new entrants is what Schumpeter theorized as the process of creative destruction in 1942 (Cozzolino et. al., 2018).

- Changing demands of stakeholders

Consumer behavior is changing as a response to the digital revolution. Studies on changing BMs highlight also other changes in the external environment, such as changing customer preferences and needs (Foss and Saebi, 2016). Customers who perceive the new technology to be truly disruptive might demand more and new innovative solutions, as they might perceive this technology as central to their own survival. Customer heterogeneity also increases the challenges for incumbents in responding to digital disruption since it makes it more difficult for them to anticipate future demand and new customer behaviors (Khanagha et. al, 2018). Market figures by Verhoef et al (2019) showed that customers are shifting their purchases to online stores and 'mobile friendly' touchpoints while they have become more connected, informed, empowered, and active than ever before. Digital technologies allow them to co-create value by customizing their products, performing last-mile activities, and helping others by sharing product reviews and comments. Consumers also strongly rely on AI based technologies and apps that are likely to structurally change their daily behavior, become the new norm and alter traditional business models. However, it is noted that the expectations of various stakeholders that have an interest in an organization's activities may apply pressure on the way it operates and acts upon (Morgane and Page, 2008). If incumbent firms cannot adapt to these changes, they become less attractive to customers, and are likely to be replaced by new players that leverage such technologies and introduce innovative forms of behavior (Verhoef et. al, 2019; Kumar, 2020).

- Intense global competition

Our competition landscape has also dramatically changed due to these new digital technologies. Not only has the competition become more global, the intensity has also increased as big, data-driven companies start to dominate and disrupt a set of firms, industries and ecosystems. Notably, changes in firm valuations strongly reflect this shift as the S&P's most valuable firms are all digital compared to some years ago. Industry discontinuities such as significant or even moderate shifts in the way industry players compete and the increased level of inter- and intra-type competition are making incumbents act as a driver of firm's needs to innovate their BMs (Schneider and Spieth, 2013). British Airways successfully transformed its core business operations to respond to the challenge posed by cut-price airlines such as EasyJet (Morgan and Page, 2008). Factors such as government, policy makers, market demand, innovative contexts, periodic variation of innovation, industry structure, network externalities, and economies of scale, the technological and customer capabilities of sub-markets in the same industry, have also impacts on the incumbent firms' behaviors and response strategies (Si and Chen, 2020).

- Systemic disturbance of unforeseen changes

According to Foss (2020), systemic disturbance is defined as "the impact and consequences at systemic level not just upsetting relations between firms and their stakeholders but also hitting across multiple industries and economies". Foss and Saebi (2016) highlight the increasing importance placed on innovation and knowledge as value-creating attributes in situations where there are major and unpredictable changes in the business environment. Situations of deep uncertainty and severe disruption induced by COVID-19 pandemic or an economic crisis will provide a psychologically based interpretive lens that could lend great insight into decision making in extreme conditions. Analyzing how companies reacted to the pandemic and found solutions spanning entrepreneurship and customer centricity offers a unique opportunity to build knowledge, seek new areas of growth and shift business models towards new sources of sustainable competitive advantage. It is hard to argue that the COVID-19 disruption was a systemic disturbance, potentially accelerated by both the virus itself and the public health interventions aimed at locking down countries worldwide. Decision making in this disruption was related to "novelty, complexity and open-endedness" and lack of clarity on what should be the right responses to overcome this 'rising threat'.

In addition, after analyzing the literature, we found that some researchers and practitioners have considered different levels when they study and apply the theory regarding the internal antecedents of change. Based on the influence factors of disruptive innovation, we suggest two more events with internal focus, at the individual and firm levels of analysis.

- Management perception, inertia and ability (individual level)

The individual level is mainly about the personal characteristics of managers in incumbent companies and considered as key factors that influence how firms respond to disruptive innovation. Shifts within the senior management team power balance can alter the perceived priorities for business transformation and dramatically affect the way change is perceived and acted upon. As new executives are appointed, alternative ways of thinking and managing are introduced which can revive the business. So, manager's perception is seen as an important factor of disruptive innovation; they will resist if they consider it as a risk and they will support it if they find it as an opportunity. Their psychological inertia, cultural fit, flexibility or management style also play a key role towards resistance, unwillingness and maintenance of status quo intuitively, to continue to serve existing customers with traditional business models – leading businesses fail to effectively respond to disruption (Si and Chen, 2020). However, if senior managers remain in the same positions for long periods of time, the 'dominant management logic' is developed which tends to change from the origins and requirements of the business. Thus, the experience of managers may limit the managers' ability to take risks, shift their management style and strategic decision making during disruption. New roles are evolved and needed within firms with increasing emphasis on business transformation to integrate business, technology and finance boundaries (Morgane and Page, 2008).

- Performance decline and relationships (firm level)

Si and Chen (2020) believe that whether incumbents can lead disruptive innovation depends on various factors at the firm level ranging from corporate marketing strategy to business performance and new partnerships. A large amount of evidence exists (Morgane and Page, 2008) to analyze that organization with declining performance need to embrace radical change, adapt their models and stimulate a business turnaround. In addition, dependence on mainstream customer resources or established relationships between incumbent firms and partners / suppliers create a push–pull transformation approach where integrated supply chain management becomes the end goal. However, when an overlay of other business partners in the network is introduced, system pressure in managing disruptive innovation in different groups within an incumbent firm and greater need for disruptive innovation arise as does the complexity of the disruption process.

1.3. Which domains or areas of interest are mostly mentioned in the research and impacted by disruption?
The intersection of multiple fields and industries such as automotive (Pinkse et al, 2014; Christensen et al, 2015), healthcare (Christensen, 2008; Amit et al., 2001; Rothaermel et al., 2007; Gauthier et al., 2018; Loonam et al., 2018; Qile He et al., 2020; Lindsay, 2010), telco (Fuentelsaz et al, 2014; Huesig et al, 2014; Cozzolino et al., 2018), robotics (Roy et al., 2014), creative (Li, 2017; Parry et al., 2014), retail (Zarco et al, 2020; Gha et al, 2023), logistics (Hutaibat et al, 2017), news media (Cozzolino et al, 2018; Khanagha et al, 2018; Parry and Kawakami, 2017) and electronics (Rosenbloom, 2000; Christensen et al, 2019) contributes to this research study by providing strategic imperatives for change during a situation of disruption and understanding what is known about incumbents' response strategies. The most well-known and significant examples are well-established firms, such as Google, Ericsson, Toyota, Amazon, Kimberly-Clark, Uvesco Group, NCR, Lotte, Kodak, Merck and Novartis, and new entrants that have changed their industries significantly, such as Uber, Airbnb, Aramex, HEALTH-IE and CATALOGUE-RE. The examination of business model innovation amid disruption across multiple industries and case studies led to the identification of 4 predominant areas of interest in disruptive innovation.

Firstly, our research focuses on how incumbents reconfigure their value creation, delivery and capture methods to address the ever-changing dynamics of customers' expectations. Loonam et al (2018) states that firms that operate in customer centric industries like healthcare, retail, automotive, hospitality and entertainment are particularly interested in modifying their approaches to appeal to mainstream customers. It was evident in cases like Merck, Philips and Novartis that these

organizations have navigated through complexities by adapting their strategies while enhancing customer experience through technology. All the aforementioned well-established firms in the healthcare industry emphasized value propositions and customer engagement transformation during digital disruption. Interestingly, Loonam (2018) and Markides (2006) noted that business model innovators neither reinvent the industry nor discover new products and services; they perceive digital transformation as a complement for their business models redefining an existing product's or service's value proposition to understand what is all about, why and how customers should buy it. Both Amazon and Swatch did not discover new services or products to customers but simply redefined them to attract new customers and enlarge their core businesses and markets. In addition, Li (2017) highlights the importance of incumbent firms to meet stakeholders' expectations amidst disruption and notably addresses a gap in the literature in diverse domains and creative industries such as advertising, music, film, publishing, and video games. The automotive sector is another domain where incumbent firms need to adopt their value creation strategies using new technologies (LEVs) to increase the attractiveness of their innovations and develop low-emission vehicles like electric, hybrid, and fuel-cell cars. Toyota, for example, leverages public and private protection levers and develops LEVs alongside its core business operations to target mainstream customers and the broader market with disruptive and systemic innovations. According to Christensen et al (2015), learnings in the automotive industry can also derive from the case of Uber. Contrary to the traditional disruptive model in which new entrants initially serve the low tiers of the market with products of lesser quality before moving up to challenge incumbent firms, Uber entered the industry with a service of higher quality than normal taxis, expanding its services to broader customer and market segments. However, the article in Harvard Business Review points out that Uber should not be considered as a disruptive force and this trajectory may lead to the misapplication of the original concept in the disruptive innovation theory. Unlike previous analyses that mainly focused on incumbents, Petzold et al (2023) provides fresh perspectives within the German fashion retail and insurance industries during the period 2014-2019, focusing on how two entrants can overcome the disruptor's dilemma by reconfiguring their value creation models and employing social and timing defence mechanisms. Both industries initially saw new disruptions emerge in the 1990s with the advent of e- commerce and digital offerings. Both HEALTH-IE and CATALOGUE-RE initially engaged with unaffected partners into alliance portfolio reconfigurations and asked for external funding and corporate parent support and value creation, respectively. Over time, entrants' activities and value paradigms in the fashion retail and insurance industry were modified to appeal to mainstream customers and align with their evolving demands while continuing disrupting. A process model in this study shows entrants' alliance portfolios in disruptive innovation emphasizing a new revenue stream development limiting incumbents' intervention and navigating relational and contextual tensions.

Secondly, our study offers a distinctive perspective on how digital technologies have been leveraged to facilitate business model innovations within industries like healthcare, logistics, retail, telco and robotics. In his study, Christensen (2008) explores the impact of disruptive medical technologies like telemedicine or healthcare delivery solutions and sheds light on the regulatory and market dynamics advocating for alignment of disruptive innovations with unmet needs and customer centricity. Hutaibat et al (2017) refers to the case of Aramex's unique business model that successfully adopted emerging technologies in logistics and leveraged strategic partnerships with new entrants and an agile mindset to penetrate new markets and navigate potential disruptions or threats. Aramex is considered 'a pioneer in digital disruption' adopting an asset light approach with minimal investments and dealing with disruptive technologies, from drones to RFID and shipment tracking. In addition, Zarco et al (2020) focuses on the Uvesco Group and its commitment to technology integrations and strategic alliances in the food retail industry. More specifically, the incumbent firm partnered with an IT provider to effectively respond to market disruption and increased competition. Lindsay and Hopkins (2010) also noted that Kimberkly-Clark, aided by a specialized team, sought external technologies and alliances to identify disruptive potential and be partner of choice in the personal care business. However, incumbents generally overlook disruptive technological opportunities due to established norms, structures and values designed for their existing customers. In the telco industry, the transition from fixed and reliant on solid mediums like wires to wireless technology based on radio waves spurred radical technological change for incumbents. Despite the privatization of these companies, incumbents retained specialized assets in downstream activities, sustaining business value and resilience amidst technological evolution (Fuentelsaz et al, 2014). Similarly, to this, Ericsson navigated complexities, inconsistencies and internal misalignments amidst the advent of digital disruption. The study shares how disruptive technologies like Cloud computing can pose challenges in multinational enterprises' core business across 170 global markets and open the way for new entrants in the telco sector. The research also states that the success of incumbents' responses to technological disruption depends on the notion of internal misalignment capability, emphasizing them to consider market heterogeneity and manage the inconsistencies in strategic direction, structure, resources and actions associated with a multifaceted innovation process established by the company. A radical technological shift from robust, mechanically controlled robots to precision-focused electrically controlled ones is another example of the challenges that incumbent firms face in the robotics industry, involving the identification of customer needs for new product portfolios and the optimization of operating processes in manufacturing. Similarly, to the news media industry in Italy, Cozzolino et al. (2018) explains how the prominent publisher explored the impact of disruptive innovation by new entrants and responded to digital disruption through the adaptation of value creation and capture business models and new technologies. After the analysis of the case company, we found that the incumbent saw disruptive technologies as an opportunity and a strategic pattern to invest proactively and early as well as effectively respond to industry evolution. However, it is also possible that disruptive innovation does not necessarily require the introduction of a new disruptive technology - like the failure of Kodak in the

disruption of film photography by digital imaging. There are cases, like Ryanair, which changed their business model of ultra-low cost, no frills during 1990 before the initial technological disruption (Cozzolino et al, 2018).

After careful case analyses, we found a third area of interest for disruptive innovation, which is linked with value network externalities, regulation, social and cultural influences. In this setting, Huesig et al (2014) examined the impact of disruptive innovation on incumbent firms that operate in a regulated network industry like telco. This study reveals incumbents' decisions to enter in submarkets due to their desire to avoid regulation while maintaining market shares and customer significance. In comparison with the Hard Disk Drive (HDD) industry, the response behaviours of telco incumbents to disruptive innovation is characterized by network interdependencies, substantial economies of scale, and regulatory measures. Furthermore, Parry et al (2017) provides useful insights in the disruptive innovation theory about the role and the effect of e-reader, e-book companies in the US, and Japan associated with indirect network externalities (INEs). Ultimately, this study points out the cultural, societal and regulatory influences on decision makers and how it might slow down their speed in disruptive innovation when facing disruptive threats with INEs (Parry et al, 2017).

Lastly, organizational flexibility and leadership also stands as a unique domain within the landscape of disruptive innovation. From the very beginning, Rosebloom (2000) examined the great response of NCR Corporation to electronics integration and the rise of digital computers in the industry during the period 1938-1978. Contrary to the prevalent narrative of incumbent firms' failure in the face of technological change, NCR initially faced challenges in fully realizing digital computer opportunities but managed to overcome the crisis, maintain leadership in its core market segments, take proactive executive decisions, keep profitability and continue to thrive through product adaptation, new management and organizational transformations (Rosebloom, 2000). The case of Lotte, a predominant incumbent in the South Korean retail industry, is another example displaying the importance of CEO focus on disruptive innovation and the rise of e-commerce, which significantly changed market dynamics, value delivery models and logistics. The study highlights the managerial perspective as a crucial factor for Lotte's response to the e- commerce disruptor Coupang amidst the advent of technology in the retail market. Navigating technological transitions from offline to online and the mobile shopping era, Gha et al (2023) recently outlined Lotte's strategic dilemma: stay focused in its core business or embrace disruptive innovation. The author summarizes the interplay of organizational dynamic capabilities, core competencies, proactive leadership and new organization units - that are separate or within the incumbent firm - as essential to effectively respond to technological advancements and threats and embrace innovation.

Conclusion

The theory of disruptive innovation emerged from various observations that incumbent firms across diverse industries either succeed or failed to maintain their leadership position in the market. In this study, we identified predominant areas that established companies thrive when innovations aligned with value creation models, digital technologies, organizational leadership, cultural influences and INEs, but experienced declined due to overlooked trigger events such as customer's expectations, new entrants, technological changes, systemic disturbance, managerial errors and organizational inertia. In his study, Christensen et al (2018) also stated that established firms have to keep looking at new opportunities in new market segments arising from disruptive innovations instead of solely focusing on existing customer base and performance improvements. Our results show that empirical analyses are dominant and represent the larger proportion of the dataset; most recent literature utilises qualitative studies as practitioners use non-interventionist case studies and academics create theoretical reviews and papers to describe the disruptive innovation theory.

Researchers and practitioners are interested in identifying the knowledge gaps or challenges faced by incumbents when implementing market disruption - either internal or external. Popular streams of research can further document how incumbents are moving through internal cultural transformation phases including customer orientation and organisational competence and through other external technological or environmental forces in heterogeneous and highly competitive markets. These elements need further investigation as they can act together as key challenges to incumbent firms hindering profound modification or alteration of existing business models, which is typically required after disruptions. Grounded in the rich data obtained from other market disruptions, the study also provides valuable insights on strategy decision-making under conditions of disruptive innovation, and more precisely, contributes on how incumbent firms can transform the way they do business, change the way their people collaborate, rethink traditional business model approaches and response strategies associated with disruptive innovation. This comprehensive understanding illuminates the complexity and multifaceted nature of disruptive innovation, paving the way for a nuanced interpretation of its mechanisms and implications for incumbents navigating these disruptive landscapes. Researchers and practitioners need to understand the various strategic management theories, frameworks or models used in order to compare and contrast research findings for their response to disruption. Yet, a conceptual model that integrates prior findings on the various activities associated with the evolution of disruptive innovation is lacking; this research study contains papers of the key managerial actions required when introducing strategic initiatives to disruption, develops propositions on how incumbents innovate their business models and attempts to make several contributions to the advancement of strategy management literature in general and the disruptive innovation theory in particular.

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