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Strategic Change of The Firms: The Essentials and Some New Evidence

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STRATEGIC CHANGE OF THE FIRMS: A SYSTEMATIC LITERATURE REVIEW FOR FUTURE RESEARCH GUIDANCE

ABSTRACT

Strategic change (SC) has a widespread in the scholarly domain and an ever-increasing presence in today's changing business world. What are the antecedents, processes, outcomes, and actors of SC? This study tackles this topic through a systematic review of SC which suggests new avenues for management research and offers important reflections for practice on i) the main factors responsible for determining SC, ii) the principal actions and methods adopted to implement SC, iii) the major effects associated with SC, and iv) the actors responsible for directing SC.

KEY-WORDS: *actor, antecedent, outcome, process, strategic change, systematic literature review*

INTRODUCTION

"Change is the only constant in life" – Heraclitus

Strategic change (SC) has gained increasing attention in the literature of management and strategy (Boeker, 1997a; Kunisch et al., 2017; Quinn, 1989; Zajac et al., 2000), and today's changing business world has revitalized the interest in SC beyond the scholarly domain.

The past decade has seen an increase in the number of studies investigating SC (Figure 1), thus resulting in a rather fragmented understanding of the concept. In fact, while some research interpreted SC as a significant change in terms of processes, structures, and resources that aligns the organization with environmental transformations (Barr, 1998; Gioia et al., 1994; Hofer & Schendel, 1978a; van de Ven & Poole, 1995), others focused on SC as a deviation from industry strategic norms (e.g., Carpenter, 2000) and as a result of managerial action based on knowledge acquired (Rajagopalan & Spreitzer, 1997; Tushman & Romanelli, 1985) or past experiences gained (Zhang & Rajagopalan, 2010). Thus, a great deal of research

on SC in the management and strategy disciplines has given birth to a wealth of conceptualizations, while a common definition of SC still lacks.

[INSERT FIGURE 1 ABOUT HERE]

Paralleling this academic importance, SC is inevitable in today's changing business world where companies reconfigure strategies to position themselves for long-term success (Laczkowski, 2019). In fact, unexpected and complex transformations have profoundly reshaped the way in which companies conduct and organize their business, and managers have been forced to lead their companies through these fast-moving changes. Therefore, in the face of uncertainty and volatility characterizing the external environment, SC represents a significant response to unforeseen events that jeopardize the firm performance and the creation of sustainable value. For instance, by means of SC, new flexible solutions can be developed, business models can become more resilient (Farjoun & Fiss, 2022; Warner & Wäger, 2019), and firms can find a proper fit with the volatile environment (e.g., Hofer & Schendel, 1978b). As per the famous saying by the Greek philosopher Heraclitus quoted at the beginning of this paper, everyone should be able to cope with changes every day. SC is even more crucial nowadays as rapid technological transformations have placed firms under huge pressure to survive, requiring them to respond effectively to such crises by reconfiguring their strategy. For instance, Gartner (2020) reported that around 70% of firms accelerated their digital business initiatives in the wake of the COVID-19 pandemic, while Flammer & Ioannou (2021) found that firms mostly adjusted their strategic investments in response to the 2007–2009 financial crisis. Thus, past events and studies recognize the importance of accelerating SC to survive in the transformative scenarios (Fan et al., 2021; Gioia et al., 1994; Greenwood and Hinings, 1988; MacKay and Chia, 2013; Vicente-Lorente and Zúñiga-Vicente, 2006; Zhang and Rajagopalan, 2010). However, since SC can be a very

complex mechanism (Balogun et al., 2015; Bjerregaard & Jeppesen, 2022; Díaz-Fernández et al., 2019) there is a need for greater investigation of its driving factors, processes and effects.

Furthermore, a whole understanding of the enablers and people involved in the SC is still lacking. For example, the vast majority of research has concentrated on how and why CEOs can direct the SC of their firms (e.g., Carpenter, 2000; Greiner and Bhambri, 1989; Haynes and Hillman, 2010; Herrmann and Nadkarni, 2014; Villagrasa et al., 2018; Zhang and Rajagopalan, 2010), but there is still little emphasis on other actors like boards of directors, top management team, and consultants.

In addition, as illustrated in Figure 2, studies on SC have begun to proliferate in recent years, and there is a variety of methodological approaches adopted so far. Specifically, few systematic reviews and conceptual studies have appeared since empirical research on SC started to take off in recent years (Figure 2). Most of the reviews we identified have addressed selected aspects like the temporal (Kunisch et al., 2017) or the institutional (Marquis & Raynard, 2015; Micelotta et al., 2017) dimensions, the disposal and utilization of organizational resources (Kraatz & Zajac, 2001), the outcomes (Stouten et al., 2018), the literature streams (Burnes, 2005; Schmitt et al., 2018), the perspectives on SC – either deterministic, voluntaristic, and dialectical (Müller & Kunisch, 2018) or rational, learning, and cognitive (Rajagopalan & Spreitzer, 1997), the phenomenon of digital transformation associated with SC (Hanelt et al., 2021), and the sustainability of change (Buchanan, Fitzgerald, et al., 2005). Other past reviews assessed managerial aspects like the role of dynamic managerial capabilities (Helfat & Martin, 2015) or of leadership (Hutzschenreuter et al., 2012; Oreg & Berson, 2019; Woodman, 1989) in SC. In addition, even though Armenakis & Bedeian (1999) provided a more general review of the contents, conditions,

processes, and outcomes of organizational change, their study dates back to the 1990s and thus does not contemplate the impact that significant events like the 2007-2008 financial crisis, the digital transformation, the adoption of Environmental, Social, and Governance (ESG) principles, or the COVID-19 pandemic can have in terms of SC. But since the acceleration of transformations as well as the economic and business discontinuities associated with these paradigm shifts can be difficult to be comprehended within traditional models (Nelson & Winter, 1975), new strategic and organizational reconfiguration firms can opt for merit further attention. Thus, SC can be interpreted as a beneficial approach to quickly adapt to new transformative scenarios. As a result, given the practical and theoretical importance of SC, it is surprising that no comprehensive framework for understanding the SC and no thorough up-to-date systematic reviews have been published in the past decades.

[INSERT FIGURE 2 ABOUT HERE]

Finally, it is especially difficult to draw clear conceptual boundaries between the terms "strategic change," "organizational change," and "strategic renewal." Figure 3 shows that a large part of the existing research has been focused on "organizational change" over time, and there have been numerous studies on "strategic change" since 1985, with more limited publications on "strategic renewal" from 1991 on.

[INSERT FIGURE 3 ABOUT HERE]

In the current article, we aim to fill these gaps by pursuing three objectives. First, we aim to review and critically analyze the current level of extant research. Second, we synthesize the findings into an integrative and updated framework based on *antecedents, processes, outcomes,* and *actors*. In addition, our review goes beyond current knowledge to promise fruitful directions for future research on SC. Consequently, the overarching research question for our systematic review is *what are the antecedents, processes, outcomes, and actors of*

SC? Specifically, we clearly plot out i) the main factors responsible for determining SC, ii) the principal actions and methods adopted to implement SC, iii) the major effects associated with SC, and iv) the main roles of each actor in directing SC.

Our systematic review is comprised of five main parts. In the first section, we define the SC domain. Then we describe the systematic literature review methodology we applied. In section three we organize and classify current knowledge on SC across four categories: antecedents, processes, outcomes, and actors. Next, we provide promising reflections on future research into SC. In the final section, we draw the conclusions of our study, and we report contributions for theory and practice.

BACKGROUND

Before presenting the systematic analysis of the literature, we review work on SC conducted by management scholars to clarify the scope of this article. A notable feature of the SC research is the range and diversity of the topics examined. For instance, a large body of management and strategy literature has explored why, when, and how firms change their strategies to survive in a competitive context. Tushman & Romanelli (1985) defined SC as a pronounced discontinuity or reorientation in the life of the firm in response to environmental discontinuities. According to Gioia & Chittipeddi (1991a), SC involves modifications in the current modes of a firm's cognition and action to capture opportunities or to cope with environmental threats. Greenwood & Hinings (1988) considered SC a result of variations in the strategic "recipes" used to cope with the external environment. Likewise, various authors (Carpenter, 2000; Choi et al., 2021; Hofer & Schendel, 1978a; Rajagopalan & Spreitzer, 1997; Tushman & Romanelli, 1985; van de Ven & Poole, 1995) interpreted SC as a set of modifications to the fundamental patterns of resources to adapt to environmental conditions

and uncertainty. Therefore, SC can be seen as a useful approach to compete and survive in turbulent contexts (Bindra et al., 2019; Dhir & Dhir, 2015; Fan et al., 2021; Gioia et al., 1994; Komodromos et al., 2019; Vicente-Lorente & Zúñiga-Vicente, 2006). Nevertheless, SC can be considered dangerous when extreme modifications are carried out (Morgan et al., 2021). In general, the predominance of existing literature has associated SC with changes in business, corporate, or collective strategies. Our wider definition of SC comprises the terms "organizational change" and "strategic renewal" since they constitute specific examples of SC (Agarwal & Helfat, 2009; Buchanan, Fitzgerald, et al., 2005). Also, typical findings from previous studies suggested that SC has been mainly measured by advertising and research and development intensity, plant and equipment upgrades, non-production overhead, inventory levels, and financial leverage (Carpenter, 2000; Haynes & Hillman, 2010; Karaevli & Zajac, 2013; Louca et al., 2020; Quigley & Hambrick, 2012; Richard et al., 2019; Zhang & Rajagopalan, 2010), firm's number of divestitures (Decker & Mellewigt, 2012), disclosure of discontinued operations (Barron et al., 2011), and number of acquisitions (G. Chen et al., 2016).

In general, the diversity of perspectives adopted in the study of SC gives an indication of the many ways in which SC can be investigated and treated. Such diversity is also shown in the consideration of selected aspects inside the SC domain. For example, Mantere et al. (2012) focused on the phenomenon of change reversal to describe situations in which top managers decide to pursue a strategy similar to one preceding. The study of Hardy (1996) presented the use of power in SC by discussing the energy needed to translate the strategic intent into strategic actions. More recently, the review from Kunisch et al. (2017) emphasized the temporal dimension of SC, thus showing the distinction between changes in strategy implemented to achieve goals within a specific time frame, and those changes executed as a

consequence of certain events. Other relevant contributions on SC are attributable to Goodstein et al. (1994), to Haynes & Hillman (2010), and to Boeker (1997b) who tested the effect of particular managerial characteristics on SC.

Hence, to consolidate this research and further it, these diverse topics need to be integrated to form a coherent picture. In doing so, we integrate the empirical evidence in a framework that highlights the four categories of antecedents, processes, outcomes, and actors of SC.

[INSERT FIGURE 4 ABOUT HERE]

METHODOLOGY

To identify relevant empirical studies on SC in the fields of management and strategy, we carried out a systematic literature review, which is recognized to be an efficient and acceptable approach for categorizing and evaluating existing studies (Mulrow, 1994). In addition, systematic literature reviews employ a transparent, scientific, and replicable method that reduces the biases that can affect wide-ranging literature research (Tranfield et al., 2003). Because we wanted the initial search to be broad, we searched for the keywords "strategic change," "strategic changes," "organizational change," and "strategic renewal", without setting a specific timespan. To do this, we used the Scopus database that comprises more than 20,000 peer-reviewed journals (Fahimnia et al., 2015), and we limited our search to the subject areas of *business, management, and accounting*, as identified by Scopus. This step yielded 2,410 studies. Secondly, we defined appropriate inclusion and exclusion criteria for the search strategy in order to provide an easily reproducible, comprehensive, and transparent process (Tranfield et al., 2003). In particular, i) we limited our search to final peer-reviewed articles, excluding other types of work such as books, chapters and working papers (Keupp et al., 2012), ii) we included only articles published in the Scopus subject area of *business, management, and accounting*, and iii) we limited our search to the Scopus source type

"Journals". Using these specifications, we retrieved 1,901 articles. We then included only 3-4-4* journals based on the ABS Academic Journal Guide 2018[1]. As a result, we read the remaining 229 papers to assess whether they should be included in the review. In this phase, we excluded 40 papers for several reasons. First, we omitted papers that were introductions to special issues (n = 7) and notes and commentaries (n = 3). Second, we omitted any full texts that were not really focused on SC even though the abstract and the title indicated this focus (n = 30). After these exclusions, we fully reviewed the remaining 189 papers. Figure 4 summarizes the final journals selected and the corresponding number of articles.

[INSERT FIGURE 4 ABOUT HERE]

We then moved from the search for articles to the categorizing of the articles. In this step, we identified the primary topics investigated in relation to SC. Drawing from this categorization, we developed a model in which to frame and outline the research on SC and to ease the vast presentation of the body of work on this topic. This comprehensive framework categorizes SC research into four broad areas: i) antecedents, ii) processes, iii) outcomes, and iv) actors (Figure 5). We then suggested – for each category identified – future research needs which cut across many of the issues raised in our paper.

[INSERT FIGURE 5 ABOUT HERE]

FINDINGS

Our review reveals that our final set of 189 peer-reviewed journal articles had been published from 1974 on and mainly included qualitative (n = 75) and quantitative (n = 67) works on SC. Moreover, while conceptual studies are quite common (n = 29), reviews accounted for a marginal amount (n = 14). In addition, only a few publications use a mixed design to study the phenomenon under investigation (n = 4). On the one hand, most of the qualitative studies

[1] https://charteredabs.org/academic-journal-guide-2018/

covered a broad range of elements, mainly in the categories of SC antecedents and processes; on the other hand, quantitative research inspects antecedents, processes, and actors in SC. Figure 6 summarizes the studies analyzing antecedents, processes, outcomes, and actors of SC.

[INSERT FIGURE 6 ABOUT HERE]

Research on antecedents increased starting in 2015, that on processes was prevalent from 2017 on, and studies regarding actors as the most frequent focus within this topic increased after 2011. In contrast, research on SC outcomes is generally scarce, and the related publications were more concentrated in 2008 and in 2021 (probably in association with disruptive events like the financial crisis and the COVID-19 pandemic).

The overarching framework of SC we have developed is composed of four major stages named antecedents, processes, outcomes, and actors. The *antecedents* of SC are factors responsible for determining SC and can be classified into internal (managerial/institutional/financial) and external ones (technology-related/institutional/financial/competitive). Especially, within the category of internal antecedents, we identify any potential firm-level elements that limit or encourage the SC. For instance, firms could be encouraged to change strategy due to certain managerial attitudes (e.g., risk-taking) or assessment, due to specific performance (e.g., failure, success) or due to institutional conditions (e.g., organizational constraints). With regards to the category of external antecedents, we include any potential threats or opportunities associated with the competitive environment. As compared to the internal antecedents representing factors that arise within the organization, the external antecedents can be referred to forces and conditions coming from the dynamic environment in which firms operate. For example, the decision to change strategy could originate from an increasing competition, external shocks

(e.g., COVID-19 pandemic), or national regulatory changes. In the second category of *processes*, SC is initially formulated or established through initiation/formulation; it means that the beginning phases are set and the SC is launched (Gioia & Chittipeddi, 1991a). Then, managers translate their intentions into action during the implementation/execution phase. Thereafter, managers can make sense of the most relevant issues to the change effort and they start to orient information toward issues that are important for the whole institution through sensemaking (Gioia & Thomas, 1996). Finally, the entire organization's acceptance is sought in the sensegiving stage, where managers can frequently meet with the stakeholders to influence the way in which they understand SC (Gioia & Chittipeddi, 1991a). The third category is the *outcomes* of SC, which represent the main effects produced when various changes are implemented; they can be either adaptive or disruptive, depending respectively on the beneficial or negative impact of SC. For example, a corporate strategy change could increase the firms' market share but can also produce scepticism and lack of motivation across the organization. Finally, the category of *actors* refers to multiple individuals working in the firm (e.g., top managers) and responsible for managing the SC. We interpret the category of actors as a cross category since the role of managers involves the initial phase of SC in which the antecedents are interpreted and managed, the intermediate phase in which the SC processes are reinforced, and the subsequent phase in which the outcomes are monitored and potentially revised.

Antecedents: Why Do Firms Change Strategy?

In the area of SC, much prior work has emphasized the role of different factors influencing the decision to change strategy (e.g., Bouckenooghe et al., 2021; Choi et al., 2021; Weiser, 2021). As suggested by Floyd & Lane (2014), understanding antecedents is essential for

effectively managing SC. In the following sections, we classify the antecedents of SC into internal and external ones, and we summarize them in Figure 7.

Internal Antecedents of SC. We separate the internal antecedents into i) financial, ii) managerial, and iii) institutional. Our review reveals that finance-related events like performance reduction or growth can be responsible for directing SC. For instance, Boeker (1989) argues that poor performance increases the likelihood that firms will change their initial strategy, while Zhou et al. (2006) showed that administrative changes are motivated by poor past performance and the technical ones by good past performance. In specific contexts like savings and loans (Zajac et al., 2000) or the semiconductor industry (Boeker, 1997a), a poor prior performance accelerates SC. In the same vein, Carnall (1986) refers to declining performance to justify the decision to change strategy and learn. In particular, firms facing financial distress tend to implement more restructuring than others (Zajac & Kraatz, 1993). On the other hand, low firm performance did not augment the number of business exits in the study conducted by Decker & Mellewigt (2012). More recently, Kuusela et al. (2017) showed that decreasing financial resources influences the annual frequencies of acquisitions and divestments. Apart from studies investigating organizational antecedents like total number of employees (Dass, 2000), a different contribution related to managerial characteristics as internal antecedents of SC was published, with a focus on culture that highlighted the finding that shared beliefs (Lorsch, 1986), professional experience (Le & Kroll, 2017; Oehmichen et al., 2017; Riviere et al., 2018), succession (Nakauchi & Wiersema, 2015; Yokota & Mitsuhashi, 2008), perception (Schmitt et al., 2016), ability to make incremental improvements to firms' existing capabilities (Yi et al., 2016), or willingness (Markóczy, 2000; Sliwka, 2007; Zhou et al., 2006) among top managers can accelerate SC (Oehmichen et al., 2017) . Similarly, Dutton & Duncan (1987a) and McGrath

(2006) concluded that specific beliefs, characteristics, and emotions on the part of individual decision-makers influence the planning and outcomes of their strategy. Also, cognitive factors and structures affected by political and organizational elements can constitute the basis for a new strategic orientation, according to Schwenk (1989). Carnall (1986), Huff et al. (1992), Bohman & Lindfors (1998), and Xiao et al. (2019) have theorized that the learning process, inertia, personal experience, and interpretations of specific events are a necessity for SC. The study by Kirtley & O'Mahony (2020) pointed out that entrepreneurs tend to change their strategy after new information modifies their beliefs. In the event of CEO succession, professional experience, certain personal characteristics, and educational background are considered equally relevant in determining SC (Fondas & Wiersema, 1997). Similarly, Jeong & Shin (2019) argue that high performance work practices have the potential to enhance organizational creativity. A recent review conducted by Bouckenooghe et al. (2021) summarized existing findings regarding various reactions and attitudes toward SC, such as resistance or readiness to change. The role of substantive actions was explored by Weiser (2021), who emphasizes the ability of leaders to influence their employees' sensemaking during SC implementation, while Nadler & Tushman (1990) argue that charismatic leadership induces initiation and implementation of SC. Arguments regarding institutional antecedents were discussed in the study by Waeger & Weber (2019), where certain internal political structures were necessary conditions to promote newly emerging strategies.

External Antecedents of SC. In the category of external antecedents, we identify i) technology-related, ii) institutional, iii) financial, and iv) competitive modifications characterizing the environment and presenting threats or opportunities for firms.

With regard to technology-related events, Lorsch (1986) found that technological transformations and product development pose major challenges that force the firms to

change their strategies (Lorsch, 1986). Morgan et al. (2021) experimentally proved that firms that have a high reputation because they open the innovation process can maintain rather change their strategy. Within the category of institutional antecedents, the study by Smith & Grimm (1987) focused on the implementation of SC as a strategic response to deregulation in the U.S. railroad industry. The paper by Choi et al. (2021) addressed the negative effects of policy uncertainty caused by political turnover on levels of SC; this impact appears less pronounced in firms with political connections and more financial resources. Leavy (1991) showed that the 1968-1974 structural consolidation involving the Irish dairy sector generated a major shift in national economic policy (the national level), affecting, in turn, the industry level and finally the SC of firms (the individual firm level). The study by Lorsch (1986) pointed out that continuing regulatory changes play a crucial role in accelerating SC, while Greenwood & Hinings (1988) argue that interactions between actors within certain institutionalized contexts influence SC.

A number of papers have been published in the category of financial antecedents. For instance, the financial crisis was discussed by Bohman & Lindfors (1998), while Barker III & Duhaime (1997) presented the phenomenon of industry contraction (resulting in performance decline) as a powerful determinant in implementing extensive SC. More recently, Barker III et al. (2001) showed the connection between performance deterioration and successful turnarounds. The study by Lorsch (1986) was one of those that discussed the competitive antecedents of SC. Notably, changing product market conditions, in addition to the globalization phenomenon, are responsible for accelerating SC.

[INSERT FIGURE 7 ABOUT HERE]

Processes: How Do Firms Change Strategy?

Existing research on SC identifies various characteristics related to SC processes. In the following sections, we classify consecutive processes of SC into *initiation/formulation, implementation/execution*, and *sensemaking/sensegiving.* Figure 8 summarizes the main findings of our review.

Initiation/formulation. Dutton & Duncan (1987a) specified that the initial phase of SC can be separated into *incremental changes* that constitute periodic variations in the fundamental nature of top managers' beliefs and practices, and *fundamental changes* that involve "several distinct but interrelated stages" of change (Dutton & Duncan, 1987, p. 101). The study by Johnson (1992) stresses the importance for managers to recognize specific signals and, consequently, to modify organizational structure and organizational systems. The initiation of SC can lead to better organizational performance, according to Lee & Ahn (2008), while Heyden et al. (2017) identified various configurations of managerial involvement in the processes of initiation and execution. Gioia & Chittipeddi (1991a) presented initiation as "a process whereby the CEO makes sense of an altered vision of the organization and engages in cycles of negotiated social construction activities to influence stakeholders and constituents to accept that vision" (Gioia & Chittipeddi, 1991a, p. 434). Zhao et al. (2020) investigated the initiation of the succession process in the context of family firms where successors with experience in international education encourage the firm's strategic deviation from industry norms. The study by Goodstein et al. (1994) associated board structure with different types of SC processes: service additions, service divestitures, and service reorganizations. According to Calori & Atamer (1990), the most important SC processes are the formulation of a 'strategic project,' the development of resources and skills, negotiation with the environment, the ability to deal with power, the improvement of internal

communication, and influence over norms of behavior. Hardy (1996) referred to the formulation of managerial strategic intentions to present the initial phase of SC, as did Bohman & Lindfors (1998) and Gimbert et al. (2010). The study by Leavy (1991) presented the hierarchical and progressive nature of SC, starting from the initiation phase at the national level. A more recent longitudinal case study conducted by Logemann et al. (2019) revealed that the starting processes in SC are rationalization and initiation.

Implementation/execution. Hardy (1996) and Teng et al. (1996) studied the formulation and the implementation process of SC to show how the strategic intentions of managers can be translated into reality. Likewise, Herrmann & Nadkarni (2014) linked the effects of CEO conscientiousness to the initiation and implementation of SC. On the other hand, some authors have investigated the implementation of SC singularly. One of the first works in this area was published by Pondy & Huff (1985), who concentrated on the implementation of routine changes. This was also the case for Nutt & Backoff (1993), who interpreted this process as the final phase of SC, which involved the understanding of history, exploration of the situation, detection of issues, identification of strategy, and assessment of feasibility. In addition, Ravasi & Lojacono (2005) referred to outstanding innovators in product design to separate SC into the processes of design, continuous product innovation, and periodic revision. By considering the narrative of managers and employees, Sonenshein (2010) explored the influence of meaning constructions on SC implementation. Chebbi et al. (2020) demonstrated that stakeholder satisfaction and engagement are fostered when an internal marketing strategy is implemented. The study by Warner & Wäger (2019) interpreted the implementation of SC as an ongoing process of digital transformation during which dynamic capabilities are developed, while Lynch & Mors (2019), Petrou et al. (2018), and Taylor (1979) show that a firm's employees and other agents play a critical role in the process of

implementation since they can be irreplaceable, influential, and can create strong connections. Franken et al. (2009) addressed successful SC execution by proposing the following four steps: 1) assessment of the performance; 2) harmonization of the strategic leadership team; 3) determination of critical elements, and 4) creation of a change portfolio. Instead, five different phases of SC were presented by Greiner & Bhambri (1989). Firstly, the definition of strategic logic is useful to gain a competitive advantage. Secondly, the organization needs to be established to drive its employees. The third step concerns the creation of political leadership for directing the strategy. Finally, collaboration between employees, as well as their support, becomes essential to initiate the new strategy. An integrated process of SC implementation was presented by Carnall (1986). The role of foreign cultures was explored by Amano (1979), who presented the process of organizational structure transformation within Japanese firms. The hierarchical and progressive nature of SC was discussed by Leavy (1991) who refer red to an *impetus phase* (at industry level) and a *structural change phase* (at the individual firm level) that immediately follow the initiation phase. The study by Johnson (1992) stressed the importance for managers to consolidate a change, once SC has been initiated. More recently, Abernethy et al. (2021) showed that successful implementation requires greater use of performance measurement information, and Vedel & Kokshagina (2021) demonstrated how firms adjust their organizational structures to shift towards more exploratory strategies.

Sensemaking/sensegiving. The contribution from Johnson (1992) extends to the sensemaking process through the consolidation of change and the creation of acceptance of this change across an organization. Gioia & Chittipeddi (1991a) focused on the emerging concepts of sensemaking and sensegiving to describe, respectively, the initial development of sense for the organization and the subsequent dissemination of the vision among

stakeholders. The same proposition about sensemaking and sensegiving was developed by Fiss & Zajac (2006). In addition to the processes of rationalization and initiation, Logemann et al. (2019) referred to the importance of "making sense" of each phase, both at a managerial level (sensegiving) and at an organizational level (sensemaking). In contrast, Haleblian & Rajagopalan (2006) and LÜScher & Lewis (2008) only stressed the sensemaking process as an interpretation of SC. More recently, Golden-Biddle (2020) explored the "abduction sequences" of belief, surprise, doubt, and inquiry to capture the process of creative social activity (Golden-Biddle, 2020, p. 1951).

[INSERT FIGURE 8 ABOUT HERE]

Outcomes: What Are the Main Consequences of Strategic Change?

As summarized in Figure 9, we separate the outcomes of SC into *adaptive* and *disruptive*. Within the category of adaptive outcomes, we identify the beneficial effects associated with the implementation of SC. In contrast, we include any negative impacts of SC in the category of disruptive outcomes.

Adaptive Outcomes. In the category of adaptive outcomes, we distinguish i) managerial, ii) organizational, and iii) financial consequences of SC. One of the first studies published in this category is that of Balogun (2006), who introduced "reinforcing" outcomes of SC that are consistent with the direction of change (e.g., staff commitment). Franken et al. (2009) wrote of higher management confidence in delivering change programs as a potential benefit associated with SC. Although positive managerial and organizational effects have been sufficiently discussed (Balogun, 2006; Franken et al., 2009; Taplin, 2006), financial effects are the larger part studied. In the area of managerial effects, Balogun (2006) focused on middle managers to reinforce the shared understanding and commitment of these individuals toward SC, while Franken et al. (2009) discussed the harmonization of leadership teams to

successfully deliver whole change portfolios. As regards organizational outcomes, Bertschek & Kaiser (2004) studied the effects of workplace reorganization on labor productivity, flow of information, and worker motivation. Argyres et al. (2020) found that the centralization of R&D budget authority increases the breadth of innovation impact and the technological search. In the area of financial outcomes, Smith & Grimm (1987) found that firms that changed their strategy to respond to environmental variations also tended to outperform others in terms of return on investment (ROI), return on total capitalization (ROTC), and return on equity (ROE). The study by Zajac et al. (2000) addressed positive effects in terms of return on assets (ROA) when companies alter their strategies in response to specific environmental and organizational contingencies. Technical changes positively impact on performance, while the administrative ones indirectly encourage the firm performance, according to Zhou et al. (2006). More recently, M. Chen et al. (2018) revealed that even though low level of technical or administrative change hinders firm performance, increasing level of these changes encourage the same performance. Le & Kroll (2017) showed that the length of time an executive spent abroad had a positive effect on performance. Triana et al. (2019) and Bentley & Kehoe (2020) measured these outcomes in terms of Tobin's q. Herrmann & Nadkarni (2014) proposed the view that SC implementation increases the level of sales growth, net earnings growth, return on capital, market share, return on assets, and return on sales. The Koka & Prescott (2008) paper focused on the productivity index to prove that the role of prominent firms within the network provided beneficial effects during the process of SC implementation. According to Strandholm et al. (2004), organizational performance (measured as cost containment, net profit, return on new services, return on capital, and market share) is higher when the alignment between SC and managerial characteristics is complete. The study by Zajac & Kraatz (1993) evaluated the performance-

enhancing response that derives from the implementation of restructuring in the higher education sector; in particular, increasing sales and return on sales (ROS) are observed in the first and in the second year after the change. Klarner & Raisch (2013) addressed the finding that firms which regularly change their strategy also improve their long-term performance measured as industry-adjusted annual ROE. According to Zhang & Rajagopalan (2010), adaptive effects dominate over disruptive ones at low levels of SC. More recently, Chung et al. (2014) showed that the effect of change management practices like assurance of job security on post-change performance is mediated by the employees' perceptions of change.

Disruptive Outcomes. In the category of disruptive outcomes, we rely on the definition provided by Balogun (2006) to refer to "counteracting" outcomes that do not support the desired direction of change. Within this category, we find that publications – with the exception of Kenny et al. (1986) who explored the officers' contrasting reactions to change – have only concentrated on the financial effects of SC. Naranjo-Gil et al. (2008) focused on the healthcare industry to show that SC is a threat to the operational performance of organizations, especially in terms of occupancy rates, use of surgery rooms, re-admission rates, length of stay, mortality rates, and waiting times; however, this effect is positively moderated by the presence of heterogeneous top management teams. According to Zhang & Rajagopalan (2010), disruptive effects dominate over the adaptive ones at high levels of SC, suggesting that decisions regarding the 'right' scale and scope of SC are central to creating and sustaining a competitive advantage. The study by MacKay & Chia (2013) addressed the unintended consequences of SC that are "neither expected nor intended" (MacKay & Chia, 2013, p. 2013), especially in the case of events causing disproportionate repercussions. Finally, Quigley & Hambrick (2012) measured changes in ROA and total shareholder returns (TSR) to show that CEO predecessor retention tends to suppress change.

[INSERT FIGURE 9 ABOUT HERE]

Actors: Who Directs the Strategic Change?

The actors responsible for directing, managing, and monitoring SC vary considerably across existing studies. As illustrated in Figures 5 and 6, we propose actors as a cross category for the antecedents, processes, and outcomes of SC since they can i) interpret antecedents and therefore determine SC, ii) be involved in the various processes of change, and iii) monitor and revise the effects of SC. In the following sections, we organize these actors into four different groups (i.e., chief executive officers (CEOs), top management team (TMT), board of directors, collective leadership) that prove to be the most investigated in relation to SC (Figure 10).

The Role of the CEO. Apart from few studies investigating the general role of middle and top executives (Heyden et al., 2017; Nakauchi & Wiersema, 2015), the majority of research on SC examines the initiatives of CEOs in understanding the internal and external factors influencing their organizations, and thus their role in initiating SC (e.g., Gioia & Chittipeddi, 1991a; Greiner & Bhambri, 1989). Greiner & Bhambri (1989) proposed the view that a CEO's intervention can increase opportunities to implement SC successfully, especially when the entire executive team is committed and motivated to act. According to the study by Gioia & Chittipeddi (1991b), CEOs are responsible for understanding and revising the internal and external environment (sensemaking) as well as for communicating their vision to stakeholders regarding the changed organization (sensegiving). Haynes & Hillman (2010) argued that the power of a CEO moderates not only the capital breadth but also the variations and deviations of SC, where strategic variation is a modification in terms of historic resource allocation patterns in firms, and strategic deviation is a change in "industry norms of resource allocation" (Haynes & Hillman, 2010, p. 1146). Zhang & Rajagopalan (2010) showed that

the presence of inside CEOs positively affects initiation and implementation of SCs – due to the profound knowledge acquired regarding internal resources and vision – and Zhang (2006) found that the presence of a separate COO/president encourages SC in conditions of low firm performance. The introduction of a new CEO with prior top management experiences as director, chief operating officer, or president increases the tendency toward SC, according to Weng & Lin (2014). The proposition of Le & Kroll (2017) was that the length of time and its interactions with number of countries CEOs worked in and cultural distance they were exposed positively affect firm performance. More recently, Villagrasa et al. (2018) showed that the CEO's positive interpretation of past performance negatively affects the magnitude of SCs. Likewise, Schmitt et al. (2016) theorized that CEO's perceptions and interpretations of the environment act as drivers and constraints to different types of SC. The ability of a new outsider CEOs to direct SCs can be higher "under conditions of relative stability" and in the early period of post-succession, according to Karaevli & Zajac (2013, p. 1288). The study by Quigley & Hambrick (2012) suggested that the persistent presence of the predecessor CEO as board chair constrains a new CEO's option to drive SCs in terms of resource reallocation, divestitures, and executive replacements. More recently, Hermann & Sucheta (2014) associated CEO personality with its influence in setting strategic directions and plans for a firm; they especially showed that the initiation of SC is facilitated when CEOs are more extroverted, whereas it is more difficult to promote in the case of conscientious CEOs. Past research has also investigated the positive correlation between CEO turnover and the implementation of discontinued operations (Barron et al., 2011) and between CEO turnover and the likelihood that a strategic business exit is implemented (Decker & Mellewigt, 2012). According to Westphal & Fredrickson (2001), CEO succession is a solid predictor of SC initiation, but this effect disappears after accounting for board experience.

More recently, Golden-Biddle (2020) explored the role of senior managers in discovering and reorienting existing habits to develop a new organizational system in time-pressured environment.

The Role of the Board of Directors. The study by Golden & Zajac (2001) showed that specific board structures (e.g., professional experience, proportion of outside directors) and board demography (e.g., board size, board tenure) favor the orientation of the board toward SC. The board industry expertise is associated with more SC, according to Oehmichen et al. (2017). Moreover, Goodstein et al. (1994) proved that a higher level of board diversity (i.e., differences in occupational or professional backgrounds) reduces the ability to initiate SC and thus to take strategic actions in time during periods of environmental turbulence. Board heterogeneity was also investigated by Haynes & Hillman (2010), who demonstrated that more diversified boards tend to change more from past strategies; in particular, they found a positive correlation between board capital breadth (i.e., education, functional background, occupation, age, tenure, interlocks, work experiences in other industries) and SC, but a negative association between the current or former industry work experience of the board and SC. The paper by Lorsch (1986) addressed the role of outside directors and discussed the ability of very senior and top managers with more experience to encourage cultural flexibility and, in turn, to speed up the process of SC. A different point of view was provided by Haleblian & Rajagopalan (2006), who debated the way a board's composition affects the decision to dismiss a CEO. More recently, Zhu et al. (2020) focused on new insider CEOs to show that those CEOs with i) high levels of prior experience acquired as board of director at other firms during the 10 years prior to becoming the CEO and ii) low levels of prior experience accumulated as board of director at the focal firm during the 10 years prior to becoming the CEO make the most SCs. In the context of family firms, Sievinen et al. (2020)

found that owners who serve on the boards of directors can act as catalysts for supporting renewal strategies.

The Role of the Top Management Team (TMT). TMT heterogeneity was studied by Naranjo-Gil et al. (2008), who showed the positive association between the inclusion of representatives from different social groups and the implementation of SC. More recently, with a specific focus on Chinese manufacturing firms, Richard et al. (2019) argued that the strength of task-related faultlines (e.g., educational level) is beneficial for SC thanks to the generation of new ideas within subgroups. Conversely, the strength of relationship-related faultlines negatively affects SC because it reduces inter-subgroup interactions. The concept of a faultline was also studied by Zhang et al. (2021), who focused on the relationship between CEOs and TMTs to capture their differences based on multiple attributes and the related effects on resource allocation variations. Top management mechanisms were examined by Chebbi et al. (2020), who associated them with the implementation of an internal marketing strategy, by Triana et al. (2019), who focused on TMT educational background diversity to prove the positive impact it can have on SC, by Clark & Soulsby (2007), who conceptualized TMT political ties, and by Williams et al. (2017), who investigated the inclusion of new top management within the firm. Finally, the study by Barker III et al. (2001) investigated the role of TMTs by showing that higher levels of TMT replacement "are associated with greater changes in firm competitive strategy and firm structure and controls during turnaround attempts" (Barker III et al., 2001, p. 235).

[INSERT FIGURE 10 ABOUT HERE]

DISCUSSIONS AND DIRECTIONS FOR FUTURE RESEARCH

SC is a phenomenon that lies at the core of the fields of management and strategy. The literature on SC has rapidly evolved over time with a prevalence of qualitative research until 2005 and of quantitative publications from 2011 on. In the previous sections of this paper, we presented an integrative framework which classifies this literature into four SC categories (i.e., antecedents, processes, outcomes, and actors), and we concluded our review by summarizing the existing work on SC across these categories. The theoretical framework used enabled us to identify the major areas of inquiry and it proves to be particularly suitable in guiding future research towards better understanding of SC. In the following paragraphs, we therefore suggest future research questions for each category of SC. To better organize the model for future directions, within each category identified, we then classify the key conclusions and implications into the following research areas: technology, resistance to change, competitive context, people and culture, and institutional framework (Table 1). In doing so, we hope that future researchers could focus on and explore selected aspects of SC, starting from the research questions shown in Table 1.

Future Research on Antecedents of SC. Our review allows us to draw several conclusions regarding the main determinants of SC. Most of the research in this category adopts quantitative (n = 26), qualitative (n = 22) methods, whereas conceptual studies appear to be somewhat marginal (n = 13).

First of all, the emphasis of existing work on different sorts of internal and external transformations still underestimates the role of digital transformation in SC. Since the context of digital transformation plays a central role in triggering certain strategic responses in firms (Vial, 2019), we suggest further testing should investigate whether the advent of *technology* encourages firms to change their strategies and consequently harness significant

opportunities. For instance, the role of big data could be assessed to understand how strategic decisions can be influenced by the significant amount of information available. Likewise, we recommend that future research should explore the development of emerging skills – such as digital and analytical thinking or active learning – in influencing SC. Moreover, even though Markus (2004) previously referred to the use of IT to drive SC, additional insights could derive from the analysis of specific advanced technologies.

Secondly, another important element of investigation involves the occurrence of *unexpected events* causing recession and forcing most firms to reconfigure their strategy. In this area, future studies could explore the role of incidents like the COVID-19 pandemic or other health-related events in determining SC. Thirdly, stimulating insights can derive from an analysis of the *competitive context* and, especially, from a comparison of the effects different industry structures can have in SC. For instance, Buchanan, Abbott, et al. (2005) concentrated on healthcare but additional sectors could be explored.

As regards the area of *people and culture*, despite the fact that some previous studies (Feldman, 1986; McEwen et al., 1988; Webb & Dawson, 1991) assumed that managerial culture and conflicts of interest constituted causal factors in SC, the scope of research needs to expand to include the effect of demographic and cultural characteristics in determining SC. Moreover, we believe that promising results could stem from applying the literature on dynamic managerial capabilities to explore the types of resources and competences needed to successfully lead SC. As also suggested by Jones & Macpherson (2006) and Crossan & Berdrow (2003), additional insights could come from a rigorous analysis of external knowledge acquisition or of organizational learning as processes that facilitate SC. Finally, by employing the institutional-based view and thus combining different *institutional*

frameworks with the SC perspective, future studies could reveal the influence on SC of more or less stringent regulatory systems.

Future Research on SC Processes. Despite the fact we found qualitative research was widely used (n = 35) to capture the specific dynamics of processes, we suggest employing a quantitative approach with the aim of objectively measuring all SC processes, since only 15 quantitative studies have thus far been published.

If we exclude studies focused on forecasting SC (Elbing, 1974) and on strategic planning (Grundy & King, 1992), most of extant literature explores the processes of initiation/formulation and implementation/execution of SC (Dutton & Duncan, 1987; Golden & Zajac, 2001; Zajac et al., 2000). Promising future insights could emerge from an investigation of the role of *technology* in each SC process. For instance, does the expansion of big data increase the opportunity to create shared commitment within organizations during SCs? Is the availability of broad amounts of information useful in implementing SC more rapidly? Is the separation between each SC process less clear at times of quickly evolving occurrences like the digital transformation? With regard to the area of *resistance to change,* research that investigates processes that are less flexible when adapting to SC could be beneficial. The third stream of future research can be related to specific characteristics of the *competitive context.* In fact, current works still have not examined how each SC process varies in terms of duration and typology, depending on the industry in which firms compete. In the area of *people and culture,* the assessment of the role of specific actors and skills in each SC process could be valuable. The study by Heracleous & Langham (1996) discussed a specific case study (i.e., Hay Management Consultants) to assess the management of knowledge workers, but future research could assess more general human resource practices to understand SC processes better. Furthermore, does the creation of change teams/networks

or the identification of potential positions resisting change emerge during specific SC processes? Moreover, the role of organizational flexibility as studied in the past by Whipp et al. (1989) could be expanded and updated to understand what level of adaptation will encourage successful SC. Within the fifth area, i.e. the *institutional framework,* the institutionalization of successful change programs could be a fascinating avenue for future research.

Finally, we found that three main processes compose SC (i.e., initiation/formulation, implementation/execution, and sensemaking/sensegiving); however, in consideration of recent global transformations and business evolution, additional phases could be identified.

Future Research on the Outcomes of SC. The review has revealed that little research has focused on the outcomes of SC (n = 32), with a prevalence of quantitative studies published in this category (n = 16). This finding suggests that future explorations should inspect qualitative effects associated with SC; for instance, the emotional reactions or the type of participation of employees could be potential elements of analysis. In addition, most past studies have related to the positive effects of SC, while the discourse around drawbacks has been neglected. Furthermore, within the category of disruptive outcomes, previous studies only concentrated on the financial effects, thus overlooking potential managerial and organizational implications. Moreover, despite the fact most of the existing literature considers short-term ratios like ROE or ROA to measure the outcomes of SC, there remains considerable scope for further investigation of long-term firm performance.

In the area of *technology*, future studies could look deeper into the role of digital transformation in successfully implementing SC. Does the adoption of advanced technologies allow firms to grasp more opportunities in terms of long-term outcomes? For instance, Wibbens & Siggelkow (2020) introduced the long-term investor value

appropriation measure to capture the effects of SC when it takes a longer before strategic actions are reflected in performance.

In addition, an analysis based on different *competitive contexts* would offer fruitful insights in terms of diversified SC effects. Future studies could compare outcomes across different industries and countries as well as analyze which specific industry structures facilitate SC. For instance, Tyrrall & Parker (2005) focused on railways and Wiedner et al. (2017) concentrated on healthcare, but future studies could consider additional contexts. Moreover, although extensive studies have been done regarding large companies, research on SC has not sufficiently addressed the context of small- and medium-sized enterprises.

With regard to the area of *people and culture,* an examination of individual responses to SC could yield interesting insights. Moreover, an analysis of the effects of SC on the nature of work, as well as an understanding of the team dynamics that emerge during SC, would be beneficial. Additionally, although past research (Bellou, 2008) has studied the critical importance of human factors quantitatively, existing qualitative and conceptual methods could be updated (da Cunha & Orlikowski, 2008; Piderit, 2000; Rafferty & Jimmieson, 2017) and additional methods could be fruitfully adopted to explore what managers and employees can learn from disruptive or adaptive SCs.

Finally, the type of *institutional framework* in which firms operate may reveal valuable knowledge regarding the role of specific constraints or conditions required to successfully implement SC. For instance, do higher levels of bureaucracy increase the likelihood of SC failing?

Future Research on SC Actors. The role of the actors involved in SC has been studied via quantitative (n = 30) and qualitative (n = 23) methods, but no research has adopted any mixed methodologies. Moreover, Figure 10 shows that most of the existing studies on the actors

involved in SC focused on CEOs , although there are exceptions like Denis et al. (2001), who analyzed the role of collective leadership, Boeker (1997), who studied the combined effects of chief executive succession, chief executive tenure, top management diversity, and top management tenure, Bentley & Kehoe (2020), who examined the general concept of HR slack, and Watson (1982), who explored the dynamics of middle class managerial groups. Therefore, there is space for further discussion of the role of boards of directors, TMT composition, and collective leadership.

Regarding the area of *technology*, future studies could explore the development of digital expertise and its relationship with digital SC, in addition to the ability of managers and employees to adapt to technological changes. In terms of the topic of *resistance to change*, some studies have already investigated SC in contexts characterized by environmental uncertainty, but research is still limited to specific countries (Sasaki et al., 2020; Wang et al., 2019). In addition, it could be fruitful to consider the role actors play in association with their inclination to be adaptive or resistant to SC. Moreover, an analysis based on different *competitive contexts* would offer useful information relating to actors' propensity to change depending on the level of environmental dynamism. Additional research might try to uncover the level of expertise needed to navigate SC in various industries.

[INSERT TABLE 1 ABOUT HERE]

CONCLUSIONS

Motivated by the growing interest in SC and by the need to shed light on this domain, this review synthesizes the findings of research in the fields of management and strategy to date. Based on our review, we propose a future research agenda that encourages researchers to embark on a more granular investigation of the antecedents, processes, outcomes, and actors of SC. By highlighting central issues and the most puzzling results, as well as a number of

open topics, we hope that this review can help the research community advance the frontiers of knowledge regarding SC.

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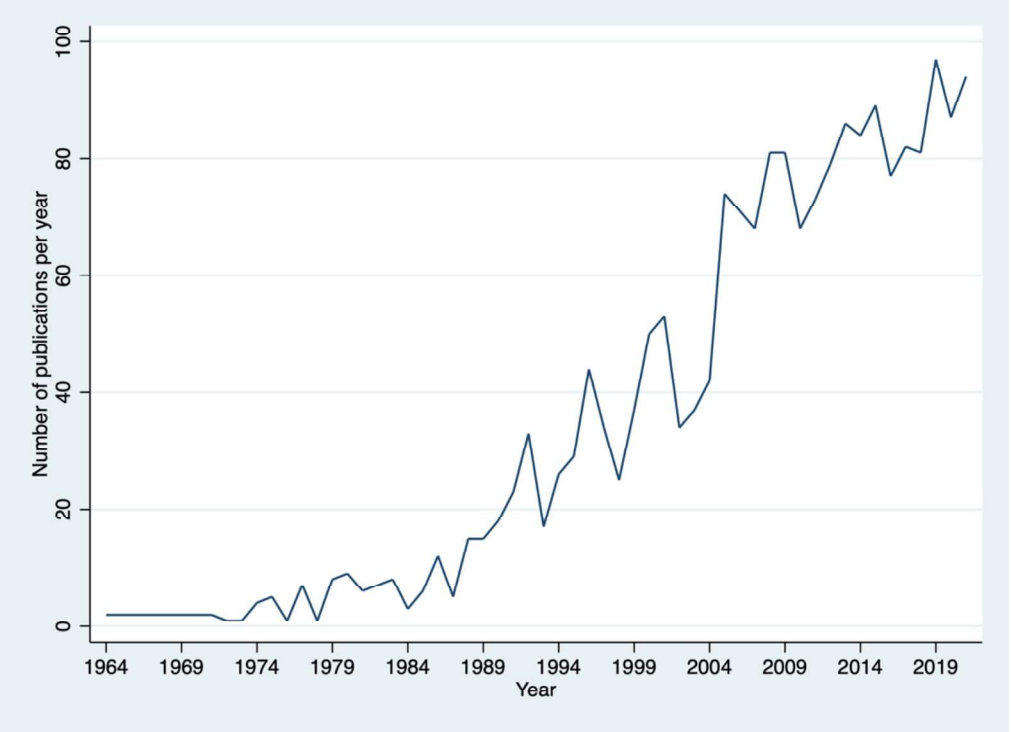
41(10), 1933–1951. https://doi.org/10.1002/smj.3183

FIGURES

FIGURE 1 – Total number of publications on strategic change per year



Source: our elaboration from Scopus

FIGURE 2 – Publications on strategic change per year, by methodology

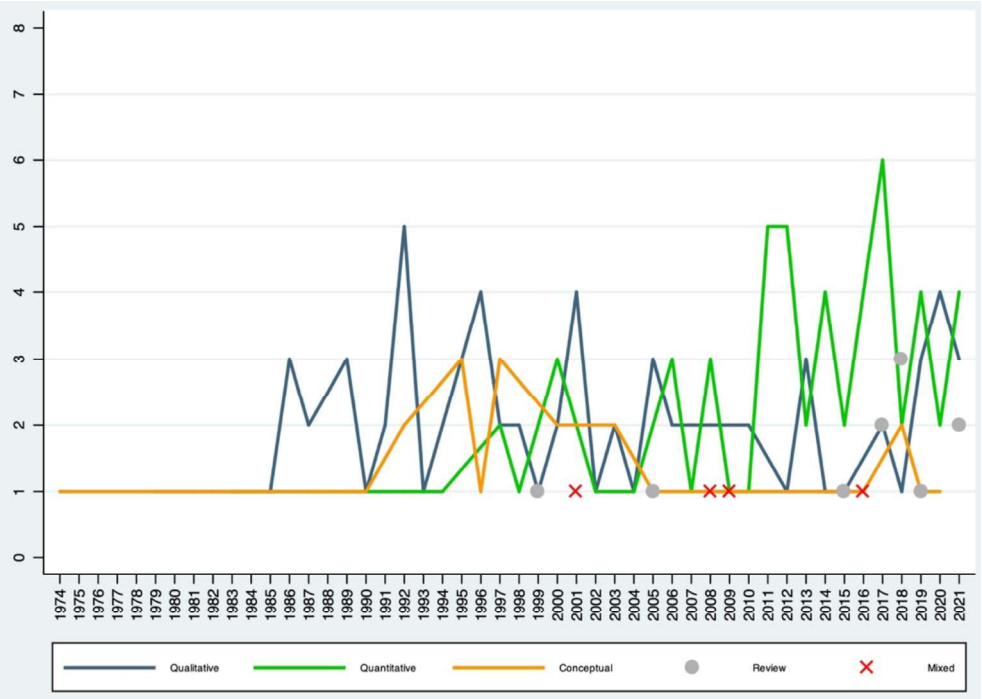


FIGURE 3 – Publications on strategic change per year, by keyword

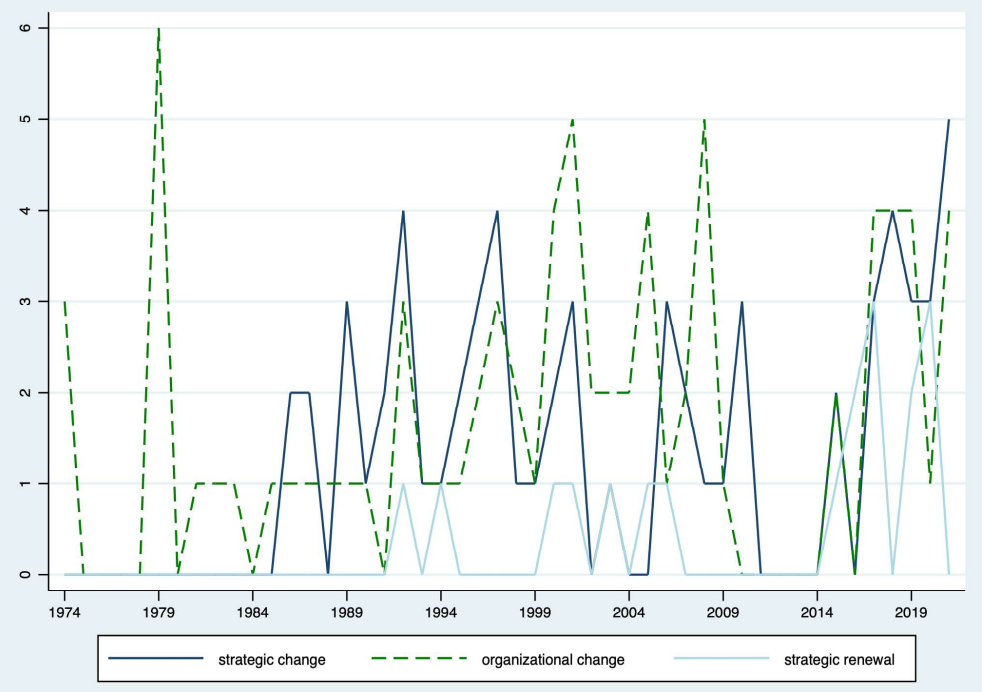


FIGURE 4 – Overview of the journals in which the articles on strategic change have been published

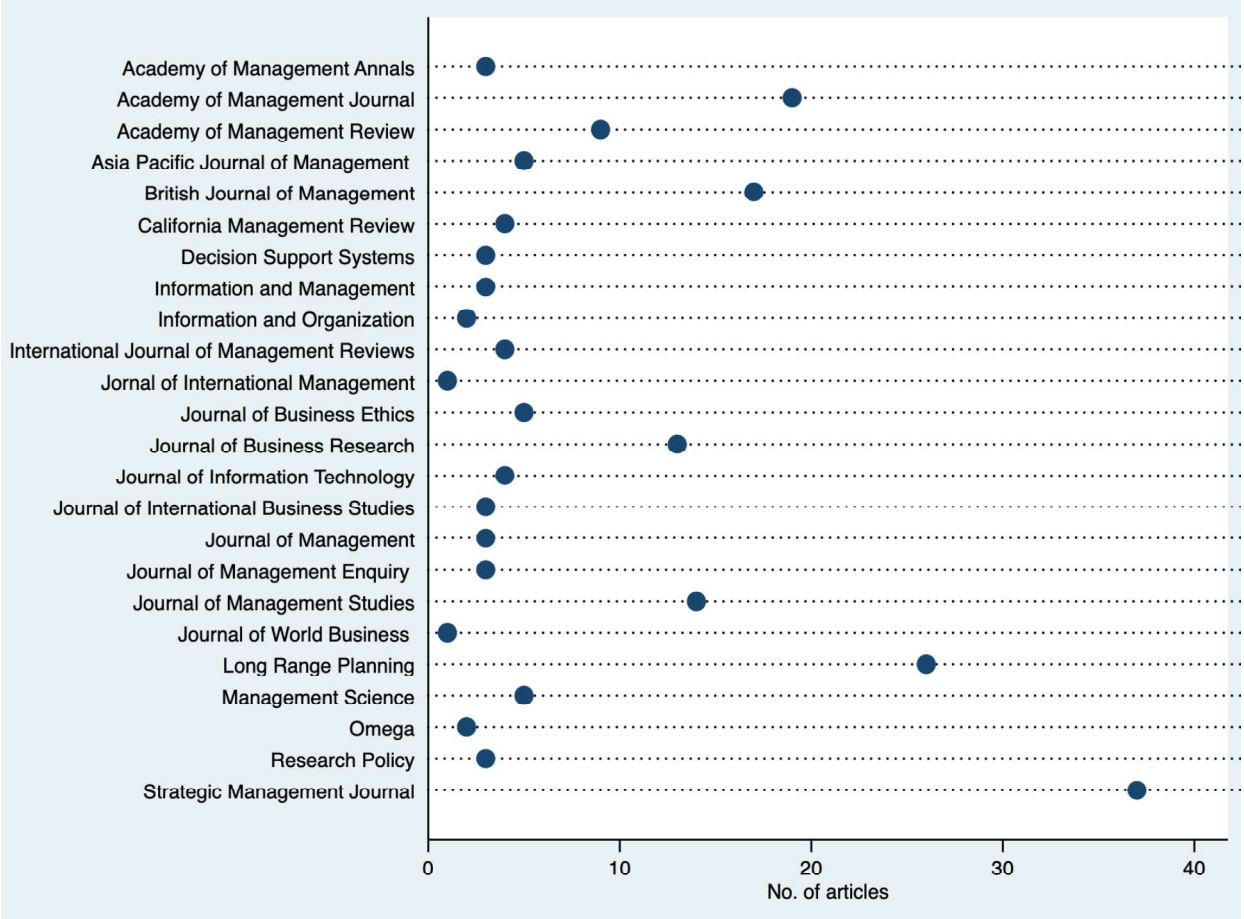


FIGURE 5 – Illustration of prior research on strategic change

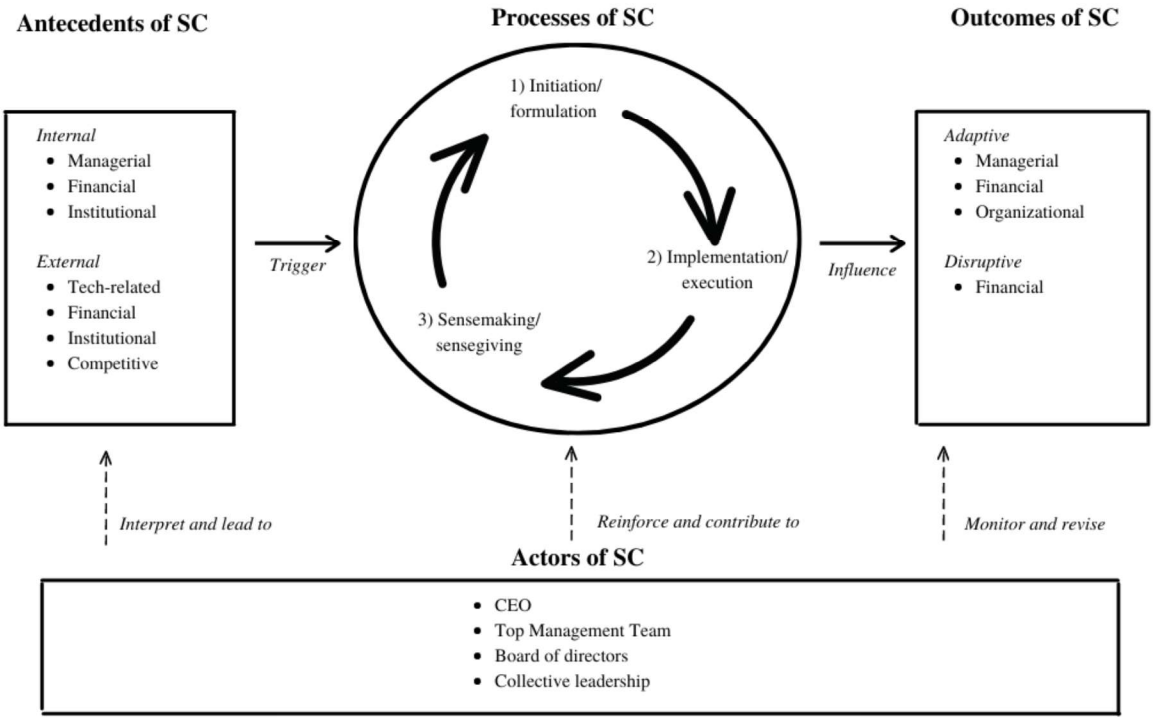


FIGURE 6 – Summary of studies analyzing antecedents, processes, outcomes, and actors of strategic change

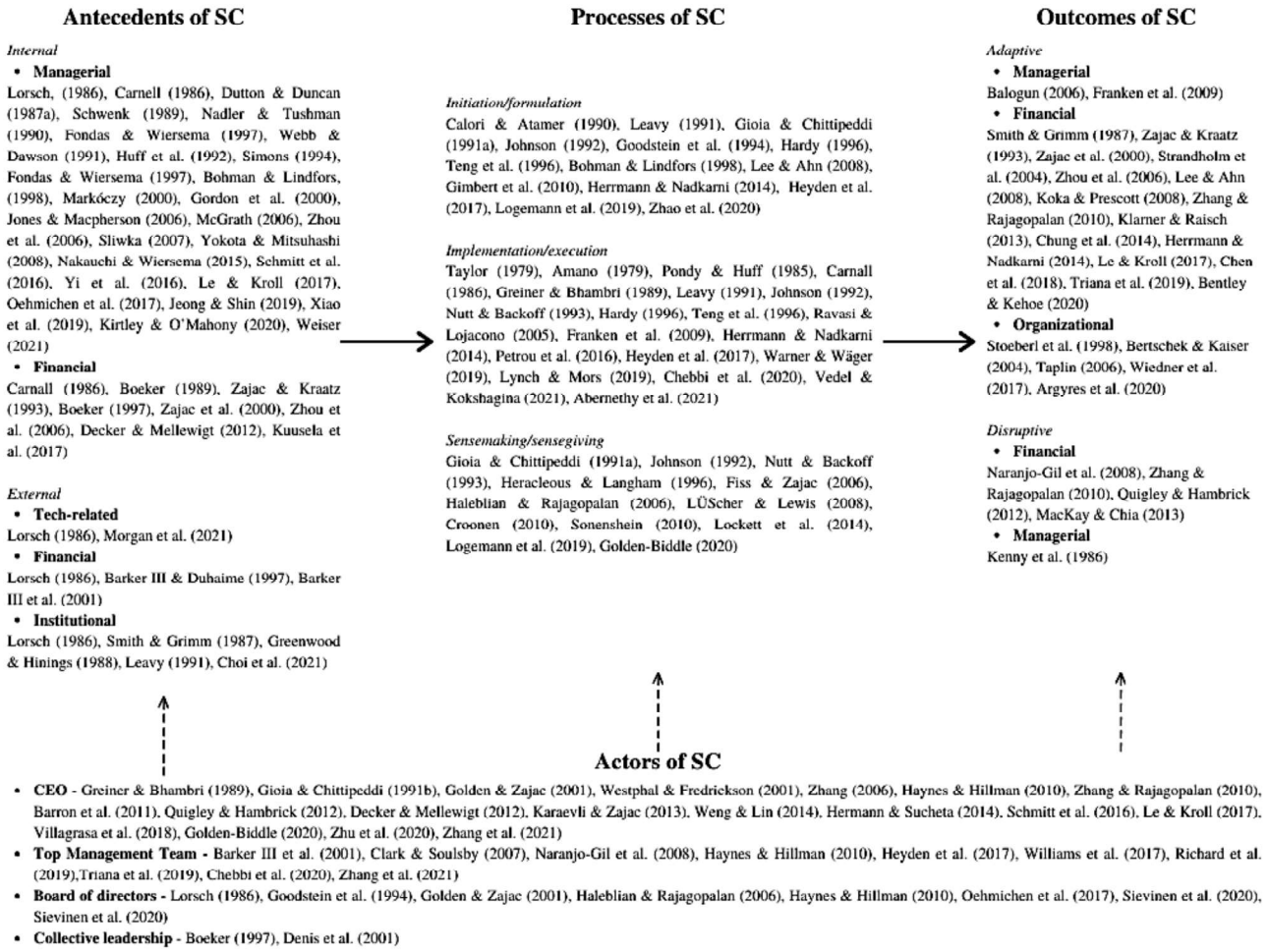


FIGURE 7 – Number of studies analyzing the antecedents of strategic change

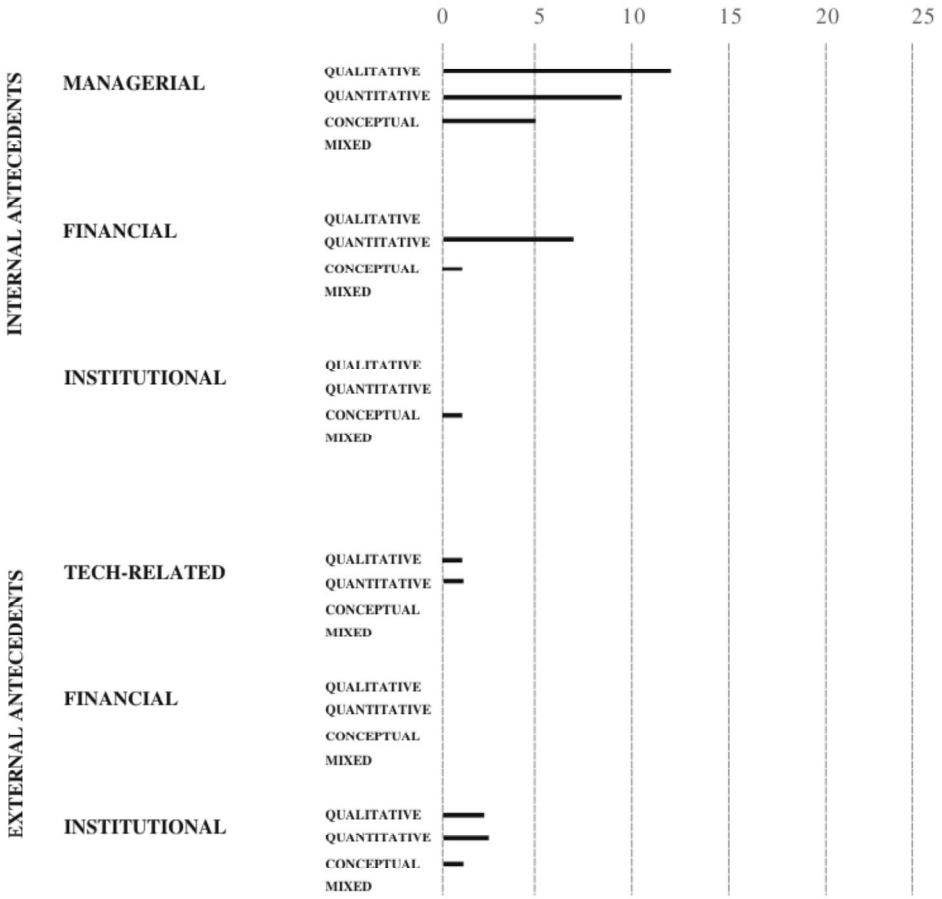


FIGURE 8 - Number of studies analyzing the processes of strategic change

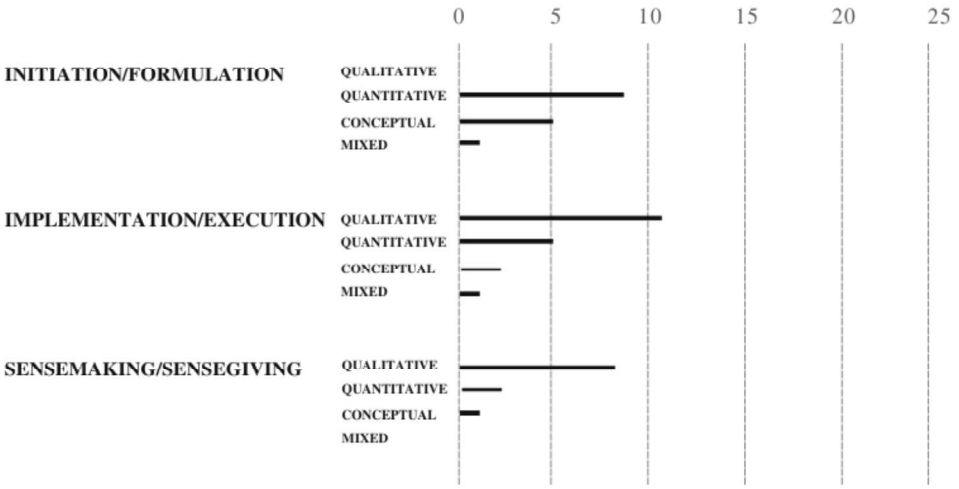


FIGURE 9 – Number of studies analyzing the outcomes of strategic change

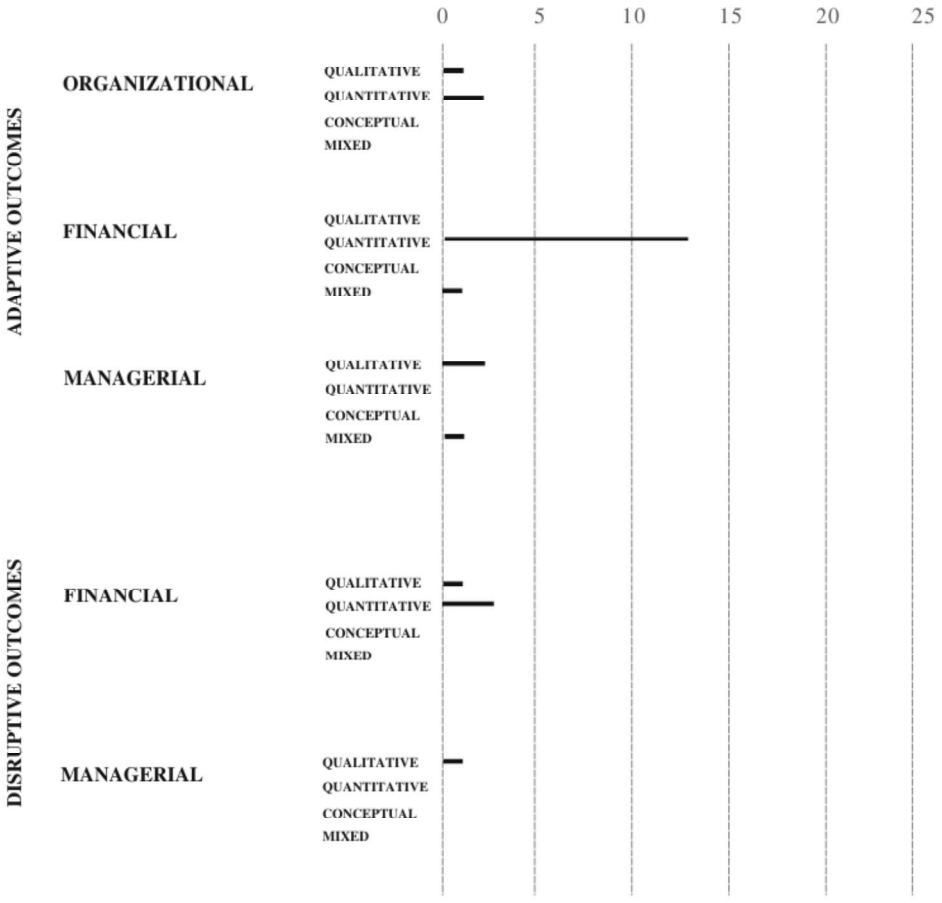
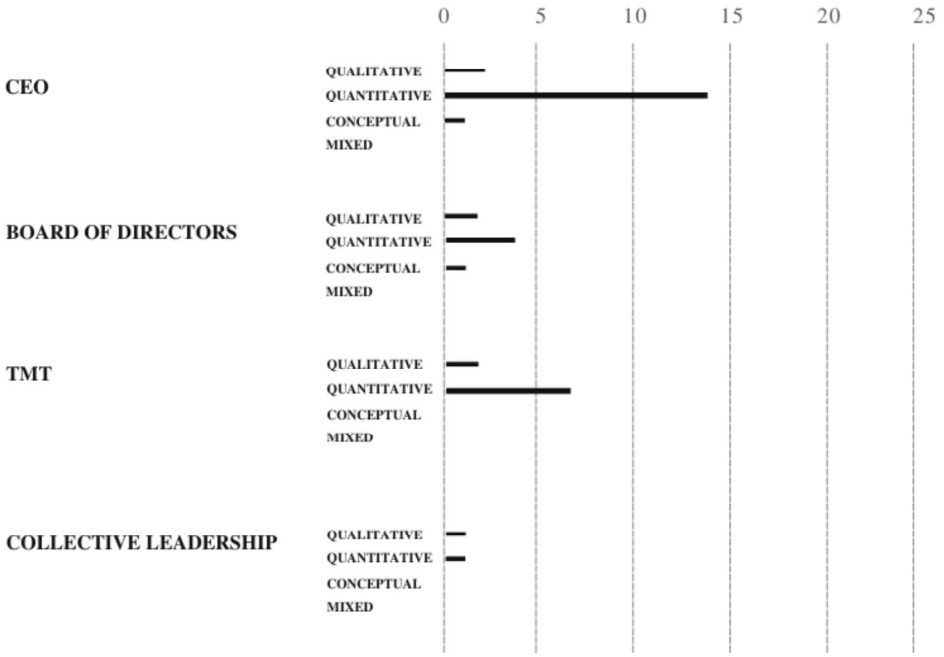


FIGURE 10 – Number of studies analyzing the actors of strategic change


0
5
10
15
20
25
CEO
QUALITATIVE
QUANTITATIVE
CONCEPTUAL
MIXED
BOARD OF DIRECTORS
QUALITATIVE
QUANTITATIVE
CONCEPTUAL
MIXED
TMT
QUALITATIVE
QUANTITATIVE
CONCEPTUAL
MIXED
COLLECTIVE LEADERSHIP
QUALITATIVE
QUANTITATIVE
CONCEPTUAL
MIXED

TABLES

TABLE 1 - A model for future research on strategic change

TYPE OF CATEGORY	RESEARCH AREA AND EXAMPLES OF RESEARCH QUESTIONS				
	Technology	**Resistance to change**	**Competitive context**	**People and culture**	**Institutional framework**
ANTECEDENTS	• What types of advanced technologies mostly influence SC? • How does the rapid evolution of advanced technologies influence SC?	• Does the level of resilience influence SC? To what extent? • Can events like the COVID-19 pandemic be considered a different determinant for SC? • How do various antecedents jointly affect SC?	• What are the most influential characteristics of the new competitive context for SC? • What is the relationship between industry structures and types of SC? • What is the impact of different antecedents in various industries?	• How do various types of conflict relations within organizations influence SC? • Do specific cultural sensitivities impact SC more?	• What is the role of institutional factors in determining SC? • Can a higher level of bureaucracy impede or encourage SC? To what extent?
PROCESSES	• How does the adoption of new technologies affect various SC processes? • What is the role played by big data in finalizing SC processes (data-driven processes)?	• In which scenarios do different SC processes provide organizations with the greatest benefits? • What types of processes are particularly resistant to change?	• How does each SC process vary in different industries?	• What is the role of different actors in SC processes? • What is the correct time to master specific competences to successfully finalize SC processes? • What are the main impressions employees and managers have in each SC process?	• How does the process of institutionalizing successful SC occur?
OUTCOMES	• Does the advent of new advanced technologies provide more interesting insights in terms of SC effects? • To what extent does digital transformation change the level of SC? • Does the advent of	• Is there a greater likelihood that COVID-19 will cause more disruptive SC than other antecedents? • In the case of COVID-19, can SC be associated with modifications in terms of employee	• How does an industry's configuration affect the outcomes of SC? • What is the relationship between industry structures, types of SC, and firm performance? • What are the main implications of SC regarding vulnerability	• How can disruptive SC be managed effectively? • How does disruptive SC modify the nature of work? • What is the impact of specific managerial and employee capabilities on firm performance, under certain SC conditions?	• Which institutional frameworks impede or encourage successful SC?

	new technologies lead to positive or negative long-term performance? • Do investments in digital technologies produce adaptive or disruptive consequences of SC? Are these effects sustainable in the long-term?	numbers, cultural changes, or digital investments? • How does the degree of globalization influence SC? • How does disruptive SC impact the level of resilience?	among industries? • Do different industries adopt different metrics for monitoring SC?	• How does the development of strong managerial or team ties influence the positive effects of SC? • What do employees and managers learn from SC? • How does SC affect teams or network modifications?	
ACTORS	• Are managers and employees able to adapt to technological change? • Does the availability or lack of adequate technological capabilities influence SC?	• What are the most common obstacles that impede managers and employees in adapting to change?	• Do changing industry contexts facilitate or impede successful SC implementation by managers? • How does the effect of including managers and employees with specific expertise differ from one industry to another?	• Which skills and competences should managers and employees master to ensure the success of SC? • Are any specific competences slowing the opportunity to learn from SC? • What are the most beneficial team dynamics for SC? • How do different managerial competences interact with each other? What impact on SC is produced by this interaction? • How do firms internalize opportunities arising from adaptive SC? • Is the SC learning experience transferable?	• Do specific norms affect managerial action more in times of change? • Do managers tackle SC differently in public organizations?

The Impact of Environmental Dynamism and Board Digital Expertise on the Method and Scope of a Firm's Strategic Change

Abstract

Even though recent unexpected and complex transformations have led companies to change their strategies to survive, that which leads to strategic change (SC) has been overlooked thus far. To fill this gap, we consider factors both internal and external to organizational boundaries and dissect SC into distinct components, i.e., *method* and *scope*. Grounded in Resource Dependence Theory (RDT) and Dynamic Managerial Capabilities (DMC), we contend that environmental dynamism, board digital expertise, and their interaction, play a crucial role in SC. Our findings show that environmental dynamism and board digital expertise increase the *method* and *scope* of SC, while their interaction negatively affects these relationships. Our study advances research on SC by jointly using RDT and DMC and by shedding light on the determinants of SC.

Keywords:

Strategic change, digital expertise, board, environmental dynamism, scope, method

INTRODUCTION

"Change before you have to" - Jack Welch, Former Chairman and CEO, General Electric

In recent years, unexpected and complex transformations have profoundly reshaped the way in which companies conduct and organize their business, and managers have been forced to lead their companies through these fast-moving changes. According to Gartner, almost 70% of boards of directors accelerated their digital business initiatives in the wake of the COVID-19 pandemic (Gartner, 2020). As per the observation by Jack Welch, former Chairman and CEO of General Electric, quoted at the beginning of the paper, it is preferable for firms to recognize that they need to change in time, rather than being caught unawares by potential disruptive occurrences. Indeed, strategic change (SC) results mainly from the ability of top executives to modify the strategic direction of their firms, and thus to determine new corporate strategies, and this depends greatly on the top executives themselves (Westphal & Fredrickson, 2001). Although there is great managerial and scholarly interest in SC, a clear understanding of its antecedents is far from complete. We contend that factors both external and internal to organizational boundaries affect SC, and these two aspects should be jointly considered to fully capture the effects they have on SC.

Based on Resource Dependence Theory (RDT), we argue that new external conditions alter the way in which firms change their corporate strategy to survive (e.g., Fan et al., 2021; Gioia et al., 1994; Greenwood and Hinings, 1988; MacKay and Chia, 2013; Vicente-Lorente and Zúñiga-Vicente, 2006; Zhang and Rajagopalan, 2010). In fact, SC can be considered a set of modifications of fundamental patterns of resources to adapt to environmental conditions and uncertainty (e.g., Carpenter, 2000; Choi et al., 2021; Hofer and Schendel, 1978; Rajagopalan and Spreitzer, 1997; Tushman and Romanelli, 1985; van de Ven and Poole, 1995). In addition, based on the Dynamic Managerial Capabilities (DMC) perspective, we then assume that, since managers are responsible

for directing SC (e.g., Adner and Helfat, 2003; Helfat et al., 2007; Helfat and Martin, 2014; Herrmann and Nadkarni, 2014; Li and Liu, 2014; Sirmon and Hitt, 2009), the role of managerial experience is crucial to determining how firms change their corporate strategy when new conditions occur. While the vast majority of research has explored how and why CEOs can direct the SC of their firms (e.g., Carpenter, 2000; Greiner and Bhambri, 1989; Haynes and Hillman, 2010; Herrmann and Nadkarni, 2014; Villagrasa et al., 2018; Zhang and Rajagopalan, 2010), there is still little emphasis on the role of the board of directors. In particular, consistent with the perspective of Helfat et al. (2007), we argue that the presence of a specific professional background within the board serves as a mechanism to explain why firms decide to change their strategy. Therefore, based on the above, we contend that two factors (i.e., environmental dynamism and the digital expertise of the board) have an impact on SC. However, since the joint consideration of these aspects may be overlooked, we examine the following research question: *what impact do environmental dynamism and the digital expertise of a board have on SC?*

To properly grasp the effects regarding SC, this construct needs to be dissected into two components representing the core strategic dimensions of firms and configuring the main strategic direction of SC, i.e., method and scope, as suggested by Villagrasa et al. (2018). We theorize that, all else being equal, increasing levels of environmental dynamism and board digital expertise will positively influence the likelihood that firms will change their corporate strategy through method and scope. In addition, we contend a negative effect on SC will derive from their joint presence. By empirically testing the posited hypotheses in the context of large and listed firms operating in the US in the 2005-2019 period, we show that higher environmental dynamism and the presence of boards of directors with digital expertise tend to increase the likelihood that firms will change

their strategy through method and scope. We also show that there is a negative interaction effect of environmental dynamism and board digital expertise on SC.

This study makes many contributions. By jointly using RDT with the DMC perspective, we attempt to understand why firms determine their SC based on external and internal factors respectively. Thus, whereas previous studies typically dealt with these theories separately, our results provide a more comprehensive overview of that which leads to SC. More specifically, to the best of our knowledge, our study is the first to examine the role of board digital expertise in SC and its interaction effect with environmental dynamism. Therefore, leveraging the role of specific DMC, we shed light on the professional background needed to determine a specific SC. We especially focus on digital expertise since the events of the last decade and recent transformations have pushed every industry to embrace digital solutions and have accelerated the need for these competencies at the board level (Wu David & Farzan, 2021). Finally, we extend research on SC by stressing the importance of disentangling it into its main strategic directions – method and scope – which produces a more comprehensive view of SC.

The remainder of this paper is organized as follows. The next section develops the arguments that lead to our hypotheses. Then we present our methodology and results. The paper concludes with a discussion of the main ideas, limitations, and opportunities for future research.

THEORY AND HYPOTHESES

Scholars have adopted different definitions of SC (Boeker, 1989; Choi et al., 2021; Fiss & Zajac, 2006; Gioia & Chittipeddi, 1991; Hofer & Schendel, 1978; Rajagopalan & Spreitzer, 1997; Tushman & Romanelli, 1985; van de Ven & Poole, 1995; Zhang & Rajagopalan, 2010). For instance, SC constitutes a pronounced discontinuity or reorientation in the life of a firm, according to Tushman and Romanelli (1985). Fiss and Zajac (2006) considered SC as a move toward the

shareholder value approach. A study by Gioia and Chittipeddi (1991) viewed SC as referring to modifications in current modes of cognition and action. In a similar vein, Carpenter (2000), Choi et al. (2021), Hofer and Schendel (1978), Rajagopalan and Spreitzer (1997), Tushman and Romanelli (1985), van de Ven and Poole (1995) interpreted SC as a set of modifications of fundamental patterns of resources to adapt to environmental conditions and uncertainty. We rely on the definition of Westphal and Fredrickson (2001) to consider SC a useful approach to modifying the strategic direction of a firm and thus determining new corporate strategies to compete in evolving contexts. In fact, SC can be responsible for increasing a firm's chances of survival (Haveman, 1992; Smith & Grimm, 1987; Zajac et al., 2000) and for determining firm performance (Romanelli & Tushman, 1994; Zajac et al., 2000) in the event of a profound shift in environmental conditions. For instance, while some theorists showed a positive relationship between SC and firm performance (Smith & Grimm, 1987; Zajac & Kraatz, 1993), others found that SC is negatively associated with it (Naranjo-Gil et al., 2008; Zajac and Kraatz, 2000). The study conducted by Johnston et al. (2017) revealed that successful implementers of change initiatives "sustain twice the level of financial benefits as poor implementers do" (Johnston et al., 2017, p. 98).

In this study, we build on previous research on SC and RDT. Authors like Barr (1998), Hillman et al. (2000), Pfeffer (1972), Pfeffer and Salancik (2009), Smith and Grimm (1987),Wiersema and Bantel (1993), Zajac et al. (2000), and Zajac and Kraatz (1993) associated the concept of SC with the need to alter corporate strategies in response to new external conditions. In this manner we contend that firms are responsible for finding a fit between their strategy and the environment in order to survive. Nevertheless, unlike previous authors who predicted a degree of restructuring (Zajac and Kraatz, 1993), strategic board adaptation (Hillman et al., 2000), or core business

alteration (Zajac et al., 2000) as possible responses to environmental modifications, we recognize the need to separate SC into its two core strategic dimensions, as identified by Villagrasa et al. (2018) (i.e., method and scope), in order to properly grasp the effects environmental dynamism can have on corporate strategy changes.

Moreover, based on the DMC literature, we propose that the presence of specific managerial expertise is crucial in detecting environmental modifications and directing SC (Helfat et al., 2007; Helfat & Martin, 2015). Prior research on DMC (Helfat et al., 2007; Helfat & Martin, 2014; Sirmon & Hitt, 2009) has suggested that *managerial cognition* (e.g., mental models and beliefs), *managerial social capital* (e.g., formal and informal relationships), and *managerial human capital* (i.e., a base of knowledge and competencies arising from education, training, and prior experience) all influence SC. We focus on managerial human capital to fully capture the role the specific professional backgrounds of managers may play in SC. Moreover, when studying SC in firms, we investigate the organizational outcomes (i.e., realized strategies) associated with specific characteristics of the board, in contrast to past research on boards which mainly investigated micro-level effects like board dynamics (Herrmann and Nadkarni, 2014; Åberg and Torchia, 2020). By jointly using RDT and DMC perspectives, in the sections that follow we discuss which factors, both external and internal to organizational boundaries, can be responsible for favoring SC.

The role of environmental dynamism and SC

Firms are considered open systems influenced by the external environment (Pfeffer & Salancik, 2009). The environment can be characterized by a natural circumstance, but it can also depend on social and cultural modifications, technological progress, or political and economic facts (Dieleman, 2010; Neubauer & Solomon, 1977). The ability of an organization to adapt its resources and competencies to the new external conditions is consistent with decades of research on resource dependence (Burgelman & Grove, 1996; Child, 1972; Grant, 2003; Kraatz & Zajac,

2001; Pfeffer, 1972; Pfeffer & Salancik, 2009; Tushman & Romanelli, 1985). Environmental dynamism is defined as a "change that is hard to predict and that heightens uncertainty for key organizational members" (Dess & Beard, 1984, p. 56), thus leading to SC. Indeed, since environmental dynamism is associated with the level of volatility, extant research has demonstrated that there is a positive relationship between dynamism and uncertainty (Boyd, 1990) and between dynamism and unpredictability (Li & Liu, 2014). Likewise, Cao et al. (2015) interpreted environmental dynamism as the primary source of uncertainty for firms.

Among the authors that have explored the phenomenon of environmental dynamism (Garg et al., 2003; Jansen et al., 2009; Li & Liu, 2014; Priem et al., 1995; Richard et al., 2019), Jansen et al. (2009) demonstrated that its role is useful to fully understand the effectiveness of strategic leaders, and Li and Liu (2014) showed that firms implement change to enhance environmental adaptability and therefore to achieve competitive advantage. In the study by Richard et al. (2019), a dynamic environment positively moderates the relationships between top management characteristics (i.e., gender, age, and educational level) and SC, and this effect is stronger when the dynamism is amplified. Leavy (1991) studied the 1968-1974 structural consolidation of the Irish dairy industry to present the relationship between industry evolution and SC through the adoption of a multilevel approach. In the same year, McArthur and Nystrom (1991) selected over 100 large manufacturing firms to show that environmental dimensions like inventory turnover and capital intensity significantly interact with strategy; hence, firms need to include considerations regarding environmental conditions in their future projects. Finally, the relationship between environmental determinants and accomplished strategies has been shown by Kotha and Nair (1995) in terms of firm growth; the authors especially found that environmental variables can predict this growth better than the strategies deployed.

To sum up, previous research has suggested that, under specific environmental conditions, new corporate strategies will emerge (Child, 1972; Schendel et al., 1976; Tushman & Romanelli, 1985). However, research thus far has measured SC differently; for instance, Carpenter (2000), Haynes and Hillman (2010), Wowak et al. (2016), and Zhang and Rajagopalan (2010) operationalized SC in advertising, research and development, plant and equipment, financial leverage, and inventory changes, while Chen et al. (2016) and Quigley and Hambrick (2012) measured a firm's acquisitions and divestitures, and Golden and Zajac (2001) and Goodstein et al. (1994) measured service reorganization. In contrast, we recognize the need to dissect the construct of SC into its two core strategic directions (i.e., method and scope), as identified by Villagrasa et al. (2018), to fully capture the effects environmental dynamism has on SC. In particular, the authors operationalized the method of SC relative to organic growth, strategic alliances, and corporate operations, while the scope of SC was measured through product and geographic diversification strategies. Our baseline expectation is that environmental dynamism will increase the likelihood that firms will change the method and scope of strategy to adapt to new external conditions. As regards the method of SC, we propose that increasing transformations in the external context will encourage firms to leverage more quickly external resources and competencies in order to be aligned with the new external conditions. Therefore, environmental dynamism accelerates the need to change corporate strategy to survive in the new competitive scenario. For instance, RDT explains that firms could engage in mergers and acquisitions to absorb a significant competitor (Pfeffer, 1976). The effects of environmental dynamism on the scope of SC can be explained by a firm's need to achieve greater flexibility and resilience in the business model, especially with respect to revenue lines. In fact, firms having more product lines or beeing present in multiple territories can decide to absorb potential loss of specific business areas by applying different

combinations of products and geographic areas. It means that those difficulties detected in particular business areas can be absorbed by other business areas. Thus, firms that feel threatened by enviromental modifications could therefore search for new opportunities to survive – either by developing new products or by occupying new geographical markets with potentially increasing demand. Consequently, we propose the following hypotheses:

Hypothesis (H1a) *Environmental dynamism has a positive effect on the method of SC.*

Hypothesis (H1b) *Environmental dynamism has a positive effect on the scope of SC.*

Expertise on the Board as a Driver of Strategic Change

The voluminous and long-standing empirical literature on strategy and management has established that individual managers or managerial teams are responsible for directing SC thanks to the ability and experience they have accumulated (Adner & Helfat, 2003; Augier & Teece, 2009; Coen & Maritan, 2011; Hardy, 1996; Helfat & Martin, 2014; Herrmann & Nadkarni, 2014; Kaul & Wu, 2016; Kor & Mesko, 2013; Mantere et al., 2012; Oehmichen et al., 2017; Quinn, 1989; Teece, 2012). Adner and Helfat (2003), especially, recognized that "guidance from the top of organizations may have a critical impact on how well firms cope with changing circumstances" (Adner & Helfat, 2003, p. 1013). More recently, Helfat (2007) argued that firms need to develop skills in both internal development and external sourcing modes like acquisitions and alliances to fit with the external environment (Capron and Mitchell, 2009, 2012; Helfat et al., 2006).

The reasons managers adjust and adapt a firm's resource base to change corporate strategy have been the focus of research on DMC since the seminal work of Adner and Helfat (2003), which constituted a development of the dynamic capabilities framework of Teece et al. (1997). In general, these capabilities enable firms to modify their resources and competencies base to initiate strategic changes in response to environmental shifts (Dixon et al., 2014; Schilke et al., 2018). Adner and

Helfat (2003) referred to the effect that a combination of managerial human capital, managerial social capital, and managerial cognition has on the SC of firms. Managerial human capital consists of prior expertise acquired by managers during their professional careers; managerial social capital is based on the development of their network relationships; and finally, managerial cognition is associated with beliefs and mental modes that managers develop. O'Reilly and Tushman (2008) applied the DMC perspective to explain the ability to create new knowledge through sensing and to integrate existing knowledge by seizing it in a rapidly evolving market. The strategic role of managers has also been studied by Augier and Teece (2009), who emphasized their ability to orchestrate organizational assets, develop new business models, and create new organizational forms. More recently, Kor and Mesko (2013) associated the concept of DMC with managerial dominant logic. In particular, they empirically demonstrated that managers are responsible for conceptualizing their business as well as for deciding on "critical resource allocation" (Kor & Mesko, 2013, p. 235).

Thus, the use of the DMC framework provides interesting insights in terms of differences in managerial decisions and adaptation to change (Adner and Helfat, 2003). Given the importance of this theory in showing how and why managers influence SC in firms (Helfat & Martin, 2014), and since professional experience constitutes a pivotal aspect to consider in combination with SC, we have contemplated the role of managerial expertise as part of the wider concept of managerial human capital (Helfat & Martin, 2015). In fact, while most research has focused on CEO and TMT characteristics (e.g., Barron et al., 2011; Carpenter, 2000; Gordon et al., 2000; Wiersema, 1992), we have concentrated on the board of directors as being responsible for promoting SC (Chatterjee & Wernerfelt, 1991; Golden & Zajac, 2001; Westphal & Fredrickson, 2001). In particular, we argue that today more than ever it is crucial for boards to understand the advanced technologies

impacting business decisions and for them to actively explore new digital tools (David & Farzan, 2021). Furthermore, since recent transformations have accelerated the need for digital competencies at the board level (David & Farzan, 2021), we contend that the presence of digital competencies among the directors (measured through their digital expertise) provides evidence of the conditions under which a board directs SC.

Thus, we argue that the presence of at least one such director increases a firm's response to external transformation by changing its corporate strategy. In particular, we dissect the effects it has on both the method and scope of SC. In fact, since directors with digital expertise are inclined to openness towards learning and flexibility (Lewis, 2020), we assume that boards of directors with digital expertise are able to change corporate strategy more in response to rapid environmental transformations. Regarding the method of SC especially, we posit that these directors tend to open up a firm's boundaries by acquiring external resources and competencies through corporate operations. Specifically, directors with digital expertise have increasing experience in developing ecosystems and thus in establishing partnerships, alliances, and collaborations with other stakeholders. This "open" attitude encourages them to search for SC solutions to be adopted through non-organic methods (e.g., strategic alliances, mergers and acquisitions). The rapid evolution of particular markets also represents one of the reasons why firms choose to implement inorganic rather than organic growth; in fact, firms prefer to develop their business in a faster way than via internal expansion (Trautwein, 1990). At the same time, we suggest that the presence of boards of directors with digital expertise amplifies the scope of SC. In fact, after an accurate analysis of the external environment, these directors can have the experience and the characteristics needed to consider external opportunities of diversification into new markets and products (Sahni and Juhari, 2019). Moreover, the presence of digital expertise encourages firms to

extend the scope beyond their boundaries and supply chains by amplifying the range and reach of corporate strategy (Bharadwaj et al., 2013). That is, we would expect the presence of digital expertise would increase decisions to change corporate strategy and make boards of directors better prepared to navigate an evolving scenario that is primarily characterized by digital transformations. Accordingly, we make the following predictions:

Hypothesis H2a*. Digital expertise on a board has a positive effect on the methods of SC.*

Hypothesis H2b. *Digital expertise on a board has a positive effect on the scope of SC.*

Interaction Effect of Digital Expertise on a Board

Thus far we have focused on the direct effects the environmental dynamism and digital expertise of boards can have on SC. We now extend our argument by considering the joint effect of environmental dynamism and board digital expertise in SC. Given that both external and internal factors can be responsible for influencing a firm's decision to change strategy, we expect that the interaction between environmental dynamism and board digital expertise is also crucial in SC. Previous studies using RDT demonstrated that firms tend to change their strategy in response to evolving external conditions (Goodstein & Boeker, 1991; Li & Liu, 2014; Pfeffer, 1972). Extant research based on the DMC perspective has shown that the accumulated knowledge of managers and executives can modify the ways in which firms change their strategy (Adner & Helfat, 2003; Helfat et al., 2007; Helfat & Martin, 2015; Huy & Zott, 2019; Sirmon & Hitt, 2009). Although past studies typically dealt with these theories separately, we argue that using them jointly is suitable to explaining why firms decide to change their corporate strategy, depending on external and internal conditions. We therefore believe that the identification of potential interrelations between these two theories offers a holistic approach that is useful in fully understanding the main drivers of SC. We build on this core insight to argue that the single effect of digital expertise on

SC is positive since digital directors are more inclined to be open and to explore new strategic opportunities when firms face external challenges; however, the same digital expertise reduces the impact on SC when it is combined with environmental modifications. On the other hand, when there is less environmental dynamism, the level of SC is low aside from the presence of digital expertise within the board because there is no reason to change strategy anymore. It means that considerations on external and internal factors together can make the decisions to change corporate strategy more complex. Specifically, the decision-making process could be hindered or slow down because multiple evaluations and choices – related to the external environment as well as to the existing set of firm's resources and competencies – need to be carefully considered to successfully direct SC. For instance, firms may contemplate multiple factors like competition, the availability of internal resources, selection of partners, and market evolution when making a strategic decision, and all these observations could delay the decision-making process that leads to SC. It also means that further analyses and evaluations could be carried out by a firm that consequently decides to defer SC. Furthermore, the role of heuristics and biases is particularly relevant for strategic decisions "which are highly uncertain and need to be made in a timely fashion" (Das & Teng, 1999, p. 773). For this reason, we expect that the assumptions managers formulate in a dynamic environmental context vary depending on the potential errors arising from their own cognitive biases (Camerer & Lovallo, 1999; Kahneman & Lovallo, 1993; Lovallo & Sibony, 2006). In fact, managers could be more reluctant to change when the external conditions continue to modify and they have the tendency to reject alternatives without carefully weighing them (Das & Teng, 1999). Thus, the greater environmental dynamism, the higher the cognitive complexity of the decision and, in turn, the higher the likelihood that SC is deferred. To sum up, we contend that the

interaction between environmental dynamism and digital expertise of the board has on SC is negative. Accordingly:

***Hypothesis H3a**. The joint presence of environmental dynamism and digital expertise on a board has a negative impact on the method of SC.*

***Hypothesis H3b.** The joint presence of environmental dynamism and digital expertise on a board has a negative impact on the scope of SC.*

The overall theoretical model tested in this study is reported in Figure 1.

--- INSERT FIGURE 1 HERE ---

METHODOLOGY

We tested the above-mentioned framework on a sample of 2527 US listed firms from 2005 to 2019, for a total of 37905 observations. In this way, we focused on large firms operating in different industries and involved in various corporate operations. Data on the method and scope of SC was collected from the Zephyr[1] and the Refinitiv Workspace[2] databases. Using RStudio software[3], we collected data on the digital expertise of the board from DEF14 proxy statements and from 10-K annual reports published on SEC EDGAR[4]. We then manually analyzed and check the text of these proposals to be consistent, and we integrated additional information on the professional background of the board from the BoardEx database[5] and from LinkedIn[6]. We measured environmental dynamism using the rate of change in annual industry sales, which was obtained from the Compustat[7] database where we also gathered additional financial data on the firms.

[1] https://login.bvdinfo.com/R0/zephyrneo
[2] https://www.refinitiv.com/en/products/refinitiv-workspace
[3] https://www.rstudio.com
[4] https://www.sec.gov/edgar/
[5] https://wrds-www.wharton.upenn.edu/pages/get-data/boardex/
[6] https://www.linkedin.com
[7] https://wrds-www.wharton.upenn.edu/pages/get-data/compustat-capital-iq-standard-poors/compustat/

We employed panel data with random effects. In particular, the results of the Hausman-specification test (Hausman, 1978) suggested the use of random-effects specification. We therefore used a random estimation to analyze our data, and we conducted a few supplementary tests to examine the robustness of our findings. Details on the variables used are reported in the following subsections.

Dependent Variables

We disentangle the construct of SC into its core dimensions, as identified by Villagrasa et al. (2018), i.e., method and scope. Indeed, we recognize that the separation of SC into its two strategic directions provides a more comprehensive understanding of the external and internal factors influencing SC. Moreover, the separation of SC into method and scope was introduced recently (Villagrasa et al., 2018) and its empirical analysis deserves further attention. Details on the two independent variables are reported in the following subsections.

Method of Strategic Change

We relied on the study by Villagrasa et al., (2018) to construct the variable *Method of SC*. In particular, we considered the number of each corporate operation (i.e., strategic alliances, mergers, and acquisitions) completed in the reference year. We define method of SC as the sum of the number of mergers and acquisitions, strategic alliances, and joint ventures completed each year. The value of this variable ranges from 0 to 42. We collected data on strategic alliances from Refinitiv Workspace, and information on mergers and acquisitions and joint ventures from Zephyr.

Scope of Strategic Change

In line with previous research (Cappa et al., 2020; Mayer et al., 2015; Villagrasa et al., 2018), we selected geographic diversification strategy (changes in geographical markets), and product diversification strategy (changes in the product-market portfolio) to measure the scope of SC. We

created an index by computing the mean between the following indicators: (a) international diversification growth, and (b) product diversification growth. In line with previous studies (Chatterjee & Wernerfelt, 1991; Kumar, 2009; MAYER et al., 2015), we calculated international diversification growth as (Foreign salest+4 − Foreign salest)/Total salest. We then computed product diversification growth as (Non-core business salest+4 – Non-core business salest)/Total salest). This variable ranges from 0 to 10294, and the value equal to 0 means that no changes in terms of diversification strategies occurred from one year to the next. We collected the data from the Refinitiv Workspace database. Thus, the composite variable of the scope of SC is a modified version of the index of diversification used by Mayer et al., (2015), Chatterjee and Wernerfelt (1991), and Kumar (2009), and it reflects the growth of product and geographic diversification dimensions over a period of four years.

Independent Variables

Environmental Dynamism

We created a measure of *environmental dynamism* based on previous research (e.g., Boyd, 1990; Girod and Whittington, 2017). In fact, we calculated the volatility of the rate of change in annual industry sales to represent the modifications that characterize the external environment. Environmental dynamism ranges from 0 to 6804, and the value equal to 0 means that no changes in terms of annual industry sales occurred from one year to the next. We relied on the SIC codes to identify the specific industry in which the firms operate. This data was obtained from the Compustat database. This analysis revealed that the majority of the sample operates in the areas of television programming and broadcasting activities (2895 firms with 6020 SIC code), services-computer programming and data processing (2091firms with 7370 SIC code), and real estate investments (1170 firms with 6798 SIC code).

Digital Expertise on the Board

To measure the *digital expertise* on a board of directors as a proxy for the board's responsiveness to change, we followed the study by Whitler et al. (2018) and selected job titles indicative of the directors' digital expertise. Board expertise data was collected from annual reports (10-K) and from proxy statements (DEF 14A) released on SEC EDGAR, BoardEx, and LinkedIn. Based on our categories, we used RStudio software to automatically parse the directors' biographies and search for keywords indicative of past and present digital expertise. If specific keywords were identified by the RStudio software, we then manually checked and assigned an indicator signaling that the director had expertise in the digital area. For example, if the keywords Chief Technology, Technical Officer, CTO, Chief Integration Officer, Chief Information Officer, Chief Innovation Officer, Chief Information Security Officer, CISO, Chief Information Technology Officer, or CITO appeared in a director's biography, the corresponding director was coded as having digital expertise. We treated this variable as a continuous measure, counting the number of directors who held one of the above job titles at any point in their professional experience. Therefore, our independent variable is measured by the percentage of board directors with digital expertise over the total number of directors at any given firm each year. It ranges from 0 to 1, and the value equal to 0 means that no directors with digital expertise are present on the board. Our analysis revealed that more than 9400 directors had digital expertise in the period 2005-2019. Moreover, the percentage of board of directors with digital expertise increased from 2011 on. The same independent variable is thus included in the model in its interaction with environmental dynamism affecting SC.

Control Variables

We first controlled for industry characteristics that may influence the dependent variable. We included controls for the *Type of Industry* using the SIC codes and grouping them into the main

ranges from 100 to 9999. To account for the industry average of research and development (R&D) intensity (min. value = -.002346; max. value = 3.236.269), we measured the costs of R&D for each firm and we divided them into the total business revenue, as suggested by Alonso-Borrego and Forcadell (2010) and Hoskisson and Johnson (1992). To consider possible contextual differentiations between the various federal states within the US where the firms are located, we controlled for *US State* (min. value = 1; max. value = 55). We measure the *Number of Competitors* (min. value = 1; max. value = 2516) in each industry; *Financial Crisis* is a dichotomous variable that captures whether a firm was active in the year of the disruptive event.

We also controlled for a set of firm-level factors like the *Firm Performance* (min. value = 0; max. value = 22540) using the Tobin's Q ratio, measured as Total Market Value divided by Total Asset Value of the firm (Cappa et al., 2021; Haynes & Hillman, 2010). In addition, *Firm Size* (min. value = 0; max. value = 2300) was computed as the total number of employees in each year, and *Firm Slack* (min. value = 0; max. value = 6.085.608) was the ratio between current firm assets and current liabilities in the prior year. To account for individual characteristics, we controlled for the *Average Age of the Board* (min. value = 0; max. value = 108), and we added *Board Size* (min. value = 1; max. value = 33), measured as the total number of directors each year. Lastly, we included the *Average Board Tenure* ranging from 0 to 35.4.

RESULTS

Econometric models

Table 1 presents the detailed sample summary statistics and the correlations for all the variables, and they highlight the absence of multicollinearity issues. Table 2 and Table 3 show results from the panel data regression models. Model 1 of Table 2 and Table 3 contains control variables only, Model 2 adds the independent variable of environmental dynamism, Model 3 considers the independent variable of board digital expertise, and Model 4 also includes the interaction effect.

Hypotheses 1a and 1b predicted that the higher the environmental dynamism, the greater the likelihood that mergers and acquisitions, strategic alliances, and joint ventures would take place, i.e., SC Method, (H1a), and that product and geographic diversifications, i.e., SC Scope, would be finalized (H1b). Both hypotheses are supported, as seen in Model 4 of Table 2, where environmental dynamism has a positive and significant effect on SC Method ($\beta = .0022318$, $p < .05$) and on SC Scope ($\beta = 2.412.638$, $p < .05$).

H2a and H2b predicted that the likelihood of SC would be higher when directors with digital expertise were present on the board. Also, consistent with hypothesis H2a, the results of Model 4 show that a high level of digital expertise increases the number of mergers and acquisitions, strategic alliances, and joint ventures that occur. Model 4 in Table 3 highlights the significant positive effect that the digital expertise of the board has on SC Method ($\beta = .5860885$, $p < .05$). In addition, Model 4 also provides statistical support for the positive impact that board digital expertise has on the scope of SC, as proxied by product and geographic diversification ($\beta = 6.481.172$ $p < .05$).

Lastly, we tested the effect on SC produced by the interaction between environmental dynamism and digital expertise. We found support for hypothesis H3, as the interaction effect of digital expertise associated with environmental dynamism has a significant negative effect on the method (Model 4, Table 2; $\beta = -.0162355$, $p < .05$) and scope (Model 4, Table 3; $\beta = -2.105.106$, $p < .05$) of SC. Further evidence of this effect is reported in Figure 1 and Figure 2, which show the predicting margins of the interaction. The interaction of the variables in SC proves that higher levels of environmental dynamism and board digital expertise at firms tend to change corporate strategy less. Instead, firms adopt more SC when levels of environmental dynamism are high and the presence of digital expertise on the board is low. Likewise, firms change their corporate

strategy more when levels of environmental dynamism are low and the presence of board digital expertise is high. It is also important to consider where the two lines intersect since our results indicate SC is equal at this value of environmental dynamism, regardless of whether or not there are directors with digital expertise on the board.

--- INSERT TABLE 1 HERE ---

--- INSERT TABLE 2 HERE ---

--- INSERT FIGURE 2 HERE ---

--- INSERT FIGURE 3 HERE ---

Robustness checks

We conducted a set of robustness checks to confirm the reliability of these analyses and gathered additional evidence for our theoretical mechanism, as reported in Table 4 and Table 5. First, we used an alternative measure of digital expertise by examining the total number of board directors with digital competencies in each year of reference. The outcomes support our previous results. Second, our empirical tests are based on panel data regressions with an interaction. Instead of relying on panel data analysis, we ran a robustness check in which we adopted a linear regression model and tested whether the coefficients were significantly different. Again, the results are in line with those of our main models.

--- INSERT TABLE 4 HERE ---

--- INSERT TABLE 5 HERE ---

DISCUSSION

This article was motivated by the need to further understand the effects that factors external and internal to organizational boundaries can have on SC. To do this, we jointly used RDT and DMC

theories to investigate the effects on SC produced by environmental dynamism and the digital expertise of members of the board of the firms.

Our results show that higher levels of environmental dynamism will encourage both the method and scope of SC. We have thus demonstrated that firms are more likely to carry out corporate operations in response to external transformations – measured by volatility in the rate of change of annual industry sales. Specifically, the positive effects that environmental dynamism has on SC can be explained given the need firms have to acquire external resources and competencies to align with modified external conditions. For instance, firms could recognize their limited availability in terms of the internal resources and competencies needed to navigate external transformations, and they could therefore decide to complete mergers and acquisitions, strategic alliances, or joint ventures to acquire external ones. Likewise, we can expect that when the environment continues to change, firms will tend to consider new opportunities by exploring new territories or developing new products. Indeed, unexpected changes in annual industry sales (e.g., increasing competition, and recession) could encourage firms to consider additional product lines or geographic markets to survive.

Our study also shows that, when external transformations occur, the presence of digital expertise among members of the board increases the likelihood that corporate strategy will be changed. Specifically, since these types of directors possess flexibility and openness to learning (Lewis, 2020), they are also more likely to consider alternative strategies like corporate operations and diversification to direct SC. In fact, we have demonstrated that the single presence of digital expertise on the board increases the likelihood that firms will complete mergers and acquisitions, strategic alliances, and joint ventures. Thus, instead of relying on existing resources and competencies, these directors are more inclined to evaluate external ones. Similarly, such directors

tend to adopt more geographic and product diversification since they are more inclined to consider new opportunities to change strategy. At present, the role of digital expertise is becoming increasingly pivotal within boards of directors. For instance, high-performing S&P 500 companies are most likely (31%) to have a digital expert on their boards (Kark et al., 2019). Moreover, with the advent of digital transformation, boards need to understand the use of advanced technologies that have an impact on business decisions and they should be open to adopting new digital tools (David & Farzan, 2021). In accordance with the DMC perspective and with Teece's view of dynamic capabilities (Teece, 2014), we have therefore shown that digital expertise on the board is particularly important in highly dynamic environments where firms are forced to change corporate strategy.

Our results suggest that the interaction between environmental dynamism and board digital expertise reduces the effect on SC. Specifically, while the single effect of digital expertise on SC is positive since digital directors are more inclined to be open and to explore new strategic opportunities when firms face external challenges, the same digital expertise reduces the impact on SC when it is combined with environmental modifications. In fact, multiple considerations on both external and internal factors could increase the complexity related to the decision-making process and firms could therefore defer the SC. Specifically, as reported in Figures 2 and 3, we demonstrated that when the level of environmental dynamism is low and the presence of digital expertise on the board is high, firms will limit changes to corporate strategy. On the other hand, at increasing levels of environmental dynamism, firms will adopt more SC even if the presence of directors with digital expertise remains low. In general, higher levels of both environmental dynamism and board digital expertise will decrease the likelihood that firms will change their

strategy. These findings have a number of implications for scholars and managers, as detailed in the sections that follow.

Contributions for theory

Although previous studies on SC dealt with RDT and DMC theories separately (e.g., Haynes and Hillman, 2010; Helfat, 2007), we have stressed that using them jointly offers a holistic approach to explain why firms decide to leverage external and internal factors to change their corporate strategy. In this fashion, our study enriches scholarly understanding of the effects that environmental dynamism and board digital expertise have on SC in firms. Specifically, we have theorized that the likelihood that a firm will carry out mergers and acquisitions, strategic alliances, and joint ventures depends on the level of environmental modifications and the digital knowledge acquired by members of boards of directors. At the same time, we posited that firms would adopt product and geographic diversification strategies depending on the level of environmental dynamism and the digital expertise of the board. To fully understand which factors, both external and internal to organizational boundaries, can lead to SC, we have also highlighted the relevance of disentangling SC to examine both method and scope, in line with the recent conceptualization of others (Villagrasa et al., 2018). In this way it is also possible to contribute to the literature on resource allocation (Bower, 2017; Busenbark et al., 2017; Levinthal, 2017; Wu et al., 2014). In particular, an understanding of the antecedents that lead to different resource allocation decisions resulting in SC, i.e., the distribution of resources within or outside the firm's boundaries, is more comprehensively understood by considering the scope and method of SC.

Thanks to the above-mentioned theoretical grounding and the identification of SC method and scope, we can more thoroughly depict the effects brought about by environmental dynamism and managers' digital expertise and contribute to an understanding of the phenomenon. More specifically, we have shown that, at higher levels of environmental dynamism, firms opt to

implement diversification strategies rather than finalize corporate operations like mergers and acquisitions, strategic alliances, and joint ventures. Thus, firms prefer to adopt product or geographic diversification rather than complete corporate operations. Similarly, we have shown that the increased presence of digital expertise within the board affects the decision to direct SC through scope more than method. The size of effects can be explained by the need to explore new markets or products and acquire external resources and competencies i) when the industry in which a firm operates is characterized by continuous transformations and ii) when there is an increasing presence of digital directors on the board. We have contributed to existing debates in the strategic management literature. First, by relying on the RDT, we have shown that the orchestration of resources and competencies within firms is crucial to respond to environmental changes. In other words, we highlight the finding that, at higher levels of environmental dynamism, firms adapt and reconfigure their set of resources and competencies to be aligned with the new external conditions. Second, we rely on DMC to focus on the professional experience of boards of directors, showing that digital expertise is not only responsible for increasing the number of mergers and acquisitions, strategic alliances, and joint ventures but also for amplifying the scope of SC through product and geographic diversification. We explain this by noting that digital directors are more open to learning and more flexible (Lewis, 2020), and therefore they tend to open up a firm's boundaries. In addition, our theoretical grounding allowed us to underscore that the joint presence of environmental dynamism and digital expertise on the board will negatively affect both the method and scope of SC. This means that when both these inputs are leading to SC, i.e., dynamism in the external environment and managers with digital expertise, the two forces tend to get in the way, impeding SC since decisions on corporate strategy become more complex and articulated. Moreover, additional contributions of this research relate to empirical methodology, including i)

the introduction of a new measure of managers' digital expertise that helps to properly identify a board that has such a digital background, and ii) the introduction of a quantitative measure of method and scope of SC that extends the conceptualization posited by others (Villagrasa et al., 2018).

Contributions for practice

The outcomes of this research are also relevant for managers and policymakers. One implication of our findings is that firms need to recognize which specific environmental conditions and organizational factors favor or impede SC. Thus, we provide managers with practical suggestions regarding the external and internal factors that lead to SC, by distinguishing them into two main strategic directions. Our study also provides useful practical implications that suggest firms should not ignore the role a board of directors with digital expertise can play when considering new strategic opportunities. In fact, in this study we have argued that managers with digital experience could be more inclined to respond to environmental modifications by reconfiguring the existing set of resources and competencies. Moreover, in a digital era characterized by the advent of new technologies driving transformative changes, 80% of global directors believes that digital transformation should be led at the board level, and more than 60% of directors in the U.S. and 90% of those in Vietnam are already exploring new digital tools (David & Farzan, 2021). In addition, we hope that our study increases awareness that the inclusion of boards of directors with specific professional backgrounds can affect and drive decisions regarding change strategy. Moreover, by investigating the interaction effect between environmental dynamism and digital expertise on the board, we have revealed the various combinations of effects that these independent variables have on SC. Finally, our study provides useful practical implications that identify the optimal scenario in which SC is favored, depending on high or low levels of environmental dynamism, and therefore it suggests a high or low presence of digital directors within the board.

CONCLUSIONS

In this study, at the intersection of DMC, RDT, and SC, we have explored the effects that environmental dynamism and board digital expertise have on SC in firms. In sum, our results contribute to the overall understanding of SC and indicate that higher levels of environmental dynamism and digital expertise exert a positive effect on SC, but this effect can be negatively moderated when the two variables interact. Our study has some limitations but these also suggest directions for future research. First, we have focused on listed firms, whereas future studies might explore the effects highlighted in this study in other types of firms as well, e.g., non-listed firms and small- and medium-sized enterprises, which may possess a different set of available resources. Moreover, as we have focused on US firms, future research could extend this analysis to other geographical areas in order to further generalize our findings. In addition, our data collection comprises data up to 2019, but future research could analyze whether the results of our research also hold after the COVID-19 pandemic of recent years. Furthermore, we have focused on the digital expertise of board members, but future studies could look at other factors internal to organizational boundaries that may play a role in SC.

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TABLES

Table 1. Descriptive statistics and correlation

	MEAN	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Method of SC	.3417427	1.021.101	1.0000															
2. Scope of SC	2.989.009	1.378.785	0.0211	1.0000														
3. Environmental Dynamism	53.591	5.754.366	0.0069	0.0215	1.0000													
4. Digital Expertise	.1259043	.1752652	0.0496	-0.0170	-0.0049	1.0000												
5. SIC Code	4.439.786	2.002.997	0.0442	0.0034	0.0116	0.0975	1.0000											
6. Year	2012	4.320.551	-0.0138	-0.0194	-0.0327	0.3075	0.0000	1.0000										
7. Average Board Tenure	6.637.793	5.303.996	0.0727	0.0278	-0.0274	-0.1036	-0.0356	0.1337	1.0000									
8. Financial Crisis	.8	.4000053	-0.0190	0.0130	-0.0415	0.1998	-0.0000	0.6944	0.0981	1.0000								
9. US State	2.730.872	1.614.504	-0.0121	0.0162	-0.0069	-0.1725	-0.0307	-0.0000	0.0504	-0.0000	1.0000							
10. # of Competitors	1.780.991	3.041.868	-0.0483	-0.0170	-0.0112	0.0429	0.2830	-0.0098	0.0142	-0.0075	-0.0002	1.0000						
11. Board Size	9.802.516	2.371.638	0.0293	0.0543	-0.0194	-0.0828	0.0160	0.0163	-0.0015	0.0094	0.0357	0.2502	1.0000					
12. Average Board Age	5.066.151	3.388.169	0.0947	0.0098	-0.0204	-0.0965	-0.0452	0.0407	0.4490	0.0230	0.0311	-0.0233	0.2067	1.0000				
13. Firm Performance	2.336.415	1.356.331	-0.0019	-0.0027	-0.0006	0.1819	-0.0093	-0.0007	-0.0101	0.0028	-0.0038	0.0020	-0.1117	-0.0147	1.0000			
14. Firm Size	1.634.609	6.513.914	0.0783	0.0382	-0.0100	-0.0058	0.0424	0.0012	-0.0042	-0.0001	-0.0054	-0.0682	0.2144	0.0657	-0.0021	1.0000		
15. Firm Slack	3.178.384	104.449	-0.0068	-0.0066	0.0237	0.0102	-0.0494	-0.0008	-0.0409	-0.0108	-0.0295	0.0585	-0.0775	-0.0229	0.0114	-0.0367	1.0000	
16. Industry R&D Intensity	.0011116	.0345059	-0.0121	-0.0100	0.0022	0.2730	-0.0290	0.0142	-0.0256	0.0059	-0.0200	0.0615	-0.0250	0.0035	0.0106	-0.0072	0.0647	1.0000

Table 2. Panel data (random effect) regression with Method of Strategic Change as the dependent variable

Variables	Model 1		Model 2		Model 3		Model 4	
Number of observations	6201		6186		2620		2620	
Wald chi2(30)	7498.91		7486.29		72.16		72.78	
Prob > chi2	0.0000		0.0000		0.0000		0.0001	
R^2	0.0741		0.0756		0.0796		0.0813	
	Coeff.	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**
Environmental Dynamism			.0014286 *[0.053]*	.0007386			.0022318 *[0.022]*	.0009738
Digital Expertise					.5113009 *[0.006]*	.1874531	.5860885 *[0.018]*	.2468837
Environmental Dynamism*Digital Expertise							-.0162355 *[0.025]*	.0072547
SIC Code	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial Crisis	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
US State	-.0012143 *[0.642]*	.0026158	-.0012003 *[0.646]*	.0026159	.0021245 *[0.528]*	.003368	.0019617 *[0.570]*	.0034532
# of Competitors	.0006329 *[0.082]*	.0003633	.0006176 *[0.089]*	.0003635	.0006837 *[0.280]*	.0006331	.0007593 *[0.403]*	.0009074
Industry R&D Intensity	-2795672 *[0.162]*	1997108	-2908702 *[0.158]*	2060226	-4.796.121 *[0.810]*	1.994.824	-5737853 *[0.680]*	139037
Firm Performance	-.0030109 *[0.679]*	.0072821	-.003595 *[0.627]*	.0074084	-.0298393 *[0.252]*	.0260614	-.0305825 *[0.105]*	.018891
Firm Size	.0012099 *[0.111]*	.0007582	.0012093 *[0.110]*	.0007568	.0008376 *[0.009]*	.0003192	.0008393 *[0.129]*	.0005524
Firm Slack	.0136108 *[0.256]*	.0119847	.0132797 *[0.158]*	.0120021	.0070039 *[0.661]*	.0159868	.0069824 *[0.618]*	.0139957
Average Board Tenure	.0146474 *[0.039]*	.0070967	.014517 *[0.041]*	.007087	.01004 *[0.250]*	.0087274	.0107842 *[0.317]*	.0107835
Board Size	.0262792 *[0.041]*	.012881	.0263657 *[0.041]*	.0128858	.0417849 *[0.014]*	.0170327	.04257 *[0.052]*	.0219531
Average Age Board	-.0012476 *[0.115]*	.0007925	-.0012491 *[0.115]*	.000792	-.0011415 *[0.377]*	.0012916	-.0012198 *[0.341]*	.0012811
Constant	.1603812 *[0.438]*	.2066412	.1576 *[0.446]*	.2067713	.0480472 *[0.913]*	.4420062	.0239203 *[0.935]*	.2930384

Note: p-values in brackets and italics. Model 1 includes only the control variables; Model 2 includes the first independent variable (i.e., Environmental Dynamism); Model 3 reports the coupled effect of Digital Expertise within the board; and Model 4 reports the full model, which also comprises the interaction effect.

Table 3. Panel data (random effect) regression with Scope of Strategic Change as the dependent variable

Variables	**Model 1**		**Model 2**		**Model 3**		**Model 4**	
Number of observations	3728		3716		1560		1560	
Wald chi2(30)	117.62		117.60		71.53		76.24	
Prob > chi2	0.0000		0.0000		0.0000		0.0001	
R^2	0.0275		0.0289		0.0576		0.0593	
	Coeff.	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**
Environmental Dynamism			2.137.675 *[0.019]*	.9104436			2.412.638 *[0.006]*	.8722201
Digital Expertise					528.396 *[0.055]*	2.756.007	6.481.172 *[0.065]*	3.508.703
Environmental Dynamism*Digital Expertise							-2.105.106 *[0.028]*	9.559.829
SIC Code	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial Crisis	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
US State	4.887.113 *[0.086]*	. 2.847.457	5.065.797 *[0.075]*	2.845.911	1.211.271 *[0.008]*	4.567.826	120.737 *[0.003]*	408.543
# of Competitors	-.7093008 *[0.107]*	.4405144	-.7386762 *[0.097]*	.4450925	.0004037 *[1.000]*	.8980277	.0116879 *[0.990]*	.9252286
Industry R&D Intensity	-3.017.355 *[0.075]*	1.691.858	-2.883.742 *[0.090]*	1.699.166	216691.2 *[0.319]*	217337.9	207930.1 *[0.111]*	130395.8
Firm Performance	9.826.065 *[0.267]*	8.848.591	955.766 *[0.279]*	8.770.323	1.012.995 *[0.779]*	3.613.518	1.009.124 *[0.840]*	5.012.228
Firm Size	.1615287 *[0.630]*	.3357577	.1652405 *[0.623]*	.3360793	.0716319 *[0.857]*	.3978134	.082885 *[0.765]*	.2768881
Firm Slack	1.650.547 *[0.264]*	147.762	1.694.163 *[0.251]*	1.476.559	1.861.476 *[0.327]*	1.897.752	1.864.493 *[0.371]*	20.823
Average Board Tenure	-122.438 *[0.915]*	1.146.184	-.333627 *[0.977]*	1.146.456	-5.338.599 *[0.666]*	1.237.298	-5.141.127 *[0.064]*	1.400.887
Board Size	1.602.274 *[0.325]*	1.626.666	1.642.886 *[0.315]*	1.633.966	47.931 *[0.037]*	2.297.229	4.646.139 *[0.064]*	2.505.205
Average Age Board	.7661123 *[0.513]*	1.172.323	.7377656 *[0.530]*	117.393	3.320.014 *[0.090]*	1.955.547	3.195.234 *[0.082]*	1.836.957
Constant	2.969.377 *[0.000]*	3.901.856	2.932.189 *[0.000]*	3.898.035	2.645.401 *[0.000]*	559.954	2.636.419 *[0.000]*	4.981.115

Note: p-values in brackets and italics. Model 1 includes only the control variables; Model 2 includes the first independent variable (i.e., Environmental Dynamism); Model 3 reports the coupled effect of Environmental Dynamism and Digital Expertise within the board; and Model 4 reports the full model, which also comprises the interaction effect.

Table 4. Robustness checks with Method of Strategic Change as the dependent variable

Dependent Variable =	**Measure of # of directors with digital expertise**	**OLS Model**
Number of observations	2,620	2,620
Wald chi2(30)	72.87	
F		7.86
Prob > chi2	0.0001	
Prob > F		0.0000
R^2	0.0807	0.0886
Environmental Dynamism	.002086 *[0.028]* (.0009515)	.003728 *[0.001]* (.0015093)
Digital Expertise	.0655959 *[0.012]* (.0262118)	.4264263 *[0.016]* (.1616472)
Interaction Effect	-.0015477 *[0.044]* (.000768)	-.0176703 *[0.003]* (.005998)

Note: Robust standard errors are in parentheses and p-values in brackets and italics.

Table 5. Robustness checks with Scope of Strategic Change as the dependent variable

Dependent Variable =	**Measure of # of directors with digital expertise**	**OLS Model**
Number of observations	1,560	1,560
Wald chi2(30)	74.44	
F		4.01
Prob > chi2	0.0000	
Prob > F		0.0000
R^2	0.0602	0.0706
Environmental Dynamism	2.536823 *[0.006]* (.0069836)	3.742.585 *[0.000]* (1.692.164)
Digital Expertise	75.10721 *[0.043]* (37.07746)	3925.222 *[0.112]* (2.297.902)
Interaction Effect	-2.6959 *[0.043]* (1.329745)	-23.53104 *[0.020]* (1.218.919)

Note: Robust standard errors are in parentheses and p-values in brackets and italics.

FIGURES

Figure 1. Framework tested in this study

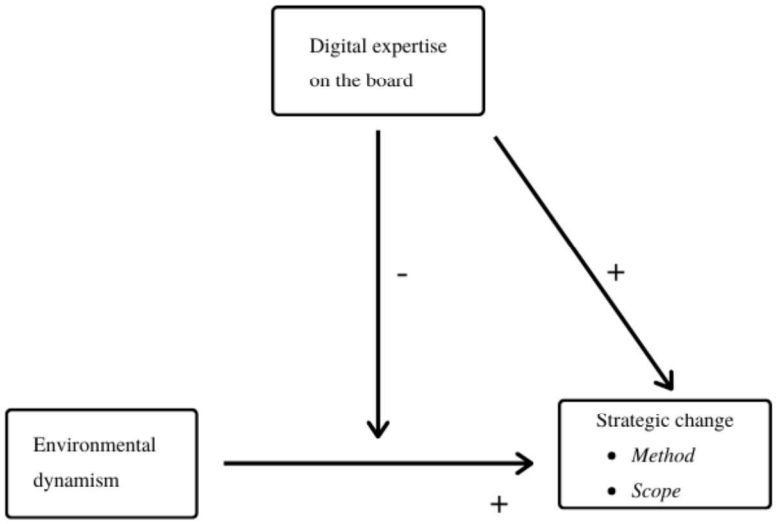


Figure 2. Predictive margins of the interaction between Environmental Dynamism and Digital Expertise with the method of SC as the dependent variable

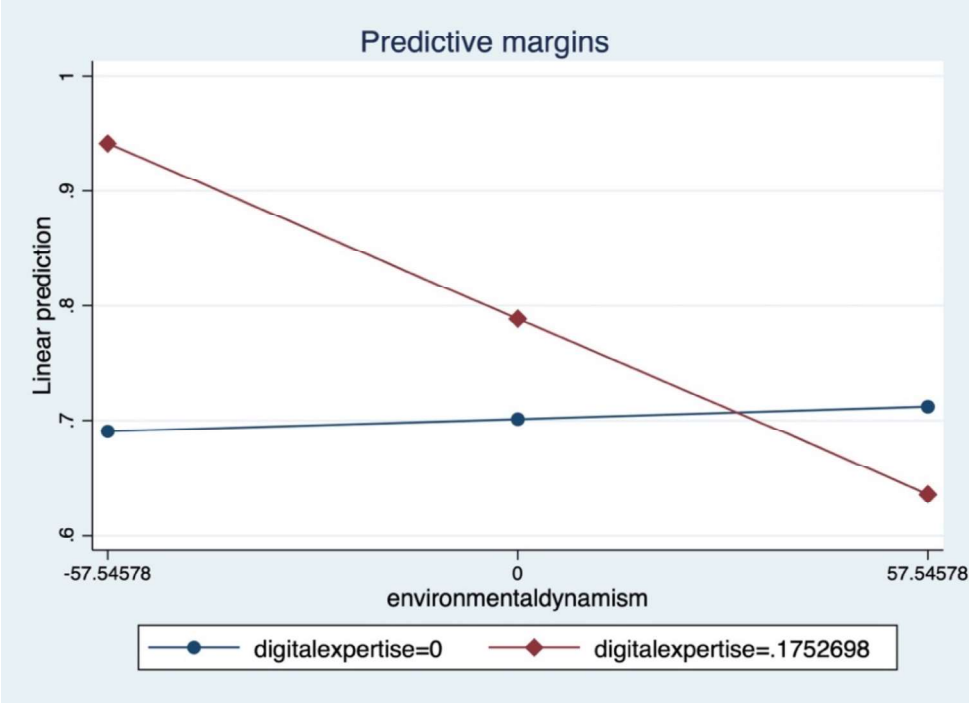
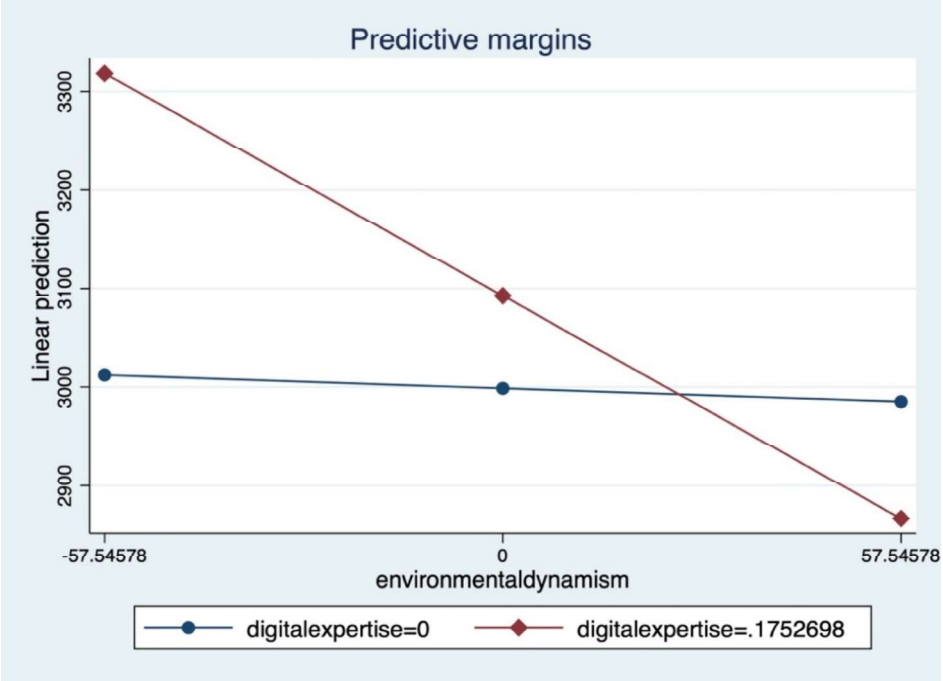


Figure 3. Predictive margins of the interaction between Environmental Dynamism and Digital Expertise with the scope of SC as the dependent variable



Exploring The Long-Term Investor Value Appropriation (LIVA) Measure: How Strategic Change Affects Long-Term Performance of The Firms.

ABSTRACT: Drawing on the notion of strategic change as corporate strategy modifications and applying the newly introduced long-term investor value appropriation (LIVA) measure, we argue that the method and scope of strategic change are positively related to firm performance. We tested our hypotheses on a panel data of 37905 firm-year observations of 2527 US listed. Interestingly, firms that are involved in completing the strategic change through scope recorded higher levels of long-term performance, while those realizing the strategic change through method experienced lower levels of long-term performance.

KEY-WORDS: *strategic change, performance, method, scope, long-term, value*

1. INTRODUCTION

The question of how strategic change comes to affect the firm performance is a critical one (Kraatz and Zajac, 2001; Quigley and Hambrick, 2012; Schepker *et al.*, 2017; Zhang and Rajagopalan, 2010). Scores of previous studies suggest that strategic change can either benefit (e.g., Herrmann and Nadkarni, 2014; Triana *et al.*, 2019; Zajac *et al.*, 2000; Zajac and Kraatz, 1993) or provide negative consequences (e.g., Naranjo-Gil *et al.*, 2008; Quigley and Hambrick, 2012; Zhang and Rajagopalan, 2010) to the firms. On the one side, scholars have shown, for instance, that increasing return on sales (ROS) and sales are observed in the first and in the second year after a restructuring implementation in the higher education industry (Zajac and Kraatz, 1993); others have found that the strategic change implementation increases the level of sales growth, net earnings growth, return on capital, market share, return on assets, and return on sales (Herrmann and Nadkarni, 2014). More recently, Triana *et al.* (2019) have revealed that the strategic change improves firm performance. On the other side,

scholars have focused on the disruptive effects the strategic change provides in terms of return on assets (ROA), total shareholder returns (TSR) (Quigley and Hambrick, 2012), and organizations' operational performance (Naranjo-Gil *et al.*, 2008).

All of these works have largely adopted short-term ratios in association with the strategic change instead of measuring its long-term value. Wibbens and Siggelkow (2020) have recently cautioned that "[…] research is concerned with long-term performance consequences and the economic significance of these consequences" (Wibbens and Siggelkow, 2020, p. 889). Thus, taking the "long view" is crucial for the firms to create value during a multiyear time horizon (Barton and Wiesman, 2014). In fact, a study conducted by Barton et al. (2017) revealed that long-term firms exhibited stronger fundamentals and performance over the last ten years. Our study seeks to explore the ways in which firms modify their corporate strategy to capture their long-term performance effects. More specifically, we explore whether and how specific strategic change could be sustainable by benefiting from firm performance over a period of ten years. To do this, we rely on the study by Wibbens and Siggelkow (2020) to use the newly introduced long-term investor value appropriation (LIVA) measure which represents one of the primary objectives for most firms. We build on this long-term measure to explore the influence of corporate strategy changes on the firm performance. Consistent with the study of Villagrasa *et al.* (2018), we separate the strategic change into *method* and *scope* – representing the firms' core strategic dimensions – to better depict the effects of corporate strategy changes on long-term value. Specifically, we argue that the completion of determined corporate operations (i.e., method) and of diversification strategies (i.e., scope) will inform on the level of performance impact of such events over a long time period. At a broader level, our theory is based on the successful translation of strategic change into firm performance (Herrmann and Nadkarni, 2014; Koka and Prescott, 2008; Smith and Grimm, 1987; Zajac *et al.*, 2000).

To test our theory, we investigate a sample of 2527 listed firms operating in the US during 2005–2019. In doing so, we advance research on strategic change on several fronts. First, we offer a novel

perspective by measuring the long-term effects of strategic change on firm performance. We believe that the use of the newly introduced LIVA measure represents a step forward for the strategic change literature, specifically by shining a light on the performance impact of strategic change over a period of ten years. Second, we extend research on strategic change by separating and assessing the dimensions of strategic change into method and scope. Finally, we contribute to research on strategy literature regarding performance measurement by picking up long-term performance consequences of strategic actions and by capturing the long-term impact of specific corporate events. The remainder of this paper is organized as follows. The next section develops the arguments that lead to our hypotheses. Then we present our methodology and results. The paper concludes with a discussion of the main ideas, limitations, and opportunities for future research.

2. THEORY AND HYPOTHESES

2.1 **Conceptualizing the strategic change**

Many conceptualizations of strategic change are used in the management and strategy literature. The existing evidence has interpreted the strategic change as a modification in terms of processes, structures, and resources (Agarwal and Helfat, 2009; Barr, 1998; Gioia *et al.*, 1994; Hofer and Schendel, 1978; van de Ven and Poole, 1995), as a deviation from industry strategic norms (Carpenter, 2000), and as a result of the managerial action based on the knowledge learnt (Rajagopalan and Spreitzer, 1997; Tushman and Romanelli, 1985) or on the experiences gained (Zhang and Rajagopalan, 2010). In general, scholars have theorized that strategic change constitutes a pronounced discontinuity or reorientation in the life of the firm (Tushman and Romanelli, 1985), while Gioia & Chittipeddi (1991a) have referred to strategic change in association with those cases in which firms are able to capture opportunities or to cope with environmental threats. In fact, a stream of literature has interpreted the strategic change as a variation in the alignment between the external environment and the firm (Carpenter, 2000; Hofer and Schendel, 1978; Rajagopalan and Spreitzer, 1997; Tushman and Romanelli, 1985; van de Ven and Poole, 1995). For instance, in the context of

turbulent environments, strategic change is useful for competing and surviving (Gioia *et al.*, 1994). Especially, we rely on the definition of Wiersema and Bantel (1992) and of Westphal and Fredrickson (2001) to assess the strategic change as a set of modifications in corporate strategies.

2.2 **Measuring the strategic change**

Research on strategic change has progressed in a somewhat fragmented manner where its cumulative measurement and effects are difficult to discern. For instance, some authors (Carpenter, 2000; Haynes and Hillman, 2010; Weng and Lin, 2014; Wowak *et al.*, 2016; Zhang and Rajagopalan, 2010) developed multiple measures (e.g., advertising intensity, R&D intensity, plant and equipment upgrades, nonproduction overhead, inventory levels, financial leverage, international commitment) to evaluate the outcomes of strategic change. In particular, Haynes and Hillman (2010) have shown that the heterogeneity of the board leads to more strategic change, while the embeddedness of the board in the focal firm's industry reduces it. More recently, Weng and Lin (2014) have focused on the CEO to find that new CEOs tend to adopt more strategic change. Others (e.g., Karaevli and Zajac, 2013; Quigley and Hambrick, 2012) measured the variations in resource allocation, in addition to corporate operations like acquisitions and divestitures. Likewise, Decker and Mellewigt (2012) considered the implementation of strategic business exits, while Barron *et al.* (2011) measured the implementation of discontinued operations. Moreover, the study of Herrmann and Nadkarni (2014) brought evidence that some traits of the CEOs (e.g., conscientiousness) influence the implementation, while others (e.g., extroversion) impact the initiation of strategic change. Building on the idea coined by Villagrasa et al. (2018), in this study we separate the effects of strategic change into the main strategic directions of the firm (i.e., method and scope).

2.3 **Strategic change and firm performance**

Despite previous empirical research has largely concentrated on the firm performance effects of strategic change (Herrmann and Nadkarni, 2014; Koka and Prescott, 2008; Smith and Grimm, 1987; Zajac *et al.*, 2000), they in fact adopted short-term ratios like return on investment (ROI), return on total capitalization (ROTC), return on equity (ROE) (Smith and Grimm, 1987), return on assets (ROA) (Quigley and Hambrick, 2012; Zajac *et al.*, 2000), productivity index (Koka and Prescott, 2008), and sales growth, net earnings growth, return on capital, market share, ROA, and return on sales (Herrmann and Nadkarni, 2014). In doing so, the firm performance effects over long time periods have been underestimated. Indeed, there is the need to develop a measure of long-term value maximization to better capture the long-term value appropriation in terms of absolute size (Wibbens and Siggelkow, 2020). Furthermore, as suggested by Müller and Kunisch (2018), there is considerable evidence about the beneficial effects associated with the strategic change (Herrmann and Nadkarni, 2014; Koka and Prescott, 2008; Smith and Grimm, 1987; Triana *et al.*, 2019; Zajac *et al.*, 2000), while its dark side requires more attention. As a result, we contend that it is crucial to assess the sustainable performance achievement of strategic change, as separated through method and scope. Specifically, the effect of method of strategic change can be explained by a firms' need to leverage external resources and competencies to increase the firm's long-term performance, especially when the existing set of resources and competencies is not considered suitable, and firms rely upon knowledge of other stakeholders (e.g., business partners). The effect of scope of strategic change can be explained by a firms' need to achieve greater flexibility and resilience in term of sustainable business model, especially with respect to cost containment and revenue boost. Accordingly:

Hypothesis 1a: *The method of strategic change positively influences long-term performance of the firms.*

Hypothesis 1b: *The scope of strategic change positively influences long-term performance of the firms.*

3. METHODOLOGY

3.1. Data

Focusing on large and listed US companies, firm-level and industry-level data for this study came from Compustat[1], from Refinitiv Workspace[2], and from the global LIVA database published on Wharton Research Data Services (WRDS). The board and CEOs' information have been found on the BoardEx database[3]. We first selected large and listed firms with available financial accounts between 2005 and 2019, and we eliminated those firms that appear as "inactive". The firms we selected operate in different industries and they are involved in various corporate operations. These criteria resulted in a balanced panel of 37905 firm-year observations, which represented 2527 records. In our model, we used the fixed effect regression method to analyze our data, and we conducted a few supplementary tests to examine the robustness of the findings.

3.1. Measures

3.1.1. Dependent variable

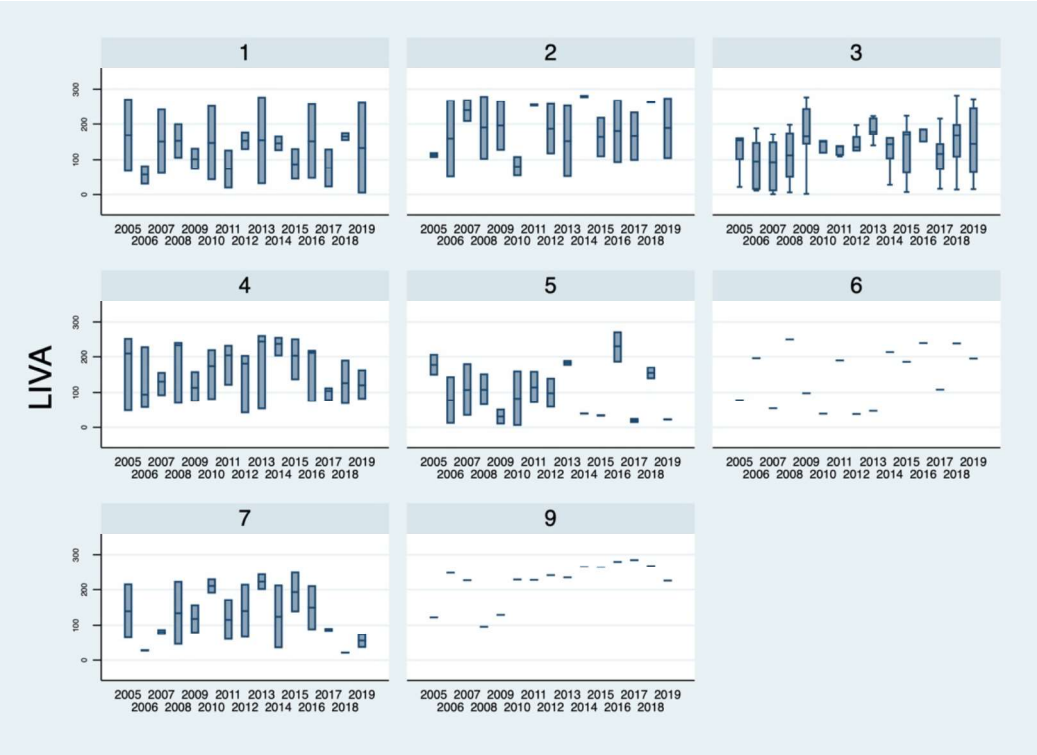
We measured the long-term firm performance as LIVA. LIVA is defined as the sum of the discounted absolute excess returns to shareholders over a given period (Wibbens and Siggelkow, 2020), and it is able to capture the long-term value appropriation in terms of absolute size by measuring "whether firms created value for their investors over long time periods" (Wibbens and Siggelkow, 2020, p. 868). Moreover, LIVA is particularly suited for capturing the impacts of major corporate events like merger and acquisitions, and it is helpful in evaluating the long-term effects of determined strategic actions. To operationalize LIVA on the firm level, we borrow the following equations used by Wibbens and Siggelkow (2020):

$$\mathrm{LIVA}=\sum_{t=1}^{T}\frac{\mathrm{FCF}_t}{(1+r)^{t-T}}=\sum_{t=1}^{T}\frac{\mathrm{ER}_t\,\mathrm{MC}_{t-1}}{(1+r)^{t-T}}=\sum_{t=1}^{T}\frac{\mathrm{EP}_t}{(1+r)^{t-T}}=\sum_{t=1}^{T}\frac{(\mathrm{ROC}_t-r)\mathrm{BV}_{t-1}}{(1+r)^{t-T}}.$$

[1] https://wrds-www.wharton.upenn.edu/pages/get-data/compustat-capital-iq-standard-poors/compustat/
[2] https://www.refinitiv.com/en/products/refinitiv-workspace
[3] https://wrds-www.wharton.upenn.edu/pages/get-data/boardex/

Based on our sample, we observe that in the real estate (6000 <= SIC code <= 6799) and in the public administration (9000 <= SIC code <= 9729) sectors firms perform with less variability in each year of reference. On the contrary, sectors including agriculture, mining, and construction (0100 <= SIC code <= 1999), manufacturing (2000 <= SIC code <= 3999), transportation (4000 <= SIC code <= 4999), wholesale and retail trade (5000 <= SIC code <= 5999), finance, insurance, and services (7000 <= SIC code <= 8999) report higher variability in terms of LIVA in each year of reference (Figure 1).

Figure 1 – LIVA trend over the period 2005-2019, by sector



3.1.2. Independent variables

Consistent with the study of Villagrasa et al. (2018), we separated the strategic change into the two main firm's strategic dimensions: method and scope. Specifically, we considered the following corporate operations as method of strategic change: strategic alliances, mergers, acquisitions, and

joint venture. To test Hypothesis 1a, we therefore define method of strategic change as the sum of the number of merger and acquisitions, strategic alliances, and joint ventures completed during each year. To test Hypothesis 1b, in line with previous research (Cappa et al., 2020; Mayer et al., 2015; Villagrasa et al., 2018), we measured the scope of strategic change as geographic diversification strategy (changes in geographical markets), and product diversification strategy (changes in the product-market portfolio). We then created an index by computing the mean between the following indicators: (a) international diversification growth, and (b) product diversification growth. Following Mayer et al. (2015), Kumar (2009), and Chatterjee and Wernerfelt (1991), we calculated the international diversification growth as (Foreign salest+4 − Foreign salest)/Total salest. We then computed the product diversification growth as (Non-core business salest+4 – Non-core business salest)/Total salest. We collected these data from the Refinitiv Workspace database and from Compustat. Thus, the composite variable of scope of SC represents a modified version of the index of diversification used by Mayer et al., (2015), Chatterjee and Wernerfelt (1991), and Kumar (2009), Chatterjee and Wernerfelt (1991), and Kumar (2009), and reflects the growth of product and geographic diversification dimensions over a period of four years.

3.1.3. Control variables

We controlled for several variables that serve as standard controls in studies on the performance consequences of strategic change (e.g., Boeker, 1989; Kraatz and Zajac, 2001) We first included several firm-level firm characteristics. Because prior performance is likely to influence both the level of strategic change and current firm performance, we controlled for *firm performance (Tobin's q)*. In addition, we included *firm slack,* calculated as current assets divided by current liabilies, because larger companies with more resources may perform better (Triana *et al.*, 2019). Additionally, we included the financial *leverage* as long-term debt divided by total assets and the one-year *sales growth* (Oehmichen *et al.*, 2017). Natural logarithm of market capitalization proxied *firm size* (Fiss and Zajac, 2006).

We then considered several individual-level control variables. Since we recognize that the decision of the firms to determine new corporate strategies – and therefore to influence firm performance – is mainly dependent on the top executives ability (Westphal and Fredrickson, 2001), we used three conventional CEO variables to control for CEO effects (i.e., *CEO tenure, CEO duality,* and *CEO change*) and two conventional board variables to control for board effects (i.e., *average board tenure* and *board independence*).

To account for industry-level controls, the *environmental dynamism*, measured as the volatility of the rate of change of annual industry sales, was included (Boyd, 1990; Girod and Whittington, 2017); especially, we relied on the SIC codes to identify the specific industry in which the firms operate. In addition, we controlled for the resource allocation of the industry by measuring the *industry R&D intensity* (R&D expenses/sales) (Oehmichen *et al.*, 2017). We then included a dummy variable for accounting for the *years* of observation. Finally, we controlled for the number of *competitors* within each industry, based on the SIC codes. Industry income was computed as the *Average ROA in the industry,* based on the SIC codes.

3.2. Analysis

Panel data regression with fixed effects was conducted on STATA to test the hypotheses. In particular, the results of the Hausman-specification test (Hausman, 1978) suggested the use of fixed-effects specification ($p > 0.0000$).

4. RESULTS

Table 1 presents detailed sample summary statistics and the correlations. No correlation value among the variables is higher than 0.60, suggesting the chance of multicollinearity is low. Moreover, we computed the variance inflation factors (VIF) which are 1/Tolerance to further assess multicollinearity. The values of VIFs in our main models for our explanatory variables are all below 3, except for average board tenure that record the highest VIF. Although there is one higher VIF in

our individual-level controls, the remaining VIFs of our main explanatory variables are well below the cutoff value of 10 (Wooldridge, 2013). Multicollinearity concerns are, therefore, low.

Table 1 – Summary and correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Method of SC	10.000														
2. Scope of SC	-0.0003	10.000													
3. Year	-0.0141	-0.0009	10.000												
4. Environmental dynamism	0.0070	-0.0020	-0.0327	10.000											
5. No. Of competitors	-0.0483	-0.0094	-0.0098	-0.0112	10.000										
6, Firm performance	-0.0018	0.0000	-0.0009	-0.0007	0.0021	10.000									
7, Average board tenure	0.0728	-0.0196	0.1337	-0.0273	0.0142	-0.0100	10.000								
8, Firm size	0.1616	0.0019	0.1273	0.0010	0.0651	-0.0073	-0.0236	10.000							
9, Mean ROA industry	0.0035	0.0011	-0.0121	0.0039	0.0140	-0.0018	0.0199	-0.0010	10.000						
10, Firm slack	-0.0066	0.0279	-0.0007	0.0237	0.0582	0.0122	-0.0411	-0.0683	-0.0041	10.000					
11, Industry R&D intensity	-0.0120	0.2919	0.0142	0.0022	0.0615	0.0112	-0.0255	-0.0040	-0.0017	0.0647	10.000				
12, Leverage	-0.0019	-0.0001	-0.0044	-0.0036	-0.0027	-0.0001	-0.0065	0.0059	0.0004	-0.0015	-0.0188	10.000			
13, CEO duality	0.0335	0.0070	-0.1194	0.0041	-0.0176	-0.0086	0.0911	0.0436	0.0129	-0.0051	-0.0118	-0.0058	10.000		
14, CEO change	-0.0119	-0.0091	0.0106	0.0006	-0.0090	-0.0023	-0.1446	-0.0027	-0.0045	0.0118	-0.0071	-0.0034	-0.0135	10.000	
15, CEO tenure	-0.0029	-0.0010	-0.0213	0.0033	0.0265	0.0045	0.4742	-0.0690	-0.0097	-0.0050	-0.0094	-0.0039	0.1940	-0.1117	10.000

Table 2 reports the results of panel data estimations. Hypothesis 1 predicts that the method of strategic change positively influences long-term performance of the firms. Model 2 of Table 2 provides the results for this direct effect. We observe that there is a negative association between method of strategic change and long-term performance ($p = 0.000$). Therefore, Hypothesis 1 is not supported. Hypothesis 2 predicts that the scope of strategic change positively influences long-term performance of the firms. Model 3 of Table 2 provides results for this test. We observe there is a positive association between scope of strategic change and long-term performance ($p = 0.016$). Hypothesis 2 is, therefore, supported.

Table 2 - Results of panel data (fixed effects) regression models for strategic change on firm performance

	Model 1		Model 2		Model 3	
# Observations	6,217		6,217		4,667	
F	36.82		40.73		35.76	
Prob > F	0.0000		0.0000		0.0000	
R^2	0.1588		0.2003		0.1828	
	Coeff.	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**
Method of SC			-3.453.138***	8.117.919		
Scope of SC					1.731.903**	7.197.943
Year	Yes	Yes	Yes	Yes	Yes	Yes
Environmental dynamism	8.070.935*	4.273.097	7.231.374*	4.378.802	9.366.721*	4.818.331
No. Of competitors	-1.169.756***	3.483.873	-1.152.113***	3.817.674	-1.829.537	5.016.427
Firm performance	4.962.352**	207.546	5.830.966**	2.395.723	4.639.613***	2.182.958
Average board tenure	-9.141.736**	4.480.062	-1.231.771***	4.497.161	-5.655.277	6.305.692
Firm size	6.511.234***	5.416.468	8.846.902***	6.054.391	10180.99***	6.945.964
Mean ROA industry	-8.177.451**	3.268.699	-5.580.799***	2.682.715	-4.745.779*	2.836.784
Firm slack	1.360.119**	5.401.331	162.658***	5.643.556	1.684.297***	5.683.556
Industry R&D intensity	-2.492.858	17212.06	61919.75***	20111	51760.78***	22160.06
Leverage	-3.146.441**	1.348.885	-3.020.601***	1.365.789	-1.698.208	1.809.976
CEO duality	-3.649.617	272.101	-4.744.211**	2.524.142	-6.983.962***	3.137.874
CEO change	-1.845.057	2.030.383	-2.924.236	1.972.935	-1.115.179	2.312.302
CEO tenure	2.712.987	2.741.193	1.781.261	250.782	1.800.948	3.065.637
Board independence	106449.1***	1.822.409	89538.7***	2.379.562	120885.5***	3.771.935

* p < .10, ** p < .05, *** p < .01; Model 1 includes only the control variables; Model 2 includes the first independent variable (i.e., method of strategic change); Model 3 includes the second independent variable (i.e., scope of strategic change).

5. DISCUSSION

5.1. Contributions

While the concept of performance effects on strategic change has grown in popularity over time, a significant majority of studies has focused on short-term ratios (e.g., ROA, ROE). To fill this gap, we analyzed the impact of strategic change measuring the LIVA recently developed by Wibbens and Siggelkow (2020). In so doing, we capture the likelihood of the firms to create value for their investors

over long time period. Our results show that firms which were involved in completing merger and acquisitions, strategic alliances, and joint ventures experienced lower levels of long-term performance. This can happen when the amount paid to conclude the transactions exceeds the synergy created between two or more firms (Michel and Shaked, 1985). Likewise, corporate operations like merger and acquisitions could be associated with an increase in the total risk for the consolidated firm (Michel and Shaked, 1985). In addition, when the entire organization is affected by such events, it can happen that in the aftermath of an ownership change the performance effects are deteriorated (Siegel and Simons, 2010). Also, there could be difficulties in achieving a shared vision for a strategic alliance (Kumar, 2014), in identifying linguistic and communicative point of contacts across the parties (Kumar, 2014), and in maintaining a partnership control or loyalty (Koza and Lewin, 2000). On the contrary, those firms that are active in the finalization of product and geographic diversification recorded higher levels of long-term performance. This can be explained with the opportunity for firms to explore resource complementarities (Adegbesan, 2009), to reduce potential complexity (Chen *et al.*, 2019), and to maintain strategic flexibility (Chen *et al.*, 2019).

Our study makes multiple contributions. First, we separate the effects of strategic change into its two main directions (i.e., method and scope), as identified by (Villagrasa *et al.*, 2018). Second, we illustrate how method and scope of strategic change can be used as a tool for picking long-term performance consequences. Even though Herrmann and Nadkarni (2014), Koka and Prescott (2008), Smith and Grimm (1987), Triana *et al.* (2019), and Zajac *et al.* (2000) used short-term ratios which might not properly reflect economic performance over long time periods, we are the first, to our knowledge, to apply LIVA to measure the firm performance over a long time period.

Third, this paper suggests that not every strategic change can result in higher performance. We therefore extend our knowledge on potential negative implications associated with the strategic change. Especially, while prior research has acknowledged that strategic change provides beneficial consequences to the firms (e,g., Koka and Prescott, 2008; Smith and Grimm, 1987; Zajac *et al.*, 2000), it has rarely recognized that changes in corporate strategy are associated with disruptive effects. Our

results reveal that the completion of specific corporate operations (i.e., merger and acquisitions, strategic alliances, and joint ventures) decreases the long-term firm performance, while the diversification strategy (i.e., product and geographic) increases its economic impact.

Our paper also provides insights to practitioners who manage strategic change. They need to be mindful of changing corporate strategy both with regards to method and scope. On the one hand, managers could favor (product or geographic) diversification strategy to capture the positive effects over a long time period, even though they are aware that there are coordination and strategic costs initially associated with it (e.g., Lyandres, 2007; Rawley, 2010). On the other hand, since LIVA can be significantly influenced by stock market sentiments (Wibbens and Siggelkow, 2020), the negative relationship between method of strategic change and long-term firm performance can be explained by the fact that selected corporate operations (e.g., merger and acquisitions) are responsible for negative market reactions. The same authors, based on their sample, revealed that "[…] avid acquirers have not fared well over the past decades" (Wibbens and Siggelkow, 2020, p. 884).

5.2. Limitations and implications

There are several notable limitations of this study, which also suggest the directions for future research. First, our claims need to be tested in different contexts for achieving generalizability since we only used data from listed and large firms located in the US. For instance, even though we controlled for these characteristics, our results may be extended to private firms, which tend to be younger, smaller, and face greater financial resource constraints (Vanacker *et al.*, 2017). Likewise, we focused only on specific types of method of strategic change (i.e., merger and acquisitions, joint ventures, and strategic alliances), while our results may be extended to other types of corporate operations (e.g., divestments). Third, since we focused on the direct relationship between strategic change and long-term firm performance, future research could consider additional CEO/Top Management Team/board of directors' moderators to investigate whether these individuals or groups limit or amplify the effect of strategic change on LIVA.

6. CONCLUSION

This study examines how two types of strategic change dimensions (i.e., method and scope) influence the long-term firm performance. We found that the method of strategic change – measured by merger and acquisitions, joint ventures, and strategic alliances completed – decreases LIVA, while the scope of strategic change – measured by product and geographic diversification – increases it. In all, our findings offer valuable theoretical and practical insights for managing and assessing the strategic change.

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