Disruptive Market Shift: Conceptualization, Antecedents, and Response Mechanisms

Abstract

Although prior research has examined the effects of different forms of disruptive market shift on organizational practice, structure, and performance, knowledge is lacking on its conceptual domain, antecedents, and organizational response outcomes. This study draws insights from an in-depth analysis of 23 organizations to conceptualize disruptive market shift and explore its antecedents and consequences. We find that digitization, technological advancements, political uncertainty and government regulations, competitive pressures, the media, and customer dynamism are major drivers of disruptive market shifts. Furthermore, evidence suggests that organizations establish collaborative relationships, initiate internal transformational processes, and develop innovative metrics and patterns to respond to disruptive market shifts. We discuss the theoretical and managerial implications of the findings.

Keywords: disruptive market shift, collaborations, business model innovations, innovative patterns, organizational capabilities, transformation.

INTRODUCTION

Growing global disruptive events (e.g., 2008 financial crisis, the Covid-19 pandemic, the 2021 Suez Canal obstruction, and the Russia-Ukraine conflict) and phenomena (e.g., global warming, seismic activity) have provided justification for business organizations to think about a variety of response mechanisms to absorb and recover from disruptions (Li et al., 2022). Technological advancements such as the rise of blockchain, artificial intelligence, and virtual reality have also given rise to technology-enabled business models (e.g., Alibaba and Amazon.com) to revolutionize major global supply chains (Dobbs et al., 2015). For example, Birchbox has introduced disruptive distribution of beauty products by offering home deliveries, and Amazon Go has disrupted the traditional brick-and-mortar grocery shopping by offering click and drop services at lower cost for shoppers (Keys, 2017). Similarly, traditional organizations such as the Royal Mail in the United Kingdom (UK) have also shifted their operations by offering click and drop services to customers at lower prices. In the transport sector, more sustainable and technologically advanced solutions (e.g., electric mobility transition, sharing economy, autonomous vehicles) are being introduced generating disruption in and implications for the automotive and energy markets (Skeete, 2018).

These disruptive market shifts have introduced significant changes in the way firms, industries and market operate. For instance, as a result of the global warming challenges, car manufacturers have been focusing on decarbonizing and disrupting the automotive industry and is estimated that around $3.5 trillion per year would be spent on low-emission vehicles and on charging and fueling infrastructure between 2021 and 2050 (Möller and Schaufuss, 2022). Amid these disruptive shocks, some firms develop capabilities to take advantage of technological advancements to manage disruptive shifts in their industries. Similarly, regulatory changes can escalate disruptions. For example, Brexit caused a fundamental shift in UK firms' business models in areas such as distribution of goods and services,

customs/border tariffs, workforce recruitment, and intellectual property. Likewise, the legislation and policymaking of the past few years has placed an increased emphasis on environmental issues, including climate change, leading to rapid changes in regulations and policies across countries and disruptive implications for business models. Furthermore, competitive uncertainty can cause disruption in an industry and actions taken by firms to increase their share of wallet. The ongoing 'battle' between Netflix and Disney Plus for increased numbers of subscribers, price point, and content is another prime example of how brands introduce new business models to upset industry competitive landscape.

The research community has examined these market disruptions in various contexts. For instance, scholars have studied disruptions caused by organizations such as UberSELECT in the limousine business. Because its target market is the low end of the limousine market, its services are provided at a cheaper rate and it does not contain a key feature present in competitor offerings – advance bookings (Christensen et al., 2015). Others have investigated environmental disruption, disruption caused by natural disasters, or technological change and their effect on organizational productivity and performance (e.g., Anderson and Lewis, 2014, Dwivedi et al., 2022). The literature has also started to investigate how organizations respond to changes in dominant logics that underpin industries (e.g., Cozzolino et al., 2018; Markides and Oyon, 2010; Khanagha et al., 2018).

Notwithstanding existing scholarly efforts, knowledge is still limited on the conceptual domain of disruption market shift (DMS), and with little research on where and how disruptive shifts occur and how organizations response to such shifts. As a result, managers do not fully understand major drivers of DMS and the likely response mechanisms that may need to be activated to absorb and/or recover from disruptive events. For instance, Kodak failed to respond to the market shifts caused by the introduction of smartphone cameras through the incorporation of digital technologies as an alternative option to

traditional cameras. This market disruption in the photographic market resulted in Kodak filing for bankruptcy protection in 2012 before its re-emergence as a smaller company in 2013 (Anthony, 2016). Likewise, Blackberry was a giant in the smartphone industry, however, the company failed to adapt to the competitive activities of Apple and Android, and by the time they finally modified their initial business model, the disruptive market shift had already occurred, and it was too late for Blackberry to absorb and recover from the disruption.

Even though DMS can be initiated through both internal strategic shifts and external exogenous forces, this study seeks to explicate the external exogenous forces that organizations face in their business operations. This study, therefore, defines DMS as the creation of new order of structures, processes, or business models triggered by external exogenous forces that have an impact on organizations operating in an industry. This definition distinguishes DMS from other closely related concepts: disruptive innovation and disruptive business model. While DMS focuses on the creation of new markets and disruption of existing market structures in an industry, disruptive innovation captures the extent to which new market offerings are used to displace existing products and services targeted at under-served markets (Benzidia et al., 2021). Hence, disruptive innovation focuses on "*new demand-creation that expands the current served market*" (Leavy, 2018, p.10). DMS is also theoretically different from disruptive business model in the sense that the former can be a consequence of the latter. Hence, disruptive business model, which is the adoption of novel business models to displace existing models in a market or industry can result in a disruptive market shift. Thus, it is important to explain the conceptual domain of DMS to provide insights into its key drivers and response mechanisms. A reflection of this need is the growing number of calls in the academic literature to conduct DMS research (e.g., Christensen et al., 2018; Muller, 2020; Wallin et al., 2022).

In responding to these many calls, this paper aims to examine the conceptual domain of the DMS phenomenon, and explore its major triggers and response mechanisms for organizations dealing with a variety of disruptions. Within this overarching objective, the paper specifically focuses on addressing three key research questions: (1) How is DMS conceptualized, (2) What triggers its occurrence, and (3) How can organizations respond to its manifestation? Given the limited research and theory in this area, we rely on existing theories and literature, memories of key organizational decision makers, and archival records on disruptive experiences of 23 organizations to explore the research questions. Importantly, we integrate insights from the existing literature on market and organizational disruption to provide an integrative view of the conceptual domain of DMS and organizational response mechanisms.

This study contributes to the market and organizational disruption literature in three ways. First, this study enhances understanding around the domain and antecedents of the DMS concept. Second, it advances research on disruption by showing how organizations use internal resource and capability (re-) configuration to boost performance when faced with disruptions in their market or industry. Third, this study examines how organizations employ collaborations and organizational capabilities, transformational processes, and innovative metrics as response strategies in response to DMS. As a result, the study provides useful managerial insights into the strategic decision-making processes organizational leaders use to deal with DMS in pursuit of short- and long-term performance goals.

In the subsequent sections, we review the literature on disruption and examine the relevant concepts in this study. This is followed by a discussion of the methodological and analytical procedures used to empirically examine DMS phenomenon. We then present key findings from the study and develop research propositions. Finally, we discuss the theoretical and managerial implications of our study findings.

LITERATURE REVIEW

Scholarly research has examined disruption, defined as a change in the circumstances of an organization and its members (Rhodes, 2016), from various perspectives. Christensen et al. (2015), for instance, examine disruption caused by competing organizations such as the increase in the provision of online courses to traditional learning within the four walls of a classroom and the disruption caused by Apple through the positioning of the iPhone as the primary way of accessing the internet. Deliveroo, an online food delivery company is another example of an organization that has caused a disruptive market shift in its industry by providing takeaways from premium restaurants who do not normally offer this. Thus, they provide services to consumers who will not normally go to these restaurants and increase the profitability of these restaurants by up to 30% (Marketing Week, 2017). Other industries that have experienced disruption (and the disrupting organizations) are: retailing (Amazon, Wal-Mart), education (University of Phoenix), computer manufacturing (Dell), and fast food (McDonalds) (Christensen and Raynor, 2003).

Furthermore, Geissinger et al. (2020) argue that organizations like Uber and Airbnb are digital disruptors who are engaged in discontinuous innovations. Hence, disruption "*is an event in which a substantial share of agents belonging to the system is disrupted*" (Kilkki et al., 2018, p. 276). Extant literature has also distinguished between first order disruptions and second order disruptions where the former is "*a localized change, within a market or industry*" while the later has "*much larger influences, affecting many industries and substantially changing societal norms and institutions*" (Schuelke-Leech, 2018, p. 261).

DMS can occur as a result of technological turbulence induced by technological advancements, leading to 'disruption costs' (Pérez and Ponce, 2015). That is, the adoption of new technologies can cause disruptions in initial cash flows and profitability and economic sustainability of industry players because new technologies typically perform poorly at first

and thereafter improve over time (Christensen, 2013; Huggett and Ospina, 2001). An example is the automotive industry that has been impacted by CASE (connected, autonomous, shared, and electrification) technological disruptions which have disrupted the market with needs to invest and compete in digital connectivity (e.g., in car infotainment, data infrastructure), artificial intelligence (e.g., driver assistance and decisions, autonomous vehicles), and electric vehicles (Kim et al., 2021). Researching and developing these areas has been a costly affair for automotive industry players and have clear implications for environmental, social, and economic sustainability of the firms involved.

Importantly, Pettus et al. (2018) suggest that it is not just the organizational response that is important in the event of industry disruption but also the sequencing and timing of the response. Response sequence and timing are critical because these allow firms to respond in a stepwise format by eliminating inefficiencies, recalibrating their resources, and carefully plan appropriate actions. These were evident in Pettus et al.'s (2018) study on the US railroad industry revealing that deregulation can cause disruptions for organizations operating within it. As such, rules enforced by regulatory bodies can have an impact on organizational processes within a distribution network.

Previous research has also examined potential institutional causes of DMS. Technological advancements have the capability of altering institutional norms, values, and set rules, thereby causing institutional disruptive shifts (Ernkvist, 2015). Similarly, environmental factors such as climate change can potentially result in DMS (Wright and Gilding, 2013). In response to disruption caused by technological innovation and environmental factors, organizations are expected to deploy individual and collective learning (Anderson and Lewis, 2014), information technology (IT) (Eastburn and Boland, 2015), and dynamic (Li and Liu, 2014) capabilities in response.

In sum, findings from the literature show that DMS can be caused by both internal organizational strategic actions (i.e., competitive actions and organizational led innovations) and external exogenous forces (i.e., economic shocks and political uncertainty). The consequences of DMS can be far reaching and across a continuum of positive to negative impacts depending on the DMS response mechanisms adopted by organizations. Thus, organizations can benefit from DMS if the appropriate strategies are undertaken, however, there is also the risk of firm failure because of inaction to DMS.

Extant literature has explored some mechanisms through which organizations respond to DMS. For instance, Marx et al. (2014) show how incumbents engage in a two-step process of competing and then collaborating with entrants that introduce disruptive innovations in order to succeed. Scholars (e.g., Christensen and Raynor, 2003; Gilbert et al., 2012; Kim and Min, 2015) further propose the creation of a separate business unit by incumbents in response to DMS. However, O'Reilly and Tushman (2008, 2016) opine that an organization can develop ambidextrous capability to simultaneously explore and exploit responses to DMS. The current study sheds further light on how organizations can effectively respond to DMS by exploring available alternatives.

Hence, we view DMS as an externally induced phenomenon that can have ripple effects on institutions and thus affect organizations operating within an institutional environment. Accordingly, we propose a framework and undertake an in-depth empirical inquiry into the conceptual domain of DMS, its potential causes, and organizational response processes in an era of continuous digitization and business model innovations.

METHODS

An interpretivist approach was adopted in this study. The approach reflects the exploratory nature of the research while enabling us to view reality as a social construction and provide a

voice to respondents (Walsham, 1995). Examining organizations that have experienced disruptive shifts in their markets provides a clear picture of the phenomenon. As such, we rely on insights from existing literature and multiple cases in theorizing about the DMS phenomenon (Yin, 2014). To ensure broader coverage of organizations that may have experienced disruption, we included small, medium-sized, and large organizations with employee numbers ranging from five to 32,000 operating in multiple industries. Although the study largely focuses on the retail and transport sectors, the industries also include business software and IT, pharmaceuticals, and education services providers in order to provide an as broad overview of the phenomenon as possible.

The spatial setting of the study is the UK. We chose the UK because, first, as an industrialized economy, it has several competitive industries that are heavily regulated and open to external environmental pressures that can potentially disrupt internal operating processes in organizations. Second, the UK ranks third globally as one of the "most promising countries in the world to introduce technological breakthroughs which will have a global impact" (KPMG Technology Industry Innovation 2019 survey, p.3). This provides us with a rich context to examine disruption caused by a variety of exogenous and endogenous forces.

We used multiple data sources in this study, specifically in-depth interviews, internal organizational documents, media reports, and archives (Yin, 2014). This helped ensure that our findings are as accurate as possible, enabling us to achieve convergence and triangulation of the findings by collecting data from multiple participants and using multiple sources to obtain richer descriptions of the phenomena under investigation (Mason, 2002).

To recruit participants, an examination of websites to identify central organizations and members of top management teams responsible for strategic decision making was conducted by the lead author. This was complemented with emails and telephone calls where

the managers were informed about the study, invited to participate, and given assurance of anonymity. Thus, we ensured that the interviewees were directors and top-level managers who had access to information about organizational strategies. Accordingly, we selected key informants using criterion sampling, an effective strategy of purposeful sampling, as this process enabled us to select interviewees and archival sources based on necessary criteria including knowledgeability and seniority (Patton, 2002).

We assured key informants anonymity and data protection, and took appropriate measures to ensure their privacy and data confidentiality. As such, we use pseudonyms to protect identities. The interviews were conducted in person and open-ended questions were posed to encourage conversation within the boundaries of the research questions. The firms selected were screened to ensure that a DMS had previously occurred in their target market. The participants were asked about their job roles, general activities within their organizations, and how long they had been in their present job role. Information was also sought on the key informants' experience in strategy development and strategy implementation, in addition to general information about their organization and industry of operation.

Thereafter, participants were asked to describe in detail what DMS meant to their organizations and their experience of responding to DMS in their business operations Subsequently, they were asked about their organization's response(s) when faced with DMS, strategies adopted as response mechanisms to DMS, and performance implications of their response strategies. A list of the questions asked is provided in the interview protocol in Appendix.

The interviews lasted between forty-five (45) minutes to one (1) hour. All but one interviewee agreed to be recorded. The recordings were transcribed verbatim, while notes were made and summarized immediately after the single non-recorded interview. The transcripts and summaries were approximately 94,000 words in total. The final dataset

included in-depth interviews with 23 different key informants representing corporations in various industries. Study participants had job titles such as chief executive officer, chief technology officer, managing director, and marketing manager. The diversity in organizations and key informants helps unearth the potential variations in disruption and organizational responses due to differences in organizational characteristics, structures, and leadership. Table 1 provides an overview of the organizations included in the study.

Firms	Manager	Position	Industry	Size	No of Employees	Years in Business
A	Alex	CEO	Business Software and IT	Large	3,000+	38
B	Gary	Managing director	Pharmaceuticals	Medium	250	18
C	Annie	Marketing manager	FMCG	Large	3,000+	15
D	Ben	Chief technology officer	Business Software and IT	Small	10–20	11
E	Alfred	Head of strategy	Automotive	Large	32,000	22
F	Anderson	CEO	Management Consulting	Small	5	10
G	Catherine	Marketing manager	FMCG	Medium	50–100	50
H	Derek	Marketing manager	FMCG	Large	2,000+	15
I	Henry	Sales and managing director	Marketing Services	Medium	150–200	11
J	Jane	CEO	Marketing Services	Small	5	6
K	Sharon	Marketing manager	Education	Medium	200+	21
L	Charles	Director	Management Consulting	Large	13,000+	31
M	Jeffery	CEO	Marketing Services	Small	5	7
N	Ethan	Sales manager	FMCG	Large	14,000+	173
O	Frederick	CEO	Pharmaceuticals	Small	25–50	18
P	Eric	Director	Business Software and IT	Small	14	28
Q	Jeremy	Global brand manager	FMCG	Large	2,500+	15
R	Lisa	Manager	Management Consultancy	Large	22,000+	169
S	Laura	Manager	Management Consultancy	Large	13,000+	31
T	Douglas	Director	Airline	Large	10,000+	23
U	Alvin	Director	Management Consultancy	Large	22,000+	169
V	Kate	Head of marketing	Education	Medium	200+	21
W	Austin	Managing director	Manufacturing	Small	31	29

Table 1: Sample characteristics of key informants interviewed

The interpretivist approach combined with the in-depth interviews was well suited to the exploratory nature of our study as it enabled direct engagement with participants and the acquisition of rich and complete data on the phenomena under examination (Al-Dajani et al., 2015). The data analysis was conducted simultaneously with data collection as this enables flexibility to probe emerging themes (Miles et al., 2014). The data collection continued until we observed data saturation which was the criterion used to discontinue data collection and finalize the sample size for the study (Corley and Gioia, 2004). After 20 interviews, content repetition was identified with respect to DMS and corporate responses. The same pattern was detected when three additional interviews were conducted.

We adopted an iterative research approach for our data analysis, which combined empirical data, theoretical knowledge, and analytical insights (Buhr, 2012; Silverman, 2005; Yin, 2014). The inter-textuality of the company documents and the interviews aided in ensuring triangulation of the findings across multiple sources and provides "*the basis for rigorous collection and analysis of qualitative data*" (Corley and Gioia, 2004, p. 183). Specifically, we got access to company documents such as publicly available company reports, organizational statements, and archival reports. These internal company documents were coded to identify potentially relevant information on sources of DMS, response strategies to DMS, and performance implications of implemented organizational strategies to corroborate the interviews conducted.

We conducted our data analysis based on the principles of induction (Miles and Huberman, 1994) and utilized the NVivo software package. We began with open-coding to extract important aspects of the texts of utmost significance to our study and discussed this among all authors. This initial coding process resulted in 877 potentially important pieces of text that we labeled and categorized. The triangulated process of data analysis enabled comparisons to be made between interviews and existing theoretical approaches. We repeated

this coding process to refine the categorizations and labeling of findings to allow comparisons of emerging themes and categories across different sources and existing theories (Miles and Huberman, 1994). We then conducted within- and across-case analysis with the evidence collected (Yin, 2014).

We combined the broad themes coded in the first phase from the interview transcripts into higher-order codes (Dubois and Gadde, 2002). Subsequently, we matched the higher-order codes to established theories to find similarities and differences (Eisenhardt, 1989). Thus, we developed matrices to link empirical findings of the study to theory. Figure 1 illustrates our findings on how disruption emerges and key organizational strategic responses.

FINDINGS AND PROPOSITIONS

Conceptual Domain of Disruptive Market Shift

The term 'disruptive market shift' (DMS) means various things to different managers (see Table 2). In short, DMS occurs when there is a drastic change to the taken-for-granted norms, practices, and routines in an organization and its market or industry. Hence, the disruption of the established 'rules of the game' affects all the stakeholders involved in the provision of existing goods and services. One way in which DMS can occur is when a competing organization initiates a re-configuration of resources and capabilities with the intent to change industry-wide processes and routines to enhance efficiency and effectiveness (Paruchuri et al., 2006). Hence, disruption can be caused by an organization's internal strategic shifts (Gary, Table 2) and is reflected in a change in the organization's market offerings, which then has ripple effects on other firms operating within the same industry (Henry, Table 2). Ideally, this kind of DMS should be in the interest of the organization and its customers (Jane, Table 2).

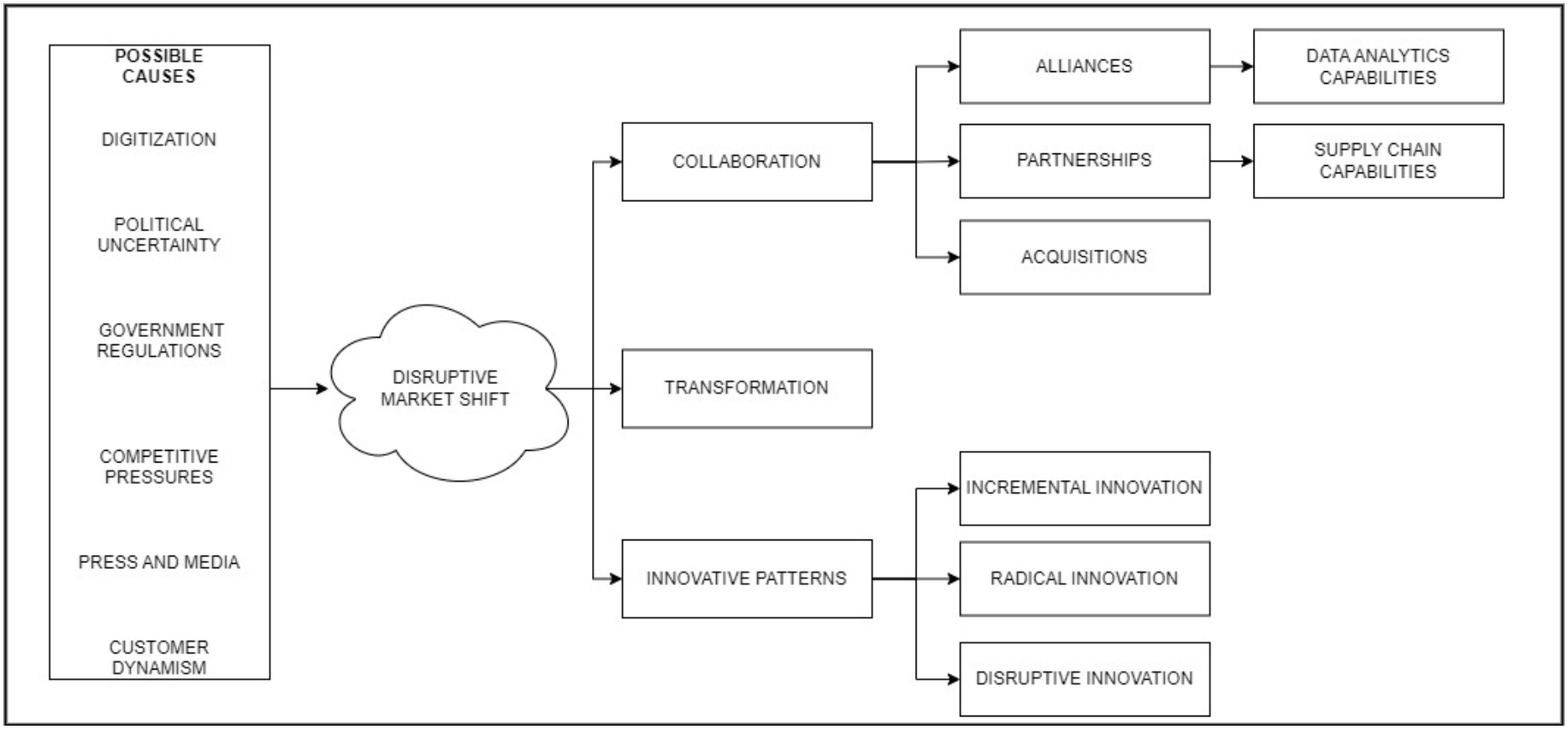

Figure 1. A Proposed Model of Antecedents and Organizational Response Outcomes of Disruptive Market Shift

Furthermore, disruption at the industry level is more likely to occur when there is an influx of new organizations because 'where rules exist and a pecking order of organizations is well established, fundamental change is less likely' (Fligstein, 1991, p. 313). In accordance, Christensen et al. (2015, p. 46) argue that disruption is a process 'whereby a smaller company (sometimes a new entrant), with fewer resources, is able to successfully challenge established incumbent businesses'. Jane described disruption as an 'earthquake which falls into little pieces' and affects the activities of organizations operating within an industry. Thus, disruption within an industry can be initiated by competitors that adopt novel strategies with the aim to displace existing strategies undertaken by other organizations (and itself) to gain a competitive edge (Christensen, 2013). The 2018 Insight report of one of the investigated companies (organization E) emphasizes the role of competitive players in causing DMS and the opportunities and challenges presented because of the influx of competing organizations.

Importantly, the managers interviewed highlighted a distinction between innovation and disruption. Innovation can entail something that is perceived as 'new' (Wijnberg, 2004) and produced in a market and/or an organization (Lipczynski and Wilson, 2001). Innovation can be a new way of conducting business operations, a new product that has a unique selling point, or a new business model. In contrast, disruptions usually denote drastic and phenomenal changes in existing norms, processes, and routines in an organization and industry as a whole. Here, organizations adopt a strategy contrary to set rules, codes of conduct, and modus operandi. Some managers believed that DMS was inevitable in their industries (e.g., Alvin, Table 2), which is due to the highly competitive industry structure in which the actions of competing organizations can cause disruptions by displacing existing products, business models, and practices (Christensen et al., 2002). Therefore, the distinguishing factor between innovation and disruption is the effect on the dominant logic

and market shift within organizations and institutional fields (Anderson and Annie, Table 2; see also Sabatier et al., 2012).

DMS also differ from disruptive innovation in that while DMS involves the creation of a new order of structures, processes, or business models initiated by either organizational strategic shifts or external exogenous forces that have an impact on organizations operating in an industry, a disruptive innovation can be a product or service innovation that is targeted at under-served market segments, which gradually improves over time and eventually makes existing products and services obsolete (Christensen et al., 2015). DMS is conceptually distinct from disruptive innovation in that while DMS focuses on the creation of new markets and the disrupting of existing market structures, disruptive innovation focuses on "*new demand-creation that expands the current served market*" (Leavy, 2018, p.10).

Cannibalization, a common feature of DMS, is driven by a motive to introduce an innovative product, service, or business model that replaces an existing market offering within the field (Chandy and Tellis, 1998). Alfred noted that 'from our perspective, being disruptive is … you've got to be prepared to eat your own lunch'. It is important to note that when disruption is driven by competition, organizations might need to re-configure existing processes, practices, and routines, which might involve the cannibalization of existing assets, resources, sales, and profits (Govindarajan et al., 2011). Thus, we describe DMS as a fundamental change in norms, processes, and routines within an organization or industry influenced by an external force that incorporates innovation and can make assets, resources, and capabilities obsolete. Thus, we propose the following definition:

> *DMS is defined as the creation of new order of structures, processes, or business models initiated by either organizational strategic shifts or external exogenous forces that have an impact on organizations operating in an industry.*

Theme	Quotes from respondents
Internal strategic shifts	It is when you upset the market because you have a more competitive way. It involves reducing organisational cost. (Gary)
	If you think about the ultimate disruptive strategies, they disrupt themselves. You disrupt yourselves and the market. You change the way you work, the way you manage the workforce, you change what you offer the market or how you engage the market. Or you could create a new market with new consumers. You can take what you have and present it in a different way. (Henry)
Cannibalization	And I guess being disruptive does not necessarily mean spending millions and billions of dollars and being absolutely massive. From our perspective, being disruptive is, we have a phrase that our president in the US uses, what he says is you've got to be prepared to eat your own lunch'. (Alfred)
Inevitability of disruption	I think disruption is fairly inevitable in any industry: I think there's a question about what form does it take and how effective can it be. (Alvin)
Innovation versus disruption	In my mind, there is a distinction to be made between innovation and disruption. Innovation can be disruptive, but they are kind of. I guess their effect is slightly different. Disruption has a sort of category effect. (Anderson)
	I would say to be disruptive you've either got to be innovative or do something better than what anybody else is doing. You've got to have a product difference, either new or better against the competition. (Annie)
Focus on the organization and customer	A disruptive business model or a disruptive approach is one which first makes you question everything you do. And then with the answers, what makes it disruptive is the answers become the catalyst for shift, for change... If you just take the word disruption outside of the business context, disruption is a negative thing. People who are disruptive, break things. They break relationships, they actually break things, you know, they have a negative association. So, for me; a disruptive business model is the opposite of that. It's purposeful disruption. And the purpose behind the disruption has to be in the interest of the business and the customer: (Jane)

Table 2. Conceptualization of Disruptive Market Shift

Sources of disruptive market shifts

DMS can be widely caused by various factors. First, DMS can be initiated by internal strategic shifts that are used as sources of competitive advantages. Second, DMS can be initiated by 'exogenous shocks' (e.g., Brexit and the COVID outbreak). Nevertheless, firms can take advantage of these shifts and shocks to increase their competitiveness and create competitive advantages. The study findings specifically show that various factors within an industry may initiate DMS. Some of the sources of disruption identified by managers interviewed include digitization, technological advancements, political uncertainty and government regulations, competitive pressures, the press and media, and customer dynamism.

First, digitization and advancements in technology can generate DMS, as the introduction of new technologies can affect consumer expectations of how products and services should be delivered. Joughin (2018, p. 1) describes technological advancements as the 'SMAC agenda (social, mobile, analytics, and cloud)', which bring disruptive changes to internal organizational processes. Hence, technological advancements such as Smart Technology, Artificial Intelligence, Automation, Robotics and Algorithms are leading to significant changes in organizations (Brougham and Haar, 2020; Langley and Rieple, 2021). Jeffery and Henry (Table 3) talk about how business operations have phenomenally changed due to the impact of increased digitization facilitated by the internet, automation, and mobile technologies. This is also corroborated by the head of automotive (organization E) who noted in the company report that:

> *While the opportunities (with technology) are great, technology led companies including Google, Waymo, and Uber are disrupting and reshaping the market and driving traditional manufacturers to invest heavily in a bid to stay ahead of the innovation curve.*

This evidence, when taken together, inspires the formulation of the first proposition:

Proposition 1a: An increase in industry digitization increases the likelihood of DMS

Second, political uncertainty and government regulations can greatly affect organizational processes because of the need to conform to such regulations. Importantly, the political uncertainty around Brexit has affected various industries and is arguably one of the greatest disruptions to organizations operating in the UK. Frederick (Table 3) emphasized the negative impact Brexit would have on their business operations. The internal documents of organization E buttress this by stating said:

As with great periods of disruption, there comes opportunities and challenges. New players in the manufacturing, technology and innovation spaces are putting pressure on the traditional automotive industry and the uncertainty around Brexit is affecting the industry at large.

We therefore expect that:

Proposition 1b: Times of political uncertainty increase the likelihood of DMS

Sources of disruptive market shifts	Quotes from respondents
Digitization and technological advancements	And what we and other firms are trying to do is use technology, artificial intelligent to help that part of the tool of doing an audit or giving the assurance services. (Charles)
	Certainly in the IT world, things change so rapidly: They are changing all the time and new developments fell on the- I started, I think it was 2011 when I started this business. So, yeah. I mean, Google has changed phenomenally since then...I mean, mobile is probably the biggest change since 2011... And I guess just the internet, how its grown now in the last 15 years. I guess, it's just made everything so much easier and competition- You know the ability to compete much easier so small businesses can grow and compete nationally, which would have been much harder pre-internet days. They also probably make it harder as well because there area lot more players as well. A lot more competition (Jeffery).
Political uncertainty and government regulations	The political climate has a negative impact on our business because 50% of our work is non EU and US. Many of the companies we conduct business with do not have branches in Europe. These companies are worried about using UK as a platform because of Brexit. So we try to mitigate the risk. (Frederick)
	So that, in a nutshell, that's assurance and in terms of disrupted strategy into the insurance business, to be perfectly honest with you, there's not a massive amount of disruption in that market other than the biggest disruption in that market, is the audit regulations, The Financial Reporting Council. So, in terms of disruption to the audit practice, it is very much around regulatory. (Charles)
	With GDPR, there is a big change on how marketing will work, Organisations and companies that have marketing teams, you can't do what you did before. You can't create or buy big data lists and put them in. You can't use disruptive pieces from a few years ago. That's not really going to happen anymore. We are being told implied consent of cookies instead of opt out (Alex).
Competitive pressures	So what we're starting to see is new entrants into our market who settle and just do a single service... so they have set themselves up to do nothing but R&D tax credit. So they will target our clients and their unique selling feature is that all they do is research and development tax credit and they don't have the huge infrastructure costs like us ... they can generally undercut us but still make a very good profit. (Charles)

Table 3: Sources of Disruptive Market Shifts

Sources of disruptive market shifts	Quotes from respondents
The press and media	Also for recent short term stuff, a lot of what's in the press makes a big difference - plastic and sugar are kinda the two things that very relevant to us because we use a lot of plastic and we have a lot of sugar in our products (Derek)
Customer dynamism	Now I think times have changed things and are changing, patterns are changing. There is a trend that consumers they are becoming much more oriented towards local brands, a lot more focused on sustainability and authenticity, and to some extent they actually turn their backs, uh, to, to break global brands. (Jeremy).
	It's not going back to the selling days of old in 2012, 2013. Its more about customers know what they want. You have a good idea of what you want. What we need to do is to buy the information to help them make a good decision. (Alex).

Table 3 Continued: Sources of Disruptive Market Shifts

Some managers also emphasized the significance of the Financial Reporting Council (Charles, Table 3) and the General Data Protection Regulation (GDPR) in respect to their impact on internal organizational processes (e.g., Alex, Table 3). The regulation was implemented in May 2018, with the aim of protecting personal data of individuals within the EU and European Economic Area. Thus, many organizations that possessed consumer data needed to obtain explicit consent from consumers to keep their data. The sugar tax levy imposed on manufacturers and retailers of sugary drinks in the UK, as part of an anti-obesity policy, is another example. In response to this regulatory requirement, Derek (Table 3) spoke about an organizational strategy of gradually reducing the sugar in his firm's dairy products as a precautionary measure in the event that the sugar tax takes effect in the dairy industry.

Proposition 1c: The introduction of new government regulations increases the likelihood of DMS

Third, competitive pressures can result in DMS, as the introduction of a new product, service, or business model by a competitor can change the industry dynamics, consumer expectations, and organizational processes. The threat of disruption by competitors can propel organizations to respond by developing and introducing new products, services, and business models. Many organizations believe that a competitor (big or small) can introduce new products, services, or business models that can potentially disrupt their existing operations. This was emphasized by managers whose organizations were smaller players in the organizational field (Charles and Jeffery, Table 3).

Proposition 1d: Increased competitive pressure in the industry increases the likelihood of DMS

Fourth, some managers emphasized the role of the press and media in creating certain awareness, leading to disruptions in internal organizational processes. A notable example is the UK 'Blue Planet 2' series, which depicted the dangers of plastic and its negative impact on the ocean and the animals that live and feed in the ocean. This series was aired on BBC One to 37.6 million people and more than 62% of the UK population (BBC Pulse Survey, 2018). This has forced high street UK retailers to introduce regulations on the amount of plastic allowed on supermarket shelves by manufacturing organizations (Derek, Table 3). An example is Sainsbury's which became the first UK supermarket to launch a trial plastic-free supermarket where consumers are to bring in their containers to purchase groceries, wine, pasta, rice, fruits, vegetables, and bakery items (Horton, 2019).

Proposition 1e: Heightened press and media scrutiny increases the likelihood of DMS

Fifth, the dynamic nature of consumer needs and trends can create disruptions to established organizational product and service development routines and processes. To meet changing consumer needs and emerging consumer trends, existing organizational structures and processes might need modification. Some managers noted that consumers make specific demands and have a clear idea of the products and services they want with growing shifts toward newly emerging consumption patterns (e.g., consumption of environmentally sustainable products and services) (e.g., Alex and Jeremy, Table 3). This implies that organizations need to have access to information on customer needs and wants, the capacity to analyze data on customer preferences, and ensure that they provide products and services that reflect customer needs and wants. Given the dynamic nature of customer needs, organization N emphasized in its internal documents the need to 'continuously analyze consumer needs and expectations' to regularly provide innovative products to the market.

Proposition 1f: High customer dynamism in the market increases the likelihood of DMS

Collectively, the findings emphasize the role of several exogenous factors breeding disruptions within industries. We specifically find that DMS brings about internal organizational restructuring to ensure conformity to industry shifts.

Organizational Responses to Disruptive Market Shifts

Collaborations

When organizations are faced with DMS, some appear to seek collaborations with other organizations to weather the storm. The interview findings show that organizations need these collaborations because they bring core capabilities that can be deployed in response to DMS (e.g., Charles and Lisa, Table 4). Furthermore, we observe that larger organizations were more likely to engage in collaborations than smaller organizations. A plausible reason for this may be the limited financial resources available to smaller organizations.

Organizational Responses to DMS		Quotes from respondents
Collaboration	Alliances	So, you know, we have an alliance with Microsoft. I believe one of our major competitors has an alliance with Google. So the accountancy profession and the sort of consulting arms of the accountancy professions are now linking up with the big IT data animals like Google, like Microsoft, to explore and have an alliance on how we can work together with their IT expertise and our business acumen to deliver projects to clients in a mutual manner. And that's where disruptions are really coming in. We and McLaren had an alliance where are we using McLaren's **data analytics expertise** to help our clients with that strategy. Now we no longer have that alliance with them, but I believe one of our competitors now have an alliance with them. So that is how businesses are now, you know, are coming together for the greater good of serving clients. (Charles)
	Partnerships	Some of the garden centers will only want 6 cases total. Because we are the manufacturer, we only deliver in pallets. Delivering to each garden centre was very problematic. We got in touch with our sister company, an online retailer, they actually ship out to people's homes... So of course, they have overnight couriers, shipper boxes that they can pack boxes in and it goes on courier. So we could fulfill each garden centres order even if it's just 6 cases. So we will pack it here, send it on our next wagon going to our sister company and then they use their courier service to post it out to the garden centres. (Catherine)
	Acquisitions	We were already in the manufacturing business in confectionery manufacturing because in 2009, we bought a confectionery manufacturer that made sweets and it had gone into liquidation and we bought it and turned it around and made it successful again. (Catherine)
Transformations		Yeah, and the other piece to that is that internally we are using technology more and more, so I think we are now the only one of the big four to have three of our major systems- but we will be later this year have three of our major systems operating in the cloud so where we are internally transforming how we use technology. We are able to talk to our clients about the journey that we've gone on to do and what they can learn from it. (Lisa)
		The problem I find with strategy of that nature is that it becomes very, it gets out of date very quickly. By the time you've done it, especially organisations like ourselves who are going through a period of transformation, moving from high cost to low cost, reducing the number of employees that we have because the expectations of the markets is changing. Then we don't have enough people to do the work and then to think about the work. (Alex)

Table 4: Collaborations and Transformations as Organizational Responses to DMS

We find that collaborations can be executed in three ways. First, in the financial and management consulting industry, some organizations formed alliances with large IT organizations to enhance their internal processes, deliver services, and provide products to clients in response to DMS; this was emphasized by Charles (Table 4). The alliances with data analytics and IT companies facilitated the development of their data analytics capabilities. As such, there is a growing need for organizations to analyze consumer data efficiently and effectively with a fast turnaround time to align products, services, business models, and business offerings with emerging consumer needs and trends.

Second, partnerships can be made with other organizations under the same corporate umbrella. In this situation, organizations simply team up with sister organizations to help in developing and introducing products, services, or business models. One of the managers (Catherine, Table 4) spoke about the importance of partnering with a 'sister company' which is internet based to enhance their logistics, delivery, and supply chain capabilities. Third, other organizations acquired specialist companies to ensure seamless collaborations. The reasons for acquisitions can be two-fold. Acquisitions can help develop a capability that will be useful in responding to DMS, or an acquisition can be a means to buy out another (competing) organization operating within the same organizational field. This two-fold reason is buttressed by Catherine who noted that:

> *We were already in the manufacturing business in confectionery manufacturing because in 2009, we bought a confectionery manufacturer that made sweets and it had gone into liquidation and we bought it and turned it around and made it successful again.*

Additionally, Marx et al. (2014), propose a two-stage framework in which organizations initially compete but then eventually collaborate. This is most likely to occur

when an incumbent acquires a smaller organization that introduces radical or disruptive products, services, business models, or processes that threaten the incumbent's performance.

Thus, organizational collaborations might provide the opportunity to review organizational purpose, strategy, and decisions and re-configure their internal resources and capabilities in response to DMS (Cozzolino et al., 2018). Furthermore, collaborations ensure that organizations complement their resource base and capabilities with those of other organizations to retain market position and competitive advantage. We thus propose that:

Proposition 2: Collaborations with external organizations in the form of (a) alliances, (b), partnerships, and (c) acquisitions can be utilized to acquire new resources and capabilities to complement existing organizational resources in response to DMS.

Proposition 2d: Larger organizations are more likely to engage in collaborations than smaller organizations.

Transformations

In response to DMS, some organizations initiate an internal transformational process by modifying organizational structures and processes. This can involve the use of technology in an advanced way to meet consumer needs. Thus, some organizations emphasized the use of technological advancements to modify and transform their business processes and activities (Lisa and Alex, Table 4). This, in turn, is reflected in the way products and services are offered to customers based on the transformational process undertaken by organizations. The 2018 internal archives of organization C indicate the implementation of a three-year transformational program of the company's internal operations in response to DMS and reduction in profits because of Brexit.

Another form of transformational processes undertaken by organizations in response to DMS was a reduction of the workforce due to a change in the business model of the organization. This involved the restructuring of business processes and activities in line with new industry trends. This is corroborated by Alex (Table 4) and internal archives of organization Q that emphasized the need to reduce the number of employees to increase efficiency in the organization. Similarly, organization H implemented a transformational program that resulted in a reduction of the workforce. Company documents from May 2018 stated that 195 positions were made redundant as a result of the transformational program. In sum, transformational processes can help to position organizations to respond efficiently and effectively to external disruptive threats. We therefore propose that:

Proposition 3a: Internal transformational processes are initiated as a response to DMS to ensure competitive advantages and firm survival.

Proposition 3b: The transformation processes can be in the form of technological and/or personnel restructuring depending on industry and magnitude of DMS.

Innovative metrics and patterns

We further find that organizations can take several strategic innovation choices when faced with DMS to ensure survival, consumer satisfaction, competitive advantages, and preservation of market share in an industry. An organization can decide to introduce either incremental, radical, or disruptive innovations as depicted in Table 5. We proceed by reviewing the range of innovative patterns that organizations can undertake.

Construct	Content analysis words and codes to represent the respondents
Incremental Innovation	We're constantly updating. Constantly, and it keeps the range fresh. We keep our customers happy because when people look forward to seeing what's new with us. **And sometimes we might have a really good product and we just slightly update it. We just change the packaging slightly. That's another way that we innovate.** We might have a product and we might make it just a slightly different red or just a slight change here or there and it can make a big impact as well. **(Ethan)**
	We're **constantly getting rid of products** that are slightly slower than the rest of them. So **we're constantly upgrading and removing lines** which are not as profitable as we'd like them to be. So it's **constantly changing**, if you know what I mean. (**Ethan)**
	And, we've taken on people that have worked for other businesses as well. We take them on in our production facilities and then they get to learn first-hand how they do things and just continuous improvement and a big thing for is continuous improvement. **So innovation, continuous improvement, also, hand in hand driven to go together**. So trying to continuously improve whatever we do. Could we have done that better? We made something, can we make it better? Can we improve it sufficient? Can we to make it quicker? Can we offer our customers the best solution coming up from a more cost-effective solution? So I think the whole thing is **constant improvement, continuous innovation and continuously analyzing what we are doing as a company**. **(Austin)**
	If you look at, kind of, the interface, the app, to see how it works, we have among the best. **So, we didn't create it, but we made it better**. **(Douglas)**
Radical Innovation	I suppose one of the challenges for organizations is the integration of their systems. When their systems are integrated through data. What Universal Data Exchange does is it sits in the middle of all of those systems and manages the data flows. So, instead of having a spaghetti of all of these systems we can come up with another here there and everywhere. What we create is, the best way of describing it is a sort of cog and spoke arrangement where this cog it's put sitting in the middle of the systems and each of those systems switch the data in and out of the hub of the Universal Data Exchange. **The software that's out to do that is innovative. (Eric)**
	We have a digital strategic framework which is called digital horizon which looks at different horizons that are possible and what we can do with everything we have now and also what is the art of the future. It looks at horizons here and horizons there. So essentially, we have got the strategic framework and used it to define a 5-year vision for a commercial real estate firm. **It was basically using technology accelerations like VR, AR to define how that could be used for that business**. We used that in a really really strong way to define visionary disruptive strategy for that organization which they have now undertook. **(Henry)**
	In five years some, successor to Block chain will be a mainstream technology. What does that do? Well, that is aimed at delivering trust, consensus, expertise. That's kind of what we hope to do. So I think it's coming. **But that's why we're changing our business model, right?** That's why we're trying to get as lean as we can be as nimble as we can be and changing the nature of our people so that we can respond to the challenge when it comes. **(Alvin)**
	The local architecture was implemented in January 2015**. It is innovative and its interface is accredited by NHS digital**. This is a competitive advantage as no other organization has this. As a competitive advantage of the local architecture, we don't pick up infrastructure cost because the local architecture does it. **We sell software as a service. As such, it is a cost-effective business model. (Gary)**

Table 5: Word list for content analysis on innovative patterns as a strategic response to DMS

Construct	Content analysis words and codes to represent the respondents
Disruptive Innovation	A disruptive business model or a disruptive approach is one which first **makes you question everything you do**. And then with the answers, what makes it disruptive is the answers become the **catalyst for shift, for change. (Jane)**
	We have introduced a platform for helping vehicles move from one part of the UK to another. Essentially, this is about aggregating demand for transport with supplier transport. What we would call in terms of what its does? In a way, it's very kind of uber-like in terms of bringing supply and demand together and essentially charging a fee. **But its been disruptive because its replaced that traditional model of how transportation is sourced**. In terms of other things we have done, is it disruptive, well, it is, **where we have introduced an online wholesale business to business vehicle platform**. Effectively what that has done is disrupt the traditional ways of disposing vehicles. So that has been very disruptive. **(Alfred)**
	In my mind, there is a distinction to be made between innovation and disruption. Innovation can be disruptive but they are kind of different. I guess their effect is slightly different. **Disruption has a sort of category effect. (Anderson).**
	I think Skyr and Protein are very good examples. When we launched, back in 2015, the yogurt market was very stagnant so there was decline in both volume and value. Penetration of yogurts was really high. You were never going to get anyone to buy yogurt who didn't buy it already. Unfortunately, those who were already buying yogurt were buying less. When we first came into the market, we were trying to find yogurt products that will be incremental to the category rather than stealing from the category. Which was why we launched Protein. Protein was obviously, at that time wasn't a trend, it was more of a fad. It was the hard-core gym goers who were buying into the protein – shakes, powders, way protein – really hard-core protein users. Skyr, very similar, so from a healthier choices yogurt range which are fat free and low fats, it was very much dominated by Greek style yogurt. So people will look for plain yogurt or Greek style yogurt. Skyr wasn't a thing when we launched Skyr it was incremental to the category. **(Annie)**
	We can link the money we get to those figures, then if you are successful, then we are successful. And if we believe in our product, then we believe you will be successful. **If it doesn't work then you don't pay.** Of course, a late revenue growth for that says, **if you are very successful you will pay more and if not, you don't pay**. That removes any risk factors. **That's an example of pricing disruption. (Alex)**
	The thing that jumps to mind at the very basic level is **our packaging which is quite different.** So, if you look at the way that we operate in the market. Coffee is a strange one and its chilled coffee which is very different for people and they are not sure of what to expect from the packaging. We have three formats of packaging, the bottles, the cups and the cans. The cans are often seen as quite disruptive. In some markets, like in Spain for example, **coffee was never served in a can and I don't know if it's intentionally disruptive and then we sold in a can which is disruptive. (Derek)**
	How we change – **our business model is changing from license fees based to subscription**, possibly we are going to move from that too. **If we are able to do it, we will be a business disruptor. (Alex)**

Table 5 Continued: Word list for content analysis on innovative patterns as a strategic response to DMS

Incremental innovation

Incremental innovation is "the capability to generate innovations that refine and reinforce existing products and services" (Subramaniam and Youndt, 2005, p. 452). Incremental innovation continually improves existing products while avoiding the loss of existing resources, capabilities, and know-how. With incremental innovations, consumers do not usually need to engage in new learning processes to use the product or service because it satisfies the same set of consumer needs and preferences (Wijnberg, 2004). Interview findings show that various organizations consistently introduced incremental product innovations in response to DMS. Furthermore, internal reports of organization E emphasize the importance of innovation through integrative products by stating that the strategic outlook of the organization is to 'focus on continually improving our products' in ensuring that consumers have a seamless experience.

We observe that some business-to-consumer (B2C) organizations (e.g., Organizations C and N) introduced incremental innovations by constantly changing their product packaging. The packaging changes were used as a means of differentiating their products from competitors' and ensuring that consumers are amenable to the new packaging styles. Additionally (Douglas and Austin, Table 5) emphasize their organizational strategies of 'constant improvement and continuous innovation' for their products and service offerings. Incremental innovations generally have low risks attached and do not involve major investments because existing resources and capabilities are utilized. Thus, if an organization's top management team is risk averse, it is likely that incremental innovations will be a strategic tool in responding to DMS. Furthermore, we find that if the disruption threat is not perceived as severe, organizations are likely to introduce incremental innovations. Thus:

Proposition 4a: Organizations whose top management teams do not perceive the threat of disruption as severe and are risk averse are likely to respond to DMS by introducing incremental innovations.

Proposition 4b: B2C *organizations are more likely to respond to DMS through incremental innovations.*

Radical innovation

Radical innovation is "the capability to generate innovations that significantly transform existing products and services" (Subramaniam and Youndt, 2005, p. 452). Radical innovation differs from incremental innovation in that it fundamentally involves breakthrough technologies that meet latent customer needs (Kyriakopoulos et al., 2016) and usually result in the cannibalization of existing technologies (Chandy and Tellis, 1998). Thus, radical innovations are based on technological advancements that require new learning processes by customers and cause them to re-think their preferences (Wijnberg, 2004). Our findings show that some organizations deployed technological advancements to develop and implement radical innovations in response to DMS. Furthermore, we observe two major types of radical innovations in our sampled firms: product and business model innovations.

First, the introduction of radical product innovations was evident in business-to-business organizations that take advantage of technological advancements to develop new software sold as a product to their clientele base. For example, Henry (Table 5) noted that his organization uses technological advancements such as virtual reality and artificial intelligence to provide services to clients. Specifically, organization A referred to its use of technology in internal documents and emphasized the need to use technological advancements such as

machine learning, augmented intelligence, and digital assistants to improve business processes and overall organizational performance.

Second, some organizations introduced radical business model innovations by using technological advancements to change elements of their business models. This was a competitive advantage for organizations because of the novel technology employed in the business model. In addition, Gary (Table 5) explained how the radical business model introduced by his organization created a unique selling point because of its accreditation by the regulatory body and unavailability to other competing organizations.

Thus, in response to DMS, organizations can use elements of digitization and technological advancements to their advantage by developing radical innovations. However, the ability to successfully introduce radical innovations hinges on top management perception of disruptive threat, risk-taking propensity, and commitment to innovation. Thus:

> *Proposition 4c*: *Organizations whose top management are willing to cannibalize existing resources, capabilities, and assets; risk-seeking; and committed to innovation are likely to respond to DMS by introducing radical innovations.*

> *Proposition 4d*: B2B *organizations are more likely to respond to DMS through radical product innovations.*

Disruptive innovation

Disruptive innovations are usually initiated in low-end or new markets and involve the evolution of a product, service, or business model over time (Christensen et al., 2015). While incremental innovations improve existing products and services, and radical innovations transform existing products and services, disruptive innovations are usually inferior to existing products at the beginning of their life cycle and target under-served or overlooked

market segments (Christensen and Raynor, 2003; Kim and Mauborgne, 2005). However, over time, disruptive innovations create a new market and out-perform existing products and services and create new performance metrics for organisations (Antonio and Kanbach, 2023; Guo et al., 2019).

Some organizations, in their response to DMS, position themselves to introduce products, services, and business models with the aim of creating phenomenal changes by changing dominant industry dynamics (Wijnberg, 2004). As such, these organizations aim to disrupt other players by changing the status quo and taken-for-granted behaviors through the provision of products to either the low end of the market or a new market segment (Christensen et al., 2015; Rao and Giorgi, 2006; Zietsma et al., 2018). The role of top management is relevant here as it determines which disruptive approach to take depending on its risk propensity and perception of the disruptive threat to internal business processes. Derek put it this way:

> *Disruption is a passion, it's almost like connecting, you wake up in the morning obsessive at a leadership level, how am I going to change the world in my business? It's almost like, in my opinion, one of the most powerful drivers. And yes you can put it under the bracket of managerial commitment, it is almost the element of leadership passion. If you look at disruptive leaders, leaders of disruptive businesses, they share the values they receive, the things they set out to do and the way they do it. It's a little bit of them.*

By developing disruptive innovations, organizations can create market demand and surpass competitive moves through first-mover advantages. A common characteristic of disruptive innovations is the presence of disruptive technologies (Dewald and Bowen, 2010),

which aim to change customer perceptions and preferences, performance metrics, industry operations, existing business models, basis for competition, organizational resources, and capabilities required for business success (Christensen et al., 2002). The decision to introduce disruptive innovations is risky as its success is uncertain because of possible competitive retaliation and customer dynamism. Some managers interviewed expressed the capability inherent in their organizations to introduce disruptive innovations in the face of external disruption (Annie, Alfred, and Alex, Table 5). The three major types of disruptive innovations introduced were product, business model, and pricing innovations.

First, a disruptive product is usually targeted at a new market segment or the low end of an existing market instead of mainstream consumers. Such products are often viewed as inferior to existing products because they perform poorly on mainstream performance standards (Christensen and Raynor, 2003; Kim and Mauborgne, 2005). For instance, Organization C successfully introduced two disruptive products. At the time of the products' introduction, no other competitor was providing similar products in the market. As such, the target market was a new and emerging market segment. However, over time, mainstream consumers began purchasing the product, so its target market grew exponentially, which then caught the attention of competing organizations in the industry.

Second, another alternative response to DMS is the introduction of disruptive business models. A disruptive business model entails component reformulation or a new way of exploiting one or more of the business model components (Gambardella and McGahan, 2010; Rivera-Camino, 2007). Christensen et al. (2002, p. 26) argue that a 'disruptive business model competes against non-consumption and targets unreached market segments (who probably couldn't "do it themselves" because of lack of money/skills)'. Hence, an organization can introduce disruptive business models to displace existing and competing business models. Alfred (Table 5) spoke about the transition from a physical to an online

business model to facilitate business processes in his organization. Alex (Table 5) indicated the change from a license fee business model to a subscription-based business model, which was welcomed by consumers. The new business model was disruptive because of the impact on consumers and other firms operating in the same industry.

The third type of disruptive innovation introduced by sampled organizations is disruptive pricing strategy. This was evident in business-to-business organizations. For example, Alex (Table 5) explained that his firm adopted a strategy in response to DMS to ensure that software provided to other organizations was not paid for until it was successful. In this case, if the service offering failed, the client did not need to pay for it; however, if it was successful, the client paid more money. This strategy helped remove the risk factor for clients involved in business transactions. This implies that the top management team was willing to take high levels of risk, which could have resulted in losses if the software failed.

This example reflects the risks associated with developing and implementing disruptive innovations. Their impact, if successful, can change the rules and expected patterns of behavior within an institutional environment. However, they often result in the cannibalization of existing resources and assets and force a complete overhaul of organizational investments, revenue-generating process, resources, and know-how. Catherine buttressed this by stating that:

> *If you are adding a new biscuit to your range, you have to discontinue one of your own range…We have to kick out another product.*

Thus, to develop disruptive innovations, managers need to be risk-seeking and willing to cannibalize existing practices, processes, business models, and resources. We therefore propose that:

> *Proposition 4: Organizations whose top management teams aim to change the dominant industry logic, are risk-seeking, and willing to cannibalize existing*

resources and capabilities and are more likely to respond to DMS by introducing disruptive (e) product, (f) pricing, or (g) business model innovations

DISCUSSION

While DMS can have negative effects on the economic sustainability and survival of organizations, such events may will always result in the displacement of existing organizational processes, structures, and performance outcomes. In fact, DMS can serve as pivotal turning points in an organization's history that necessitates a re-thinking of current business practices and operations. Thus, DMS can enable organizations to initiate transformational processes that assist in re-evaluating institutionalized actions and help pave the way for new forms of business processes. The resulting transformational process taken in the face of DMS can be a tedious and painful organizational journey because it usually requires re-configuration and sometimes a complete overhaul of established business practices; however, it can be extremely rewarding in the short and long run.

DMS can propel organizations to change their maps of reality pertaining to digitization, environmental and social sustainability, political uncertainty and government regulations, competitive pressures, press and media and customer dynamism. As a result, better strategic decisions and more effective actions can be taken to ensure continued survival and economic sustainability in organizations. However, the refusal to respond to disruptive threats might be a denial of the ever-dynamic business landscape. Therefore, organizations must regularly update their reality maps and business processes to ensure continued long-term success.

In responding to DMS, the importance of utilizing internal organizational resources and competencies cannot be over-emphasized, as organizations rely heavily on available assets, resources, and capabilities to ensure continued survival when disruption occurs. To

complement organizational resources and capabilities, collaborations can be a formidable asset to mitigate potentially negative disruptive threats. Furthermore, Karimi and Walter (2015) argue that dynamic capabilities are crucial in responding to disruptions caused by digital technologies. Hence, firms can utilize internal resources and capabilities as a formidable response strategy to DMS.

We observe that organizational size can influence the response strategies adopted when DMS occur. Small organizations generally introduce incremental and disruptive innovations and are able to deploy big data analytics capabilities in response to disruption. Medium-sized organizations, especially those in B2B markets tend to introduce disruptive business models while large organizations usually introduce a combination of incremental, radical, and disruptive innovations because of their huge resource and capability base. Additionally, large organizations can engage in high levels of experimentation due to massive resource availability and this facilitates decision making on the kind of response mechanisms to deploy when faced with disruption.

Moreover, due to their substantial resource and capability base, large organizations ensure that their employees receive world-class training to facilitate the development of strategies in order to ensure continued competitive advantages. An example is organization N, where employees in its product development department are enrolled for a seven-year training program. Large organizations also have the capability to form collaborations with data analytics giants which helps to develop their data analytics capabilities in response to disruptive threats. Extant literature has also argued that data analytics is an essential capability that can lead to positive performance outcomes for organizations (Liu, 2014; Xu et al., 2016).

The findings of our study show that some DMS are initiated by recent trends and growing recognition of the impact of organizations on customers and the environment. For

example, the Blue Planet series of the BBC has highlighted the state of the oceans in the UK and the drive towards the use of less plastic has been corroborated with recent regulation on the reduction of plastic in retailing. A case in point is Morrisons, a UK retailing giant, who has recently introduced plastic-free fruit and vegetable areas (Morrisons, 2022). This can be viewed as a competitive response to the actions of Sainsbury's who first introduced plastic-free packaging (Horton, 2019). Hence, many UK supermarkets such as Aldi, Asda, Co-op, M&S, and Waitrose have all introduced packaging-free groceries in selected stores across the UK.

THEORETICAL IMPLICATIONS

This study examines the conceptual domain of DMS and organizational response mechanisms by using literature and empirical insights. The theoretical implications are three-fold. First, organizations are faced with various pressures in their external environment. These can stem from digitization, political uncertainty, government regulations, competitive pressures, press and media, and customer dynamism, all of which play a major role in determining how organizations operating within an institutional environment conduct their business processes and ensure legitimacy. We find that institutional norms and taken-for-granted rules and regulations can be disrupted through the influence of these factors (Lawrence and Shadnam, 2008). For example, a new entrant into an institutional field (industry) can initiate a series of events that subsequently change the existing industry dominant logic. Thus, institutional theory can explain how external forces can influence internal processes in organizations (DiMaggio and Powell, 1991; Meyer and Rowan, 1991; Zucker, 1977).

Second, in response to DMS, organizations can use their unique and heterogeneous resources as proposed by the Resource Based Theory (RBT) to achieve positive performance.

The RBT can complement institutional theory by providing an internal organizational resource and capability perspective on how organizations (re-)configure their processes and routines to boost performance and achieve competitive advantages (Barney et al., 2011; Leiblein, 2011). The distinct nature of internal resources and capabilities help top management teams decide on what strategic decisions to take. The decision can be to form collaborations with other organizations to complement the resource and capability base among others and to initiate internal transformational processes or develop innovative patterns such as incremental, radical, or disruptive innovations.

Third, the findings of our study can be linked to both institutional theory (Peters, 2022) and the RBT (Freeman et al., 2021) which can provide an explanation of the potential causes of DMS, the nature of disruption, and the intricacies involved in determining organizational responses to DMS. On the one hand, the conceptual domain of DMS can be linked to institutional theory which aids in creating the normalized institutional setting with set rules and regulations guiding the operations of all organizations within the institutional environment. On the other hand, the internal (re-)configuration processes in the aftermath of DMS can be linked to RBT which depicts how organizations decide on the strategic action to take depending on their resources and capabilities. Furthermore, if an organization decides to respond to DMS, the RBT can provide a useful blueprint on how to re-configure resources and capabilities to ensure sustained competitive advantages.

MANAGERIAL IMPLICATIONS

The study findings provide strategic guidance to managers on the conceptual domain of DMS. We delineate the ways organizations socially construct their perception of DMS, in addition to describing the various factors that can lead to DMS. Thus, we show what organizations need to watch out for when operating in a dynamic business environment. As such, organizations need to be well-informed about digitization, political uncertainty,

government regulations, competitive pressures, press and media, and customer dynamism because of their likely impact on internal business processes. Hence, the early anticipation of disruptive threats is important to facilitate business success (Blume et al., 2020).

Furthermore, multiple choices are available to organizations depending on the perception of disruption by the top management team and its potential threat to organizational practices. For example, an organization can decide to secure collaborations which can help mitigate some negative performance outcomes of disruption and build necessary capabilities (e.g., data analytics and supply chain capabilities) for developing an appropriate response to disruption. Organizations can also initiate an internal transformational process. This can help reorganize its structure, leadership, and employees to ensure that strategic objectives, resources, and capabilities are reinforced to enable the deployment of response strategies when faced with DMS. Furthermore, organizations can introduce innovative patterns such as incremental, radical, or disruptive innovations to retain competitive advantages and market share in the face of disruption.

Each innovative pattern presents different performance implications and challenges, and managers should know what to expect when pursuing an appropriate innovation response to disruption. The timescale of benefits for each innovative pattern differs from incremental to disruptive innovations. Thus, managers need to consider resource limitations when determining the kind of innovation to introduce in response to global disruptive shifts. For instance, disruptive innovations might result in performance reductions in the short run due to the seeming inferiority of the innovation compared to existing mainstream innovations. However, over time, as mainstream consumers begin to shift from existing products to the disruptive product, sales and revenue levels will rise. On the other hand, incremental innovations can provide short-term performance boosts, but this might not be as long-lasting. Therefore, managers need to consider the short- and long-term benefits of each innovative

pattern and resource availability when making strategic decisions about what response strategy to adopt.

LIMITATIONS AND FUTURE RESEARCH IMPLICATIONS

In examining organizational responses to DMS, it might be necessary to consider intangible resources and assets available to organizations, such as brand reputation and brand integrity. Doing so can help evaluate how firms mitigate the negative implications of disruption by deploying their intangible assets, in addition to other organizational assets and resources. Thus, it would be worthwhile for future studies to examine the impact of organizational intangible assets as a strategic response to DMS. It would be interesting to explore the reasons why organizations decide to choose one form of response over the other, especially with respect to innovative patterns such as incremental, radical, and disruptive innovations.

In addition, further research on the impact of national culture and environmental conditions on organizational choices of appropriate responses to DMS would be useful. Here, studies could investigate DMS in various countries to account for national, cultural, and environmental differences. Such studies can also allow for comparisons between firms operating in different countries and show how national culture and environmental conditions determine corporate responses to external disruption.

Furthermore, the scope of this study was limited to examining external exogenous forces as antecedents of DMS, however, DMS can also be initiated though internal strategic shifts. Hence, it would be worthwhile for future research to investigate internal strategic shifts as antecedents of DMS. Finally, the extensive set of propositions developed herein can enhance understanding of disruption in institutions and institutional fields, enabling scholars to further explore the relationship between DMS and organizational response strategies.

REFERENCES

Al-Dajani, H., S. Carter, E. Shaw and S. Marlow (2015). 'Entrepreneurship among the displaced and dispossessed: Exploring the limits of emancipatory entrepreneuring', *British Journal of Management*, **26,** pp. 713-730.

Anderson Jr., E. G. and K. Lewis (2014). 'A dynamic model of individual and collective learning amid disruption', *Organization Science*, **25**, pp.356-376.

Anthony, S.D. (2016). Kodak's downfall wasn't about technology. Available online at: https://hbr.org/2016/07/kodaks-downfall-wasnt-about-technology (accessed 24 October 2022).

Antonio, J.L. and Kanbach, D.K. (2023). Contextual factors of disruptive innovation: A systematic review and framework. *Technological Forecasting and Social Change*, 188, p.122274.

Barney, J. B., D. J. Ketchen Jr, and M. Wright (2011). 'The future of resource-based theory: revitalization or decline?' *Journal of Management*, **37**, pp. 1299-1315.

BBC Pulse Survey. (2018). '*BBC announces major initiative 'Plastics Watch' following the global impact of Blue Planet II'*. Available at: https://www.bbc.co.uk/mediacentre/latestnews/2018/plastics-watch (accessed 12 April 2019).

Benzidia, S., Luca, R.M. and Boiko, S. (2021). Disruptive innovation, business models, and encroachment strategies: Buyer's perspective on electric and hybrid vehicle technology. *Technological Forecasting and Social Change*, 165, p.120520.

Blume, M., Oberländer, A.M., Röglinger, M., Rosemann, M. and Wyrtki, K. (2020). Ex ante assessment of disruptive threats: Identifying relevant threats before one is disrupted. *Technological Forecasting and Social Change*, 158, p.120103.

Brougham, D. and Haar, J. (2020). Technological disruption and employment: The influence on job insecurity and turnover intentions: A multi-country study. *Technological Forecasting and Social Change*, 161, p.120276.

Buhr, K. (2012). 'The inclusion of aviation in the EU emissions trading scheme: Temporal conditions for institutional entrepreneurship', *Organization Studies*, **33**, pp. 1565-1587.

Chandy, R. K. and G. J. Tellis (1998). 'Organizing for radical product innovation: The overlooked role of willingness to cannibalize', *Journal of Marketing Research*, **35**, pp. 474-487

Christensen, C. M. (2013). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Boston: Harvard Business Review Press.

Christensen, C. M., M. W. Johnson and D. K. Rigby (2002). 'Foundations for growth: How to identify and build disruptive new businesses', *MIT Sloan Management Review*, **43**, pp.22-31.

Christensen, C. M., R. McDonald, E. J. Altman and J. E. Palmer (2018). 'Disruptive innovation: An intellectual history and directions for future research', *Journal of Management Studies*, **55**, pp. 1043-1078.

Christensen, C. M. and M. E Raynor (2003). *The Innovator's Solution: Creating and Sustaining Successful Growth*. Boston: Harvard Business Press.

Christensen, C. M., M. E. Raynor and R. McDonald (2015). 'What is disruptive innovation?' *Harvard Business Review*, **93**, pp. 44-53.

Corley, K. G. and D. A. Gioia (2004). 'Identity ambiguity and change in the wake of a corporate spin-off', *Administrative Science Quarterly*, **49**, pp. 173–208.

Cozzolino, A., G. Verona and F.T Rothaermel (2018). 'Unpacking the disruption process: New technology, business models, and incumbent adaptation'. *Journal of Management Studies*, **55**, 1166-1202.

Dewald, J. and F. Bowen (2010). 'Storm clouds and silver linings: Responding to disruptive innovations through cognitive resilience'. *Entrepreneurship Theory and Practice*, **34**, 197-218.

DiMaggio, P. J. and W. W. Powell (1991). 'Introduction'. In DiMaggio, P. J. and W. W. Powell (Eds.), *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press, 1-38.

Dobbs, R., J. Manyika and J. Woetzel (2015). *No Ordinary Disruption: The Four Global Forces Breaking All the Trends*. New York: Public Affairs.

Dubois, A. and L. E. Gadde (2002). 'Systematic combining: an abductive approach to case research'. *Journal of Business Research*, **55**, 553-560.

Dwivedi, Y. K., Shareef, M. A., Akram, M. S., Bhatti, Z. A. and Rana, N. P. (2022). Examining the effects of enterprise social media on operational and social performance during environmental disruption. *Technological Forecasting and Social Change*, 175, p.121364. https://doi.org/10.1016/j.techfore.2021.121364

Eastburn, R. W. and R. J. Boland Jr (2015). 'Inside banks' information and control systems: Post-decision surprise and corporate disruption'. *Information and Organization*, **25**, 160-190.

Eisenhardt, K. M. (1989). 'Building theories from case study research'. *Academy of Management Review*, **14**, 532-550.

Ernkvist, M. (2015). 'The double knot of technology and business-model innovation in the era of ferment of digital exchanges: The case of OM, a pioneer in electronic options exchanges'. *Technological Forecasting and Social Change*, **99**, 285-299.

EY Disruption Index. (Q3 2018). Available at: https://www.ey.com/Publication/vwLUAssets/ey-disruption-index-q3-2018/$File/ey-disruption-index-q3-2018.pdf (accessed 7th June, 2019).

Fligstein, N. (1991). 'The structural transformation of American industry: An institutional account of the causes of diversification in the largest firms, 1919–1979'. In Powell, W. W. and P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press, 311-336.

Freeman, R.E., Dmytriyev, S.D. and Phillips, R.A. (2021). Stakeholder theory and the resource-based view of the firm. *Journal of Management*, *47*(7), pp.1757-1770.

Gambardella, A. and A. M. McGahan (2010). 'Business-model innovation: General purpose technologies and their implications for industry structure'. *Long Range Planning*, **43**, 262-271.

Geissinger, A., Laurell, C. and Sandström, C., 2020. Digital Disruption beyond Uber and Airbnb—Tracking the long tail of the sharing economy. Technological Forecasting and Social Change, 155, p.119323. https://doi.org/10.1016/j.techfore.2018.06.012

Gilbert, C. G., M. Eyring and R. N. Foster (2012). 'Two routes to resilience'. *Harvard Business Review*, **90**, 65–73.

Govindarajan, V. and P. K. Kopalle (2006). 'The usefulness of measuring disruptiveness of innovations ex post in making ex ante predictions'. *Journal of Product Innovation Management*, **23**, 12-18.

Govindarajan, V., P. K. Kopalle and E. Danneels (2011). 'The effects of mainstream and emerging customer orientations on radical and disruptive innovations'. *Journal of Product Innovation Management*, **28**, 121-132.

Horton, H. (2019). 'Sainsbury's becomes first supermarket to get rid of plastic bags for fruit and veg and bakery items'. *The Telegraph.* Available at:

https://www.telegraph.co.uk/news/2019/06/06/sainsburys-becomes-first-supermarket-get-rid-plastic-bags-fruit/ (accessed 13th June, 2019).
Huggett, M. and S. Ospina (2001). 'Does productivity growth fall after the adoption of new technology?' *Journal of Monetary Economics*, **48**, 173-195.
Joughin, K. (2018). 'Waves of disruption'. *Digital Perspectives.* Available at: https://www.accenture.com/gb-en/blogs/blogs-waves-of-disruption (accessed 12 April 2019).
Karimi, J. and Walter, Z. (2015). The role of dynamic capabilities in responding to digital disruption: A factor-based study of the newspaper industry. *Journal of Management Information Systems*, **32**(1), 39-81.
Keys, L. (2017). '5 ways disruption has changed the world and how businesses can adapt to the future'. *Entrepreneur Europe.* Available at: https://www.entrepreneur.com/article/296345 (accessed 12 April 2019).
Khanagha, S., M. T. Ramezan Zadeh, O. R. Mihalache and H. W. Volberda (2018). 'Embracing bewilderment: Responding to technological disruption in heterogeneous market environments'. *Journal of Management Studies*, **55**, 1079-1121.
Kilkki, K., Mäntylä, M., Karhu, K., Hämmäinen, H. and Ailisto, H., 2018. A disruption framework. Technological Forecasting and Social Change, 129, pp.275-284. https://doi.org/10.1016/j.techfore.2017.09.034
Kim, S. K. and S. Min (2015). 'Business model innovation performance: When does adding a new business model benefit an incumbent?'. *Strategic Entrepreneurship Journal*, **9**, 34–57.
Kim, W. C. and R. Mauborgne, (2005). *Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant*. Boston: Harvard Business School Press.
Kim, S., Connerton, T.P. and Park, C. (2021). Exploring the impact of technological disruptions in the automotive retail: A futures studies and systems thinking approach based on causal layered analysis and causal loop diagram. *Technological Forecasting and Social Change*, 172, p.121024.
KPMG Technology Industry Innovation Survey. (2019). Available at: https://info.kpmg.us/content/dam/info/en/innovation-enterprise-solutions/pdf/2019/technology-innovation-hubs-2019.pdf (accessed 7th June, 2019).
Kyriakopoulos, K., M. Hughes and P. Hughes (2016). 'The role of marketing resources in radical innovation activity: antecedents and payoffs'. *Journal of Product Innovation Management*, **33**, 398-417.
Langley, P. and Rieple, A. (2021). Incumbents' capabilities to win in a digitised world: The case of the fashion industry. *Technological Forecasting and Social Change*, 167, p.120718.
Lawrence, T.B. and Shadnam, M. (2008). Institutional theory. *The international encyclopedia of communication*.
Leavy, B. (2018). Value innovation and how to successfully incubate "blue ocean" initiatives. *Strategy & Leadership*. **46**, 10-20. 10.1108/SL-02-2018-0020
Leiblein, M. J. (2011). 'What do resource-and capability-based theories propose?' *Journal of Management*, **27**, 909-932.
Li, D.Y. and J. Liu (2014). 'Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China'. *Journal of Business Research*, **67**, 2793-2799.
Li, Y., Wang, X., Gong, T., & Wang, H. (2022). Breaking out of the pandemic: How can firms match internal competence with external resources to shape operational resilience? *Journal of Operations Management*. https://doi.org/10.1002/joom.1176
Liu, Y. (2014). Big data and predictive business analytics. *Journal of Business Forecasting*,

33(4), 40–42.
Lipczynski, J. and J. Wilson (2001). *Industrial organisation: An Analysis of Competing Markets*. Essex: Financial Times/Prentice Hall.
Marketing Week. (2017). https://www.marketingweek.com/disruptive-brands/deliveroo/ (accessed 13th June, 2019)
Markides, C. (2006). 'Disruptive innovation: In need of better theory'. *Journal of Product Innovation Management*, **23**, 19-25.
Markides, C. and D. Oyon (2010). 'What to do against disruptive business models (when and how to play two games at once)'. *MIT Sloan Management Review*, **51**, 25-32.
Marx, M., J. S. Gans and D. H. Hsu (2014). 'Dynamic commercialization strategies for disruptive technologies: Evidence from the speech recognition industry'. *Management Science*, **60**, 3103-3123.
Mason, J. (2002). *Qualitative Research*. London: Sage.
Meyer, J. W. and B. Rowan (1991). 'Institutionalized organizations: Formal structure as myth and ceremony'. In Powell, W. W. and P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press, 41–62.
Miles, M. B. and A.M. Huberman (1994). An Expanded Sourcebook: Qualitative Data Analysis. London: Sage.
Miles, M. B., A.M. Huberman and J. Saldana (2014). Qualitative Data Analysis: A Methods Sourcebook. Thousand Oaks, CA: Sage.
Möller, T. and P. Schaufuss (2022). Road mobility. McKinsey Quarterly, Available Online: https://www.mckinsey.com/capabilities/sustainability/our-insights/spotting-green-business-opportunities-in-a-surging-net-zero-world/transition-to-net-zero/road-mobility Accessed February 23, 2023.
Morrisons. (2022). Morrisons to introduce plastic-free fruit and veg areas to help customers buy bagless. Available online at: https://www.morrisons-corporate.com/media-centre/corporate-news/morrisons-to-introduce-plastic-free-fruit-and-veg-areas-to-help-customers-buy-bagless/ (Accessed 26th October 2022).
Muller, E. (2020). Delimiting disruption: Why Uber is disruptive, but Airbnb is not. *International Journal of Research in Marketing*, **37**, 43-55.
O'Reilly III, C. A. and M. L. Tushman (2008). 'Ambidexterity as a dynamic capability: Resolving the innovator's dilemma'. *Research in Organizational Behavior*, **28**, 185–206.
O'Reilly III, C. A. and M. L. Tushman (2016). *Lead and Disrupt: How to Solve the Innovator's Dilemma*. Stanford, CA: Stanford University Press.
Paruchuri, S., A. Nerkar and D.C. Hambrick (2006). 'Acquisition integration and productivity losses in the technical core: Disruption of inventors in acquired companies'. *Organization Science*, **17**, 545-562.
Patton, M. Q. (2002). 'Qualitative interviewing'. *Qualitative Research and Evaluation Methods*, **3**, 344-347.
Pérez, C. J. and C. J. Ponce (2015). 'Disruption costs, learning by doing, and technology adoption'. *International Journal of Industrial Organization*, **41**, 64-75.
Peters, B.G. (2022). Institutional theory. In *Handbook on Theories of Governance* (pp. 323-335). Edward Elgar Publishing.
Pettus, M. L., Y. Y. Kor, J. T. Mahoney and S. C. Michael (2018). 'Sequencing and timing of strategic responses after industry disruption: Evidence from post-deregulation competition in the US railroad industry'. *Strategic Organization*, **16**, 373-400.
Rao, H. and S. Giorgi (2006). 'Code breaking: How entrepreneurs exploit cultural logics to generate institutional change'. *Research in Organizational Behavior*, **27**, 269-304.

Rhodes, C. (2016). 'Democratic business ethics: Volkswagen's emissions scandal and the disruption of corporate sovereignty'. *Organization Studies*, **37**, 1501-1518.
Rivera-Camino, J. (2007). 'Re-evaluating green marketing strategy: A stakeholder perspective'. *European Journal of Marketing*, **41**, 1328-1358.
Sabatier, V., A. Kennard and V. Mangematin (2012). 'When technological discontinuities and disruptive business models challenge dominant industry logics: Insights from the drugs industry'. *Technological Forecasting and Social Change*, **79**, 949-962.
Schuelke-Leech, B. A. (2018). A model for understanding the orders of magnitude of disruptive technologies. *Technological Forecasting and Social Change*, **129**, 261-274.
Silverman, D. (2005). *Doing Qualitative Research*, 2nd edition. Los Angeles: Sage.
Skeete, J. P. (2018). Level 5 autonomy: The new face of disruption in road transport. *Technological Forecasting and Social Change*, **134**, 22-34.
Subramaniam, M. and M. A. Youndt (2005). 'The influence of intellectual capital on the types of innovative capabilities'. *Academy of Management Journal*, **48**, 450-463.
The Global Competitiveness Report. (2018). Available online at: http://www3.weforum.org/docs/GCR2018/05FullReport/TheGlobalCompetitivenessReport2018.pdf (accessed 7th June, 2019).
Wallin, A., Pihlajamaa, M. and Malmelin, N. (2022). How do large corporations manage disruption? The perspective of manufacturing executives in Finland. *European Journal of Innovation Management*, **25**, 19-43.
Walsham, G. (1995). The emergence of interpretivism in IS research. *Information Systems Research*, **6**, 376-394.
Wijnberg, N. M. (2004). 'Innovation and organization: Value and competition in selection systems'. *Organization Studies*, **25**, 1413-1433.
Wright, C. and P. Gilding (2013). 'Imagining the climate crisis and the great disruption: An interview with Paul Gilding'. *Organization*, **20**, 757-766.
Xu, Z., Frankwick, G. L., & Ramirez, E. (2016). Effects of big data analytics and traditional marketing analytics on new product success: A knowledge fusion perspective. *Journal of Business Research*, 69(5), 1562–1566. https://doi.org/10.1016/j.jbusres.2015.10.017
Yin, R. K. (2014). *Case Study Research: Design and Methods*, 5th edition. Thousand Oaks, CA: Sage.
Zietsma, C., T. Ruebottom and A. Slade Shantz (2018). 'Unobtrusive maintenance: Temporal complexity, latent category control and the stalled emergence of the cleantech sector'. *Journal of Management Studies*, **55**, 1242-1277.
Zucker, L. G. (1977). 'The role of institutionalization in cultural persistence'. *American Sociological Review*, **42**, 726-743.

APPENDIX

Interview protocol

1. Please can you tell me your job title and your general responsibilities within your organization? How long have you worked in this position? **Probe**: Can you tell me about your experience in strategy development and implementation?
2. Please can you tell me about your organization and industry characteristics?
3. Please can you tell me what you understand by disruptive market shift? **Probe**: Can you tell me the factors you think are responsible for disruptive market shifts?
4. Can you tell me what your organization does when faced with disruptive market shifts?
5. Can you give me examples of strategies or an experience you have had responding to disruptive market shifts within your organization?
6. Please can you tell me the performance matrixes used to evaluate your organization's response to disruptive market shifts?