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Evolution of dynamic capabilities for business sustainability performance: Evidence from the Indian manufacturing sector

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Abstract

Firms can achieve trinomial sustainability goals if they can constantly build and rejuvenate their capabilities to adapt to new situations. However, few studies consider the interrelationships between the distinct capabilities pertinent to sustainable development and the impact of these capabilities on firm performance under diverse contexts, especially in emerging economies. Drawing on dynamic capability theory, we developed a model to test the links between dynamic sustainability capability, theorized as a higher order capability, and relational and managerial capabilities, theorized as lower order capabilities, to the firm's sustainability performance. Data collected from 210 large Indian manufacturing firms is analyzed using PLS-SEM. Results confirm that dynamic sustainability capability has facilitating effects on environmental and social performance directly and indirectly through managerial capability. Although relational capability partially mediates the link between dynamic sustainability capability and social performance, it does not impact environmental performance. Further, the aforementioned relationships are affected by forces in the firms' environment. Most of the direct and indirect relationships are negatively moderated by organizational inertia and positively moderated by environmental turbulence. By investigating the hierarchically structured capabilities, this study guides firms to make strategic choices regarding resource calibration for sustainability. The study recommends that organizations looking to integrate dynamic sustainability capability as part of their strategic management should look at the sequential combinations of existing resources to achieve different sustainability targets. The study's findings also urge policymakers to consider environmental conditions while developing sustainability reforms.

KEYWORDS

environmental, managerial, relational, social, sustainability capability, turbulence, inertia

Abbreviations: ANOVA, Analysis of variances; AVE, Average variance extracted; BCa, Bias-corrected and accelerated bootstrap confidence intervals; BCG, Boston consulting group; CB-SEM, Covariance-based structural equation modeling; CE, Circular economy; CMIE, Center for monitoring Indian economy; CSR, Corporate social responsibility; DC, Dynamic capability; DSC, Dynamic sustainability capability; EP, Environmental performance; ESG, Environmental, social, and governance; ET, Environmental turbulence; GDP, Gross domestic product; H&M, Hennes & Mauritz ab; HOC, Higher order construct; HRM, Human resource management; HTMT, Heterotrait–monotrait ratio; IEA, International energy agency; LOC, Lower order construct; MC, Managerial capability; MGA, Multi-group analysis; MICOM, Measurement invariance of composite model; OI, Organizational inertia; PLS-SEM, Partial least squares structural equation modeling; R&D, Research and development; RC, Relational capability; SDG, Sustainable development goal; SME, Small- and medium-sized enterprise; SP, Social performance; VIF, Variance inflation factor.

1 | INTRODUCTION

Our society is striving to achieve sustainable development, which involves the simultaneous integration of economic performance, environmental resilience, and social justice. The developing countries especially are struggling to balance their growth ambitions with climate goals. India, China, and Brazil are amongst the fastest-growing emerging economies in the world and some of the largest carbon dioxide emitters (IEA, 2022). Interestingly, the dominant line of academic research in these emerging economies adopts an external lens linking institutional policies and stakeholder pressure to firms' adoption of sustainability (Chiappetta Jabbour et al., 2020; Mani & Gunasekaran, 2018). These studies capture only firms' reactive responses to ecological and social issues, often resulting in superficial adoption and greenwashing (Testa et al., 2018). Firms are now advised to proactively build their intrinsic resources with a long-term view to create a substantial triple-bottom-line impact. For example, the framework of sustainable development goals (SDGs), developed by the United Nations, emphasizes that for SDG targets to be attainable, diverse stakeholders, including business organizations, should build institutional, technical, and organizational capacity to execute the gamut of initiatives (United Nations, 2015). A Boston Consulting Group report also states that healthy companies should build business capabilities and prioritize Environmental, Social, and Governance (ESG) objectives over short-term financial returns even while navigating a crisis such as COVID-19 (BCG, 2021). However, the scholarship in the area of sustainability capabilities is insufficiently systematized, as indicated in the recent systematic literature reviews by da Bezerra et al. (2020) and Buzzao and Rizzi (2021).

Much of the ecological footprint and resource consumption has been attributed to the manufacturing sector. India "missed the manufacturing bus" and transitioned to a service-based economy (Kochhar et al., 2006). This shift resulted in wealth creation yet resulted in jobless growth and insufficient employment for the vast human resources (Majid, 2019). Further, India's manufacturing sector contributes only 13% of the national GDP, much less than smaller nations like Vietnam and South Korea (World Bank, 2022). Although the Make in India policy has provided stimulus to indigenous manufacturing (Press Information Bureau, 2022), the underperformance of the manufacturing sector remains a concern. The ESG contribution of Indian firms lags far behind that of developed countries (S. Chen et al., 2023). Therefore, firms will have to deploy specialized sustainability capabilities rooted in their contextual understanding of problems such as poverty, illiteracy, poor infrastructure, etc., to achieve international competitiveness and accomplish the national agenda of "Sabka Saath, Sabka Vikas" (collective effort and inclusive growth) (Niti Ayog, 2022). While Western countries have conducted relevant theoretical and empirical research on sustainability capabilities (Demirel & Kesidou, 2019; Elf et al., 2022), such studies are lacking in developing countries. The "how" (mechanisms) and "what" (impacts) of sustainability capabilities may not be applicable in a different socio-cultural and political environment like India and need more attention (Roy & Goll, 2014). Further, the extant studies from developing nations have mainly examined capability orchestration by small and medium-sized (SME) manufacturing enterprises (Abid, Ceci, & Aftab, 2023; Abid, Dowling, et al., 2023; Arshad et al., 2023). While SMEs have the strategic flexibility to reorient their resources quickly, large firms find it challenging due to their bureaucratic structures and scale of operations (Weinzimmer et al., 2023). However, when the lead firms orchestrate their resources, it can entail more significant social and environmental benefits (Parida et al., 2019). A few real-life examples are ITC Ltd.'s "E-Chaupal," which provides internet-based solutions to rural farmers, and Schneider Electric's "Green Yodha," which promotes cross-sectoral dialogue on climate action. Until now, limited studies have empirically tested the deployment of sustainability capabilities in this context.

The first research gap is the lack of understanding of how sustainability capabilities affect the various dimensions of sustainability performance. Given the fear of climate change and scarcity of resources, research in developing countries is focused on how sustainability capabilities can engender a range of positive environmental outcomes such as pollution management (Zhang et al., 2022), adoption of emission trading schemes (Zhou et al., 2018), and eco-efficiency (Kabongo & Boiral, 2017). Further, the gains from an eco-based competitive advantage (reputation, new customer attraction, etc.) are perceived to be more congruent with financial indicators of performance like sales and revenue (Yi & Demirel, 2023). Despite the scholarship highlighting the paradoxical tensions in people versus planet orientation (Vallaster et al., 2021), the proportion of studies examining both *Social Performance (SP)* and *Environmental Performance (EP)* is scarce. The second research gap is the inconsistent findings regarding the impact of sustainability capabilities on firm performance. Prior literature has noted that regardless of the heuristics firms use to position themselves in the market as sustainable, these do not readily contribute to their triple bottom line, which can be attributed to the inadequate understanding of how extant resources are integrated and realigned (Buzzao & Rizzi, 2021). Surprisingly, scholars have primarily focused on the interaction of sustainability capabilities with innovation (Huang & Li, 2017; Singh et al., 2022) and a few other strategic processes, such as absorptive capacity (Aboelmaged & Hashem, 2019), green creativity (G. Joshi & Dhar, 2020), and green purchasing (S. A. R. Khan et al., 2023). More research on alternate pathways is called for to fully understand the effect of sustainability capabilities on SP and EP. Accordingly, we introduce *relational capability (RC)*, defined as the ability to initiate and maintain mutually beneficial alliances with business partners (Pham et al., 2017). Collaborations for sustainability are more diverse in form and function than ordinary alliances, and RC becomes critical to leverage cross-sectoral partnerships (Liu et al., 2018), open innovations (Inigo et al., 2020), green supply chains, and so forth (Alghababsheh & Gallear, 2021). Hence, we argue that RC is possibly a stronger mechanism in explaining the linkage between sustainability capabilities and performance since it facilitates boundary-spanning knowledge acquisition, risk sharing, and functional integration between partners (Onofrei et al., 2020; Zahoor & Gerged, 2021). Additionally, in sustainability research, scholars were interested in how cognitive structures and mental models, like managerial beliefs (Kump, 2021), interpretation (Zhou et al., 2018), and values (Prömpeler et al., 2023), can drive sustainability. Research overlooks how managerial actions are enacted within the social framework of the organization (Sandhu & Kulik, 2019; Strauss et al., 2017). Hence, we also introduce *managerial capability* (*MC*), defined as the management's ability to consolidate the firm's employee knowledge, skills, processes, and structures (Felin et al., 2012). We argue that MC can be an effective conduit for sustainability capability development by helping firms utilize their people, functions, and strategies better than their competitors. The third research gap is the omission of the inside and outside forces, which can serve as boundary conditions that shape how capabilities drive sustainability. In reality, sustainability capabilities are on the periphery of strategic management, which means that *organizational inertia* (*OI*), that is, slow internal response to change (Gilbert, 2005), and *environmental turbulence* (*ET*), that is, variability in customer demands, technology, and competition (Jaworski & Kohli, 1993) can create resource rigidities in capabilities. Firms that are able to adapt their capabilities to these situations can improve performance else they face the risk of failure (Jiang et al., 2023; Wang et al., 2023). To provide a more complete picture of how sustainability capabilities will be revitalized or depleted, there is a need to examine how these environmental forces create capability gaps not just in the initial configuration of sustainability capabilities but also in the value-enhancing configuration of RC and MC (Wilden & Gudergan, 2015).

Our study addresses the above research gaps by developing a conceptual model based on the theoretical lens of dynamic capability (DC) theory (Teece et al., 1997). Unlike the resource-based view, which utilizes the firms' rare and unique competencies to operate in stable environments (Barney, 1991), DC offers a competitive advantage to firms through its ability to sense, seize, and reconfigure its capabilities in response to disruptive environments also (Eisenhardt & Martin, 2000). Accordingly, we conceptualize *dynamic sustainability capability (DSC)* as the firm's superior capability to deliver sustained value to its shareholders through integrating and adjusting its existing resources and functional routines for the simultaneous pursuit of economic, environmental, and social goals (Amui et al., 2017; Chen & Chang, 2013). We build on the hierarchical tenet of DC theory, which postulates that capabilities evolve in a continuum of higher and lower level capabilities (Collis, 1994). We propose that a higher order capability such as DSC would generate new resource configurations of lower order capabilities of RC and MC. In turn, RC and MC would drive sustainability performance. Thus, we examine the mediating role of RC and MC in transferring the effect of DSC on SP and EP. We also theorize that high OI weakens capability upgradation, and high ET drives firms to reinvent their capabilities. Thus, OI and ET moderate the direct relationship between DSC and performance and their indirect relationship through RC and MC. The relationships among all the above variables are depicted in our conceptual framework and shown in Figure 1. The framework is tested using the survey method in large manufacturing firms in India and analyzed using the PL-SEM technique.

The paper makes the following theoretical contributions. Firstly, the study answers the call to examine how the Western theory on DSC and performance holds in the context of a developing country (Dangelico et al., 2017). Second, we depart from prior works that primarily focus on the explanatory power of DSC on performance by highlighting the role of resource complementarity through other critical resources like RC and MC (Schilke, 2014). Finally, we give precision to works that suggest capability building to be a complex and non-linear process by building knowledge on the contingent role of environmental forces (Aragón-Correa & Sharma, 2003). The study's findings also have several practical implications for firms integrating DSC into their strategic management.

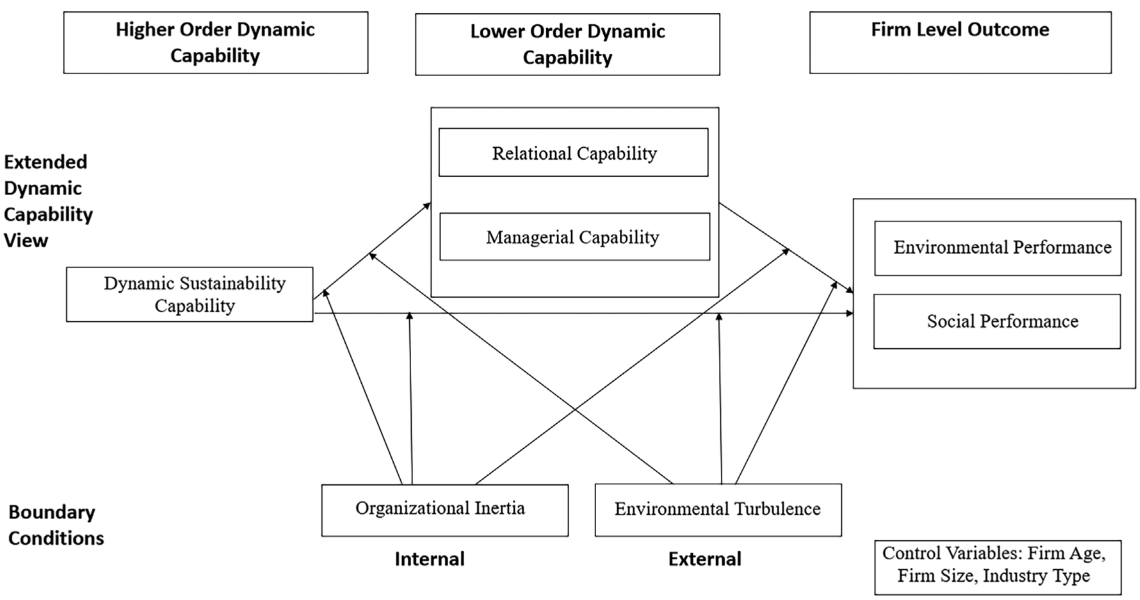

FIGURE 1 Conceptual model.

The rest of the paper is organized as follows. In Section 2, the theoretical framework and hypotheses are presented. Sections 3 and 4 detail the methods and the results, respectively. Section 5 provides the discussion, including the theoretical and practical implications, limitations, and future research, and Section 6 provides the conclusion.

2 | THEORETICAL FRAMEWORK

2.1 | Dynamic capability view

DC theory emerged with the notion of renewing firms' internal and external competencies to function in stable and volatile business environments (Teece & Pisano, 1994). Teece et al. (1997) that DC enables firms "to achieve new and innovative forms of competitive advantage given path dependencies and market positions," highlighting how capabilities are in continuous flux. Evolution is necessary for survival since, in disruptive environments, even DC can become antiquated. Therefore, firms must learn to reinvent them, suggesting a hierarchy of first, second, and ad infinitum levels of meta capabilities (Collis, 1994; Winter, 2003; Zollo & Winter, 2002). When first-order capabilities are applied, the asset base essentially stays the same, although it continues to morph (Ambrosini et al., 2009). However, when second-order capabilities are leveraged, new resources are either generated or combined into a new one (Schilke, 2014). Moreover, when a firm has a higher level DC built on an updated lower level DC, it can decrease costs while increasing innovation (through the learning curve effects of resources committed to that DC) (Arend, 2013). Thus, firms with higher order DC can outperform those with lower order capabilities because it can generate hard-to-imitate strategic insights and facilitate ad hoc problem-solving (Fainshmidt et al., 2016).

Researchers have reasoned that the proactive development of DC helps them foresee external changes, appraise operational plans, deploy resources effectively, and increase responsiveness to stakeholder needs, leading to supra-competitive returns (Sharma et al., 2007). Academic scholarship at the intersection of DC and sustainability comprises two research strands. The first one focuses on the nature of DC and sustainability. Traditional DC contains a generic set of activities such as comparing, evaluating, experimenting (Marcus & Anderson, 2006), sensing, learning, coordination (Albort-Morant et al., 2016), and external and internal integration (Eikelenboom & de Jong, 2019). Scholars argue that sustainability-oriented constructs can better explain firms' green transition and green growth than generic DC (Buzzao & Rizzi, 2021). Although researchers have developed context-specific sustainability DC, this construct eludes a consistent conceptualization, for example, green DC (Chen & Chang, 2013; G. Joshi & Dhar, 2020), eco capability (Borland et al., 2016; Gabler et al., 2015), and sustainability-oriented DC (Demirel & Kesidou, 2019; Shang et al., 2020). The common consensus is that they represent an aggregate of sustainability-specific activities that offer firms insightfulness, creativeness, and strategic vision, and their implementation would require firms to harness idiosyncratic knowledge from several domains, incorporate nested business models in various shapes and sizes, and involve diverse ecosystem actors (Borland et al., 2016; Knoppen & Knight, 2022; Wu et al., 2012).

The second strand of research centers on the consequences of DC on performance and competitive advantage. The tautological linkage of DC to sustainability performance overlooks its transformation capacity and hierarchical nature, that is, the impact of DC on performance output is contingent on the renewal of functional capabilities, changes in the resource base, and other improvements (Eisenhardt & Martin, 2000). In the face of turbulence and resource shortage, firms must learn to disperse resources among alternatives and develop concurrent capabilities to adapt quickly (Prahalad & Ramaswamy, 2004). Especially in emerging economies, firms must use their existing "resources at hand" to combat such challenges (Abid, Ceci, & Aftab, 2023; Abid, Dowling, et al., 2023). Further, building on systems thinking, organizations are complex systems, and identifying combinations of DC as subsystems of a DC ecosystem is more beneficial than studying one DC in isolation (Sunder & Ganesh, 2021). Only a few studies have investigated the role of higher level capability in conjunction with lower level capability. For example, Beske (2012) highlights how a newly oriented supply chain DC was needed over the current DC to achieve long-term competitive gains. Inigo and Albareda (2019) propose three levels of DC (adapting, expanding, and transforming) for achieving sustainability-oriented innovation. In light of these findings, using the hierarchy tenet of DC, we conceptualize RC and MC as lower order capabilities and DSC as a higher order capability disaggregated into the actions of sensing, seizing, and transforming as envisaged by Teece (2007).

2.2 | Hypothesis development

DSC is a distinctive capability, reflecting complexities rarely found in other settings as it balances business complexities with environmental externalities (Strauss et al., 2017). The interrelated micro-dimensions of "monitoring," "seizing," and "reconfiguring" focus on the firm-level processes and also on the underlying individual-level behaviors that aid them (Wójcik et al., 2022). Monitoring capability enables firms to gain sustainability insights by searching and gathering market intelligence on competitor moves, supplier feedback, and customer responses (Demirel & Kesidou, 2019). Seizing capability allows firms to design tactical plans and mobilize resources to capitalize on newly identified opportunities (Shang et al., 2020). Reconfiguring capability is utilized to reinvigorate existing practices and structures and to adapt to changing sustainability priorities (Elf et al., 2022). DSC is expedited through the firms' extant capabilities (Hofmann et al., 2012). Firms possessing DSC will have routines for experimentation, learning, and systemic innovation with the strategic intent to achieve sustainable performance (van Kleef & Roome, 2007); for example, H&M, sensing the consumers' concern about the impact of fast fashion, adopted a circular economy (CE) model and incentivizes return of old clothes (Mostaghel & Chirumalla, 2021). Evidence suggests that firms pursuing DSC will invest in enterprise environmental management systems and green innovation, leading to improved environmental performance (Aftab et al., 2022; Jum'a et al., 2022). We also postulate that DSC goes beyond ecological solutions and can offer social benefits such as improved brand reputation, employee well-being, and community development (Asadi et al., 2020). Therefore, DSC facilitates a paradigm shift in dominant logic and aids resource re-orientation for social and environmental performance.

H1a. DSC has a direct positive influence on EP.

H1b. DSC has a direct positive influence on SP.

RC can purposefully create, extend, or maintain firms' relationships to augment the resource base through complementary assets of its strategic partners (Pham et al., 2017). The relational view states that RC provides firms with increased marketing power and enhanced efficiencies for accessing novel resources and entering new markets (Dyer & Singh, 1998). These capabilities reside in participatory, interconnected networks and not in an individual or a firm (Robinson & Berkes, 2011). Many firms require a fundamental alteration in the way they do business, and RC enables partners to eliminate unsustainable practices and introduce sustainable practices (Gölgeci et al., 2019). The stakeholder engagement of the firm is known to help them better gauge the sustainability requirements of sensitive groups such as customers, government, regulatory bodies, and local communities (Hong et al., 2019; Watson et al., 2018). Increased cooperation and communication with partners facilitate sustainability-related knowledge integration (Zahoor & Gerged, 2021) and the implementation of green management practices (Yu & Huo, 2019). RC also helps to effectively address risks associated with the volatility of the supply chains due to firms operating in a multiplicity of business environments, improving their survival chances (Parmigiani et al., 2011). Various studies, such as Gold et al. (2020) and Westman et al. (2019), have also indicated the positive impact of RC on sustainability performance. Hence, we hypothesize:

H2a. RC has a direct positive influence on EP.

H2b. RC has a direct positive influence on SP.

MC refers to the managerial impact on strategic change by emphasizing the managerial actions, individually and in a group, which can change how a firm makes a living in the present (Felin et al., 2012; Helfat & Martin, 2015). They are the in-house capabilities of a firm that can create a strategic orientation, enabling an internal environment and competent employees to manage the challenges posed by sustainability (da Bezerra et al., 2020). These systemic organizational aspects significantly impact a firm's sustainability. Management skills in planning and coordination can ensure an organization's internal functionality (Aftab et al., 2023). Proactive and flexible strategic plans allow firms to reconfigure resources to align with changing environments (Fraj et al., 2015). An internal culture and structure that provides autonomy and empowers employees results in employees continually exploring new sustainability ideas (Judge & Elenkov, 2005; Sandhu & Kulik, 2019). Evidence shows that an organization's coordination and communication mechanisms and internal information-sharing systems (e.g., enterprise–resource–planning or product–lifecycle–management) affect sustainability performance (Gelhard & von Delft, 2016; Metta & Badurdeen, 2012). Firms can use green recruitment to hire talent who can infuse sustainability from the ground up and build firms' image as environmentally friendly companies (Mishra et al., 2017; Singh et al., 2020). Managers' leadership (Chen & Chang, 2013) and dynamic skills (Buil-Fabregà et al., 2017) are antecedents to organizations' social and environmental performance. Hence, we hypothesize:

H3a. MC has a direct positive influence on EP.

H3b. MC has a direct positive influence on SP.

Per organization learning theory, higher order capabilities allow for exploring and renovating lower order capabilities, enhancing firms' evolutionary fit (March, 1991). The fungibility of higher order DC enables improved organizational problem-solving and decision-making (Arend, 2013). Firms with DSC will be better positioned to monitor and swiftly respond to direct and indirect stakeholders (Coppola et al., 2023). DSC can stimulate green purchasing of customers (Khan et al., 2023) and cater to the unique needs of social segments, for example, ITC's e-Chaupal for farmers in India (Ramachandran, 2011). These firms will have strategic sustainability alignment and a propensity for sustainability partnerships, which helps extract more relational rents (de Almeida et al., 2021). DSC equips managers to select cross-functional business models, governance structures, and decision-making protocols (Castiaux, 2012). Hence, MC can also be augmented through the firm's DSC by promoting innovative sustainability programs or skill enhancement of employees, for example, training employees to respond to corporate social responsibility (CSR) needs (Wu et al., 2014). Kumar et al. (2018) discuss that DC could "minimize risks in meeting the expectation of stakeholders over time through innovation, learning, trust, and positioning resources when needed in a different configuration." Thus, we hypothesize that the interrelated dimensions of sensing, seizing, and transforming would allow firms to sense potential configurations of RC and MC and refashion them within an innovative and agile organization.

H4a. DSC has a direct positive influence on RC.

H4b. DSC has a direct positive influence on MC.

Despite the perceived advantages of reduced opportunism and monitoring costs, economies of scale, and new forms of competitiveness (Cao & Zhang, 2011; Woo et al., 2016), a mixed relationship exists between sustainability and collaboration. Studies have revealed that task conflicts, power asymmetry, groupthink, and so forth cause alliances to have a detrimental impact on sustainability (Munten et al., 2021; Planko et al., 2019). However, firms with RC build their relationships based on transparent communication, shared vision, and trust (Onofrei et al., 2020). This improves the credibility of both parties, reduces conflicts, and increases their commitment to sustainability issues (Zhang et al., 2020). Through symbiotic relationships, firms can identify partners for sustainability-oriented innovation ahead of the competition (Inigo et al., 2020), promote improvement-oriented actions beyond compliance requirements (Jia et al., 2021), or access critical financial resources for firm development (Cucculelli et al., 2019). In this way, DSC is enhanced to generate environmental and social benefits such as investment in pollution prevention technologies and audits for worker safety (Klassen & Vereecke, 2012; Vachon & Klassen, 2008). Currently, there is limited empirical evidence to show that continuous relationships with stakeholders expand the sustainability capabilities of the firm (Lee & Klassen, 2008; Veronica et al., 2020). Hence, there is a need to examine further whether RC can play a bridging role between DSC and performance.

H5a. RC mediates the relationship between DSC and EP.

H5b. RC mediates the relationship between DSC and SP.

Although scholars maintain that DSC needs to be developed by managerial competencies for them to have a positive effect on the environment and CSR performance, not many studies have tested this relationship empirically (Dzhengiz & Niesten, 2020). Wesselink et al. (2015) have identified various "managerial sustainability competences," such as strategic management and action competence, embracing diversity, and interdisciplinary competence. The managers' strategic intent and drive toward business innovation result in firms offering products with less environmental impact while giving a better quality of life (Reyes-Rodríguez et al., 2016). Kabongo and Boiral (2017) demonstrate that the adjustments in human resources, that is, the ability to hire, develop, and retain talented personnel, can help formulate competencies for eco-efficiency and recycling. Further, green culture, decentralized teams, and flexible organization structures are micro-foundations for building DSC (Santa-Maria et al., 2022). Sensing, seizing, and reconfiguring are the consequences of learning and experimentation by the top executives (Schoemaker et al., 2018). According to Eikelenboom and de Jong (2019), owners/managers who consider sustainability a threat will not initiate organizational changes, consequently leading them to allocate insufficient resources towards DC related to incorporating sustainability knowledge and resources. Therefore, firms with strong MC are better positioned to diffuse new ideas, minimize ambiguity, tolerate risks, and encounter employee resistance toward sustainable practices than those with weak MC (Chen & Chang, 2013; Roscoe et al., 2019). Thus, we propose that

H5c. MC mediates the relationship between DSC and EP.

H5d. MC mediates the relationship between DSC and SP.

OI occurs when the pace at which firms restructure is slower than the frequency of environmental change (Hannan & Freeman, 1984). Inertia manifests at different levels, that is, individual, organizational, and industry levels (Sydow et al., 2009) and in established firms and small enterprises (Zuzul & Tripsas, 2020). While organizational routines that have achieved previous success provide stability, strategy theorists have also pointed at the impediments they create in the pursuit of sustainability in the form of asset lock-ins and competency traps (Bowen, 2007). G. Joshi and Dhar (2020) show that despite possessing DSC, firms' sub-optimal resource allocation causes a negative impact on firm outcomes. Inertia causes firms to invest in incremental eco-innovations without major process changes (Dooley, 2018). Inertia is not non-change but pursuing change in an unproductive direction (Stål, 2015). For example, when the refrigerator industry was forced to substitute Chlorofluorocarbons, network actors leveraged their RC and cooperated to find solutions that would not necessitate altering the existing technology and production systems (Östlund, 1994). Inertia can also create rigidities in MC. Firms' passivity in adopting the CE business model could lead to employees perceiving environmental problems as a non-priority, leading to their reduced awareness about the potential benefits of CE (Yamoah et al., 2022). The above instances strengthen the argument that inertia will cause firms to persist with their established patterns of behaviors, which can be detrimental in situations that demand continuous modifications like sustainability transformation. This reasoning led to the hypothesis:

H6. Higher the OI, the weaker the structural relationships from H1 to H5.

ET is the rate of unpredictability in a firm's external environment due to changes in customer preferences, technology, and high competition, which continually reshapes industry boundaries (Pavlou & El Sawy, 2011). Stable environments need the use of only generic processes and managerial resources, reducing the potential necessity to upgrade them (Wilden & Gudergan, 2015). The strategic value associated with DC in turbulent environments becomes more relevant since it rapidly generates context-specific new knowledge (Eisenhardt & Martin, 2000). One of the ways organizations build DSC is through eco-innovation, the impact of which on social performance becomes significant under high competition since firms make additional efforts to streamline operations and reduce costs (Ch'ng et al., 2021). Turbulence spurs the firms to build RC and increase close ties with network partners to exploit green opportunities, for example, large focal companies can convince the network partners about the appropriateness of sustainability behaviors when there is an institutional void (Silvestre, 2015). To effectively respond to turbulent environments, firms will reinvent their MC and shift from conventional techniques of strategy formulation and managerial thinking (Calantone et al., 2003). Driven by "market-led learning" and a rise in green consumerism, managers acquire new environmental competencies, such as developing eco-labeled products (Vickers, 1999). Ogbeibu et al. (2020) also show that technological turbulence motivates green teams to become more creative. Therefore, ET creates new prospects and threats, incentivizing firms to utilize DC to reconfigure current capabilities for new opportunities. This reasoning led to the hypothesis:

> **H7.** The higher the ET, the stronger the structural relationships from H1 to H5.

3 | METHODS

3.1 | Sample and data collection

The sampling frame for manufacturing firms was obtained from the ProwessIQ Database (https://prowessiq.cmie.com/) by the Center for Monitoring Indian Economy (CMIE), an institution with all the information on national companies. The manufacturing companies were filtered by legal nature (listed in the Bombay Stock Exchange), firm age (>10 years), and firm size (>250 employees), which yielded a list of 1027 manufacturing companies. Purposive sampling was required since newly established and young firms lack experience in implementing sustainability initiatives (Amankwah-Amoah & Syllias, 2020). Using the key respondent strategy, respondents were contacted through LinkedIn, which has become a popular means of data collection (Bhatia, 2021; de Oliveira et al., 2016; Gupta et al., 2023). Top management who could gauge the firm's capabilities and performance were identified by searching for titles such as Director/CEO/President/Vice President/General Manager on LinkedIn. Applying the guidelines from Dillman et al. (2014), the contacts were also sent an email with a cover letter. Few of our respondents were at the junior managerial level, as the initial contact felt that these managers were appropriate people to respond to the survey. The response rate of 20.44% (210/1027) is not unusual for industrial research, and managers cited time constraints, confidentiality clauses of the organization, and length of the survey as the reasons for non-response. The sample size obtained was much higher than the G*Power analysis recommended minimum sample size of 109 (parameters: power = 0.8, effect size = 0.15, significance level = 0.05, number of predictors = 8).

The sample characteristics are given in Table 1. Regarding firm profile, 19.05% belonged to chemicals, 18.57% to automobiles, and 13.33% to engineering and machinery, and the rest to the other sectors; 60.48% of firms were 41 + years and 74.29% had 1001 + employees. Regarding the respondent profile, 35.24% were from the domain of operations/logistics/supply chain, and 29.05% were from sales/marketing/business development; 75.71% of our respondents have a total work experience of 20 + years, and 52.38% have a qualification of Masters degree and above. Also, 54.28% of our respondents are from the top management level, and 33.81% were

TABLE 1 Sample characteristics—Firm and respondent demographics.

Characteristics	Frequency	Percentage
Industry type		
Chemicals	40	19.05%
Automobiles and ancillaries	39	18.57%
Heavy engineering and machinery	28	13.33%
Drugs and pharmaceuticals	22	10.48%
Agro- and food-based	18	8.57%
Metals and minerals	17	8.10%
Cement	12	5.71%
Apparels	9	4.29%
Fast-moving consumer goods	9	4.29%
Electricals and electronics	8	3.81%
Energy	8	3.81%
Firm age		
11–40 years	83	39.52%
41–70 years	83	39.52%
71 and above	44	20.95%
Firm size (no. of employees)		
Below 1001	54	25.71%
1001–5000	82	39.05%
5001 and above	74	35.24%
Job designation		
Manager/senior manager	25	11.90%
Deputy/senior general manager	71	33.81%
Assistant/senior vice president	68	32.38%
President/director/CEO	46	21.90%
Job function		
Operations/logistics/supply chain	74	35.24%
Sales/marketing/business development	61	29.05%
Strategy/general management	34	16.19%
R&D	15	7.14%
Corporate sustainability/CSR	8	3.81%
Others (HR, IT, legal, and finance)	18	8.57%
Total work experience		
Below 11 years	18	8.57%
11–20 years	33	15.71%
21–30 years	90	42.86%
31 years and above	69	32.86%
Education		
High school	1	0.48%
Diploma	3	1.43%
Bachelors	56	26.67%
Masters	129	61.43%
Ph.D.	21	10.00%

TABLE 2 Results for reflective measurement model—Items and factor loadings.

Constructs	Items	Loading
Monitoring capability (DSC_Monitor)	DSC1	0.71
	DSC2	0.789
DSC3	0.806	
DSC4	0.751	
DSC5	0.738	
DSC6	0.701	
Seizing capability (DSC_Seize)	DSC7	0.788
	DSC8	0.799
	DSC9	0.744
	DSC10	0.815
	DSC11	0.754
	DSC12	0.756
Reconfiguring capability (DSC_Reconf)	DSC13	0.843
	DSC14	0.854
	DSC15	0.729
	DSC16	0.794
Relational capability (RC)	RC1	0.725
	RC2	0.73
	RC3	0.861
	RC4	0.862
	RC5	0.814
	RC6	0.836
	RC7	0.764
	RC8	0.781
	RC9	0.771
Managerial capability (MC)	MC1	0.783
	MC2	0.772
	MC3	0.834
	MC4	0.875
	MC5	0.844
	MC6	0.8
	MC7	0.799
Organizational inertia (OI)	OI1	0.822
	OI2	0.886
	OI3	0.894
	OI4	0.888
	OI5	0.894
	OI6	0.889
Environment turbulence (ET)	ET1	0.585
	ET2	0.742
	ET3	0.698
	ET4	0.498
	ET5	0.371
	ET6	0.521
	ET7	0.561
	ET8	0.315
	ET9	0.561
Environment performance (EP)	EP1	0.831
	EP2	0.905
	EP3	0.859
	EP4	0.859
	EP5	0.836
Social performance (SP)	SP1	0.853
	SP2	0.921
	SP3	0.888
	SP4	0.798
	SP5	0.836

(Continues)

TABLE 2 (Continued)

from middle management, which means the respondents possess the knowledge and experience to respond to the survey.

3.2 | Measurements

The constructs for the independent and dependent variables were measured using multi-item scales adopted from extant research. There were 57 questions, excluding the demographic questions. Respondents were asked to provide perceptual responses based on a five-point Likert scale (1—Strongly Disagree to 5—Strongly Agree). The measurement items are presented in Appendix A. DSC was measured using three subdimensions with six items in Monitoring—“Engaging in an active dialog with external stakeholders regarding sustainability issues, through meetings, conferences, and newsletters,” six items in Seizing—“Designing strategic plans to systematically navigate the development of new sustainability initiatives,” and four items in Reconfiguration—“Regulating organizational sustainability behaviors and operations by introducing a standard environmental management system, such as ISO14001,” adopted from Shang et al. (2020). RC consists of nine items, “Develop mutual commitment and goals with strategic partners,” adopted from Pham et al. (2017). MC encompasses six items, “Ability to attract creative employees,” adopted from Spanos and Lioukas (2001). EP comprises five items, “Reduction in air emission,” adopted from Paulraj (2011). SP comprises five items, “Improving community health and safety,” adopted from Zaid et al. (2018). OI consists of six items, “Reluctant to seek new development directions,” adopted from Liang et al. (2017). ET was measured with nine items, “Customers' preferences for product features have changed over time,” adopted from A. W. Joshi and Sharma (2004). This study also uses firm size, firm age, and industry type as control variables.

3.3 | Non-response and common method bias

T-test of the 50 early and late responders, Levene's test, and Chi-square test for select demographic characteristics (firm size, firm age, industry type, and educational qualifications of respondents) showed no significant differences, meaning non-response bias was not a problem in this study. Various measures were carried out to prevent common method bias, such as assuring the respondents of anonymity and confidentiality of data, selecting knowledgeable respondents, and choosing constructs and items based on literature (Podsakoff et al., 2012). Since the data were collected from a single respondent, Harman's one-factor test was conducted where a single factor explained only 31.164% of the variance, which was below the threshold. This means that common method bias is not a problem in this study.

3.4 | Analytical approach

PLS-SEM was preferred over CB-SEM for the following reasons. Firstly, this study explores the theoretical extensions of an established structural theory. Secondly, it is a complex model including hierarchical constructs, mediation, and moderation. Thirdly, it is suitable when working with relatively small sample sizes and soft modeling assumptions (Hair et al., 2019). SMART PLS 4.0 software was used for data analysis. The measurement and structural model are assessed following the guidelines of Hair et al. (2017).

TABLE 3 Reliability measures—Cronbach's alpha and composite reliability.

	Cronbach's alpha	Composite reliability
DSC_Monitor	.844	0.885
DSC_Seize	.868	0.901
DSC_Reconf	.821	0.881
RC	.927	0.939
MC	.916	0.933
OI	.941	0.953
ET	.775	0.791
EP	.911	0.933
SP	.911	0.934
DSC	.88	0.926

4 | RESULTS

4.1 | Measurement model

The reliability of the model was assessed using indicator reliability, internal consistency reliability, and convergent and discriminant validity. DSC was modeled as a reflective–reflective higher order construct (HOC). Though there are several methods to model HOC that yield similar results, a two-stage approach, specifically the disjoint two-stage, was used (Becker et al., 2023; Sarstedt et al., 2019). The approach initially only draws on the lower order construct (LOC) and connects them to all of the HOC's antecedents and consequences in the model. The latent variable scores obtained from Stage 1 are used as indicators of the HOC, and all the other (non-hierarchical) constructs are measured with their original indicators. Next, the construct measures in Stage 2 and those of the HOC are evaluated. All the indicator loadings, Cronbach alpha, and composite reliability of LOC and HOC are above the recommended cut-off of 0.7 (Tables 2 and 3). Convergent validity was established using average variance extracted (AVE) values, which are above 0.5 (Table 4). Since the model has an HOC, only the heterotrait–monotrait ratio (HTMT) was used for evaluating discriminant validity (Henseler et al., 2015). The results of this test show that although HTMT for DSC-Seize-DSC Reconf was 0.894, it is still less than 0.90. For the rest of the constructs, it was less than 0.85. For the HOC, HTMT values were less than 0.90 (Table 4).

4.2 | Structural model

Collinearity in the model was assessed through variance inflation factor (VIF), and values were below the threshold of 3.3, indicating no vertical or lateral collinearity between independent and dependent variables. R^2 values for all the endogenous variables were above 0.25, indicating substantial in-sample predictive power of the model

TABLE 4 Validity measures—Average variance extracted (AVE) for convergent validity and heterotrait–monotrait ratios (HTMT) for discriminant validity.

	HTMT							
	DSC_ Monitor	DSC_ Seize	DSC_ Reconf	RC	MC	EP	SP	AVE
DSC_Monitor								0.563
DSC_Seize	**0.811**							0.603
DSC_Reconf	0.794	**0.894**						0.651
RC	0.618	0.669	**0.651**					0.633
MC	0.461	0.54	0.562	**0.621**				0.666
EP	0.508	0.576	0.674	0.489	**0.498**			0.737
SP	0.591	0.637	0.719	0.646	0.642	**0.728**		0.74
DSC	-	-	-	0.707	0.572	0.641	**0.711**	0.807

(Cohen, 1992). Q^2 using the blindfolding technique was above 0, suggesting a predictive relevance of model fit in terms of out-of-sample prediction. The R^2, Q^2, and VIF values are mentioned in Table 5.

4.2.1 | Direct effects

The non-parametric bootstrapping method in SmartPLS software was used to generate path coefficients, *t*-values, and *p*-values for examining the significance of direct effects at a 95% BCa interval. The path coefficients and the direct effect results revealed that hypothesis relationships are supported. DSC → EP ($\beta = .438$), DSC → SP ($\beta = .361$), RC → SP ($\beta = .191$), MC → EP ($\beta = .194$), MC → SP ($\beta = .273$), DSC → RC ($\beta = .631$), DSC → MC ($\beta = .506$) were significant $p = .001$ (<.05) and $p = .000$ (<.05) of 95% BCa interval. RC → EP ($\beta = .059$) was not significant at $p = .001$ (<.05) and $p = .000$ (<.05) of 95% BCa interval. Thus, all the hypotheses are proved except for H2a, as illustrated by Table 6.

4.2.2 | Indirect effects

Significant relationships were found between DSC → RC → SP, DSC → MC → EP, and DSC → MC → SP with beta values of .121, .098, and .138, respectively. DSC → RC → EP was insignificant ($\beta = .037$), at $p = .001$ (<.05) and $p = .000$ (<.05) of 95% BCa interval. Thus, all the hypotheses are proved except for H5a, as illustrated by Table 7. The structural model results are depicted in Figure 2.

4.2.3 | Multigroup analysis

The final step in the path coefficients analysis was to examine H6 and H7. First, respondent firms were grouped according to organizational inertia and ET. Two items were deleted from ET due to loadings below 0.40. Multigroup analysis (MGA) was employed to test for differences in the significance of the path coefficients among groups. The K-means, a non-hierarchical clustering method, is used to group the companies. First, the number of clusters was specified, and cluster seeds were randomly chosen using SPSS. Subsequently, each observation was assigned to one cluster based on similarity. By varying the number of clusters tested, the results of the K-means procedure for both organizational inertia and ET indicated a two-cluster solution, which is valid and statistically significant ($p < .001$; see Table 8). The ANOVA tests revealed that all items contributed to differentiating the two clusters ($p < .001$). For organizational inertia, the second cluster (129) was found to have low mean scores and was labeled as low OI. The first (25) and third clusters (56) appeared to have high mean scores and were combined and labeled as high OI. For ET, the first cluster (84) was labeled as low ET, and the second cluster (126) was

TABLE 5 Predictive power (in-sample and out-of-sample) and multi-collinearity in the structural model.

	R^2	R^2 adjusted	Q^2	VIF
RC	0.421	0.41	0.254	1.022
MC	0.287	0.274	0.18	1.022
EP	0.38	0.361	0.267	DSC(1.811) RC(1.995)MC(1.621)
SP	0.54	0.526	0.387	DSC(1.811) RC(1.995)MC(1.621)

TABLE 6 Direct effects—Path co-efficient estimates and results.

Hypothesis	Direct effect	Coeff (β)	STDEV	*T* values	*p* Values	Results
H1a	DSC → EP	.438	0.086	5.106	**0**	Supported
H1b	DSC → SP	.361	0.077	4.673	**0**	Supported
H2a	RC → EP	.059	0.089	0.665	.253	Not supported
H2b	RC → SP	.191	0.074	2.567	**.005**	Supported
H3a	MC → EP	.194	0.077	2.511	**.006**	Supported
H3b	MC → SP	.273	0.069	3.936	**0**	Supported
H4a	DSC → RC	.631	0.058	10.871	**0**	Supported
H4b	DSC → MC	.506	0.068	7.414	**0**	Supported

TABLE 7 Indirect effects—Path co-efficient estimates and results.

Hypothesis	Indirect effect	Coeff (β)	STDEV	*T* values	*p* Values	Results
H5a	DSC → RC → EP	.037	0.056	0.668	.252	Not supported; no mediation
H5b	DSC → RC → SP	.121	0.05	2.4	**.008**	Supported; partial mediation
H5c	DSC → MC → EP	.098	0.043	2.296	**.011**	Supported: Partial mediation
H5d	DSC → MC → SP	.138	0.042	3.318	**0**	Supported: Partial mediation

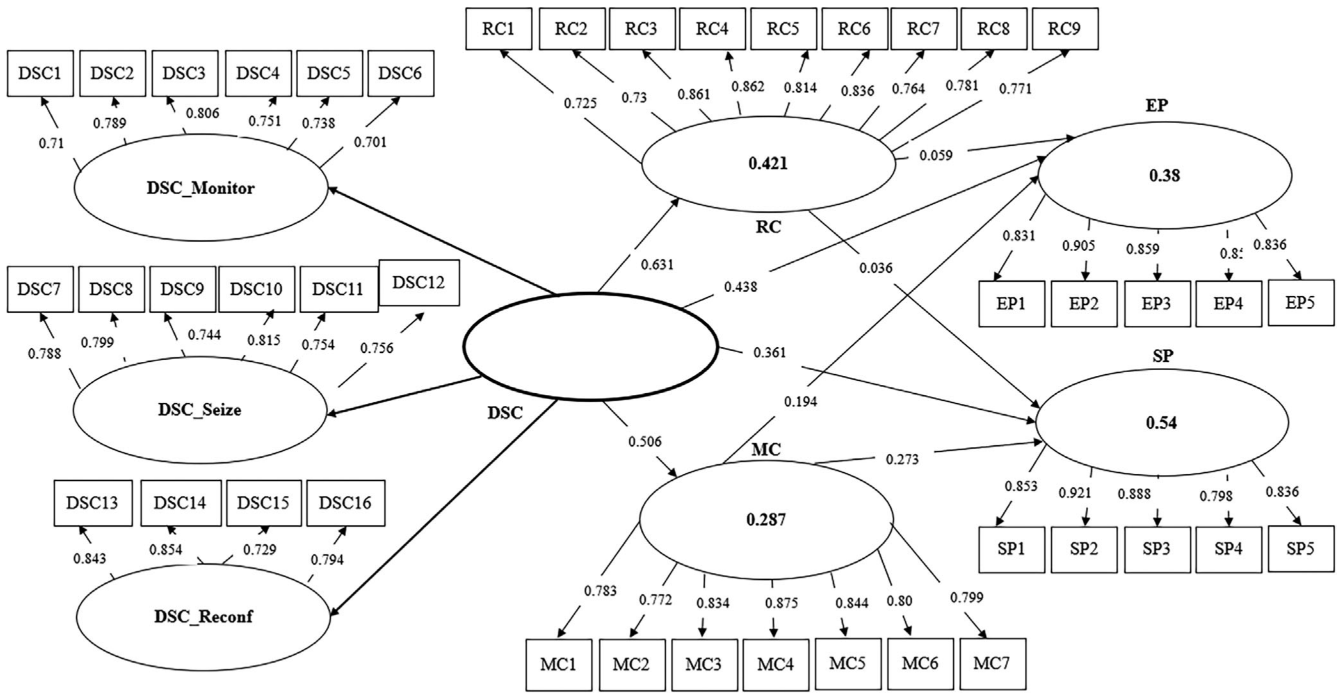

FIGURE 2 Structural model results.

TABLE 8 Cluster analysis to profile companies.

	Final cluster centers			ANOVA					
	1	2	3	Mean square	*df*	Mean square	*df*	*F*	*p*
	n = 25	*n* = 129	*n* = 56	OI					
OI1	4	2	3	66.453	2	0.423	207	157.217	.000
OI2	4	2	3	93.226	2	0.353	207	264.443	.000
OI3	4	2	3	84.062	2	0.344	207	244.539	.000
OI4	4	2	3	57.389	2	0.367	207	156.302	.000
OI5	4	2	3	71.846	2	0.377	207	190.658	.000
OI6	4	2	3	65.549	2	0.341	207	192.197	.000
	n = 84	*n* = 126		ET					
ET1	4	4		30.179	1	.571	208	52.881	.000
ET2	3	4		16.003	1	.682	208	23.482	.000
ET3	3	4		25.714	1	.679	208	37.895	.000
ET4	3	4		76.763	1	.604	208	127.027	.000
ET6	3	4		50.001	1	.606	208	82.554	.000
ET7	3	4		76.763	1	.646	208	118.834	.000
ET9	4	4		24.864	1	.505	208	49.272	.000

labeled as high ET. Two items were removed from ET due to small loadings (ET5 and ET8).

Prior to MGA, the measurement invariance of composite model (MICOM) procedure was applied, and partial invariance was achieved, concluding that the path coefficient estimates across the groups can be compared appropriately. Next, the structural models for the high OI-low OI and the high ET–low ET groups were assessed by running bootstrap MGA with a 5000 resample (Matthews, 2017).

Comparing the high OI and low OI groups, consistent with our hypothesis, MC-EP and DSC-RC-SP relationships were significant for companies with low OI and insignificant for companies with high OI. On the contrary, DSC-MC-SP relationship was significant for

TABLE 9 Multigroup analysis for organizational inertia (direct effects).

	High OI				Low OI			
OI (direct effects)	Coeff (β)	STDEV	T values	p Values	Coeff (β)	STDEV	T values	p Values
DSC → RC	.68	0.082	8.334	0	.485	0.075	6.464	0
DSC → MC	.572	0.093	6.134	0	.309	0.097	3.18	.001
DSC → EP	.392	0.158	2.476	.007	.427	0.098	4.359	0
DSC → SP	.292	0.138	2.111	.017	.316	0.09	3.519	0
RC → EP	.157	0.126	1.25	.106	−.004	0.131	0.033	.487
RC → SP	.17	0.103	1.652	.049	.196	0.105	1.862	.031
MC → EP	.166	0.14	1.182	**.119**	.185	0.097	1.904	**.028**
MC → SP	.428	0.103	4.174	0	.191	0.097	1.963	.025

TABLE 10 Multigroup analysis for organizational inertia (indirect effects).

	High OI				Low OI			
OI (indirect effects)	Coeff (β)	STDEV	T values	p Values	Coeff (β)	STDEV	T values	p Values
DSC → RC → EP	.107	0.087	1.224	.11	−.002	0.065	0.032	.487
DSC → RC → SP	.115	0.074	1.555	**.06**	.095	0.055	1.728	**.042**
DSC → MC → EP	.095	0.087	1.09	.138	.057	0.038	1.482	.069
DSC → MC → SP	.245	0.077	3.19	**.001**	.059	0.04	1.475	**.07**

TABLE 11 Multigroup analysis for environmental turbulence (direct effects).

	High ET				Low ET			
ET (direct effects)	Coeff (β)	STDEV	T values	p Values	Coeff (β)	STDEV	T values	p Values
DSC → RC	.703	0.069	10.208	0	.539	0.075	7.207	0
DSC → MC	.599	0.072	8.341	0	.308	0.127	2.424	.008
DSC → EP	.423	0.136	3.12	.001	.466	0.11	4.245	0
DSC → SP	.282	0.095	2.965	.002	.45	0.126	3.577	0
RC → EP	−.032	0.131	0.245	.403	.155	0.109	1.412	.079
RC → SP	.263	0.093	2.825	**.002**	.071	0.118	0.599	**.275**
MC → EP	.31	0.097	3.183	**.001**	.039	0.131	0.295	**.384**
MC → SP	.305	0.085	3.584	0	.235	0.124	1.895	.029

TABLE 12 Multigroup analysis for environmental turbulence (indirect effects).

	High ET				Low ET			
ET (indirect effects)	Coeff (β)	STDEV	T values	p Values	Coeff (β)	STDEV	T values	p Values
DSC → RC → EP	−.023	0.093	0.243	.404	.083	0.063	1.332	.091
DSC → RC → SP	.185	0.071	2.596	**.005**	.038	0.067	0.573	**.283**
DSC → MC → EP	.186	0.068	2.718	**.003**	.012	0.045	0.264	**.396**
DSC → MC → SP	.183	0.06	3.045	**.001**	.072	0.049	1.482	**.069**

companies with high OI and non-significant for companies with low OI (Tables 9 and 10). Comparing high ET and low ET groups, substantiating our hypothesis, all the relationships, RCSP, MC-EP, DSC-RC-SP, DSC-MC-EP, and DSC-MC-SP were significant in companies with high ET and non-significant in companies with low ET (Tables 11 and 12).

5 | DISCUSSION

Grounded in the hierarchy of DC, our study has examined how higher order DSC affects performance through the mediating role of lower order capabilities of RC and MC. Our findings show that DSC has a direct effect on both social and environmental performance. Our results also indicate that the indirect effect of DSC through both RC and MC is stronger on social performance than on environmental performance. This complements literature from emerging economies, which suggests that firms in these countries prioritize social goals over environmental goals by investing in community and social concerns such as food, health care, sanitation, and education (Kumar et al., 2018; Yusliza et al., 2020). Institutional pressure also drives them to focus on short-term compliance through CSR spending rather than incorporating holistic, sustainable development at the strategy level (Sardana et al., 2020). Thus, through our study, we establish that DSC generates new configurations in RC and MC, which subsequently leads to positive sustainability performance. These findings also support the studies conducted in an international context, which endorse the notion that while SMEs can survive with a narrow set of capabilities, large firms require a wider range of operational and dynamic capabilities to co-exist (Nagy et al., 2019).

Contrary to our hypothesis, DSC through RC does not affect environmental performance, although it can drive social performance. There are a few possible explanations for this null effect. Researchers have found similar evidence that collaborations outside of the firms' supply chain do not have any impact on environmental performance, and firms' alliances with research institutes may even harm corporate reputation due to perceived greenwashing (Albino et al., 2012). A one-size-fits-all approach to collaboration prevents firms from moving beyond transactional relationships (Vazquez-Brust et al., 2020). In the Indian context, there is evidence that firms focus on natural resources management and energy efficiency for which they are accountable but are less willing to cooperate on broad-based sustainability issues faced by their suppliers (Nishant et al., 2016). Also, large firms are the focus of this study, and environmental collaboration could be more vital for smaller firms (Calza et al., 2021).

Next, we examined the theorized relationships under moderating conditions of inertia and turbulence. There exist differences in the significance of several of the direct and indirect relationships exhibited in the groups of companies with high inertia and low inertia. However, an anomaly was MCs' mediating role in affecting social performance, which was more significant in high inertia than in low inertia. This could be because highly inertial companies, despite their old business models, may still be able to serve the employee needs due to progressive remuneration, legacy employee well-being schemes, and so forth, and their ethical reputation could drive employee performance (Mishra & Suar, 2010). They may also be able to serve the larger community's needs through their prior investments in standardized CSR actions (Panda et al., 2019). Firms with low inertia will continually align their DSC with MC, for example, investing in employee upskilling (Aravind, 2023; Shet & Pereira, 2021) or expanding their CSR activities to new and diverse causes in hitherto unexplored regions (Gatignon & Bode, 2023). This may take time to translate to strategic outcomes, leading to insignificant impact in low inertial conditions. Congruent with the previous findings from developing countries (Ch'ng et al., 2021; Ogbeibu et al., 2020), all the relationships were stronger when turbulence was high, for example, RC and MCs' impact on social and environmental performance, respectively, the mediating role of RC and MC on social performance, and so forth, was significant in high turbulence. The findings imply that investment in DSC becomes a lower priority in environments where firms face little or no turbulence, releasing resources for other purposes.

5.1 | Theoretical implications

Our study has three theoretical contributions. First, our study answers several calls to validate the application of the Western DC theory for sustainability in emerging economies. Complementing the results from developed countries (Dangelico et al., 2017; Demirel & Kesidou, 2019), our study provides evidence that DSC can be a direct and powerful driver of sustainability. We empirically establish DSC as a higher order capability since it can even supplement the shortage of other resources (Zollo & Winter, 2002). We also add precision to the theoretical notion that DSC can drive both social and environmental performance, deviating from previous studies that linked it to environmental performance alone (Yi & Demirel, 2023). In the context of the manufacturing sector, our study is one of the few that validates that DSC can be a genuine recourse for firms trying to address their shortfalls in providing quality of life, safety, and human rights (Mathiyazhagan et al., 2023).

Second, our study enriches the sustainability literature by providing a fuller and more comprehensive understanding of sustainability capabilities than extant literature does. We depart from the past research on DSC that primarily depended on the mechanisms of innovation (Singh et al., 2022), green creativity (Joshi & Dhar, 2020), and green purchasing (Khan et al., 2023) to explain change toward sustainability. We thereby answer Buzzao and Rizzi's (2021) call to examine alternate processes and capabilities. It advances knowledge on how a higher order DSC can be constructed by demonstrating the influence of dual pathways; RC equips firms to manage relationships with business partners, and MC enables firms to empower employees and build collective membership. Our study provides a picture of how they have recurrent and feedback relations with DSC for resource recombination and co-specialization, leading to overall sustainability performance (Schilke, 2014).

Third, our study's conceptualization advances the paradigm that capability building is too complex to be viewed as a direct linear flow (Aragón-Correa & Sharma, 2003). Former studies were underspecified since they have only looked at the moderating effect of ET in the DC-performance relationship (Ch'ng et al., 2021). We also looked at the less studied inertia and, contrary to the theoretical proposition (Gilbert, 2005), identified specific scenarios in which high inertia can be helpful for sustainability performance. Going a step ahead, we also examined the moderating effect of these two environmental forces not just on the higher order DSC but also on the lower order capabilities (Wilden & Gudergan, 2015). We thereby provide a finer grained understanding of the complexity and specificity of DSC building in the presence of changing environmental forces.

5.2 | Practical implications

This paper provides key insights for organizations. Our study provides strategic direction to firms embracing DSC as part of their strategy. Firms can capitalize on their RC and MC to bolster DSC. Since the mediating role of RC on environmental performance is insignificant, firms are advised to develop structured relationship management mechanisms for environmental collaboration by codifying rules of relationships, establishing alliance-based task forces, and so forth. MC will also enable firms to solve sustainability issues through teamwork and collective problem-solving. Firms can invest in MC by promoting green HRM practices, transformational leadership, sustainability-oriented culture, and flexible organization structures. We recommend that small firms with resource constraints strengthen their RC and MC to gradually evolve into building DSC.

Further, our research encourages firms to pay attention to forces operating in their internal and external environment, which can place constraints on DSC development. Our study validates that high organizational inertia and low turbulence can be discriminatory to the DSC generation. Solely investing in DSC may not always help firms achieve sustainable growth under these conditions. Our findings provide effective directions to managers on how to respond to turbulence and inertia by prioritizing the use of their RC and MC to modify DSC. For instance, we demonstrate that when firms have high inertia, DSC can be reinvigorated through MC to make an impact on social performance, whereas relying on RC could be ineffective. As such, resource calibrations have to be made in DSC in view of current and expected environmental characteristics.

Finally, for policymakers, our study underscores the critical facets of capacity development, which is much desired to systematically advance the United Nations SDG agenda. As evident from previous studies in developing countries, balancing both social and environmental priorities is a difficult mission. Our findings underline that building DSC can help firms achieve the twin goals of social and environmental sustainability by instilling mechanisms to constantly sense, analyze, and respond to sustainability opportunities and problems. To this end, policymakers can create equitable policies and better regulatory mechanisms, for example, green taxes and mandatory CSR (Rajesh & Rajendran, 2020), making firms more accountable and responsive toward DSC building.

5.3 | Limitations and future research

There are a few limitations to this study. First, as a result of exposure to competitive environments, firms may have wide-ranging capability requirements. The hierarchy model used in this study could be expanded to identify other potential capabilities relevant to DSC building, such as digital capabilities, R&D capabilities, and knowledge management. Second, cross-sectional designs are inadequate to establish causal relations in evolutionary studies. Future scholars can attempt longitudinal and time-based studies to fully understand DSC and its relationship with environmental and social performance. Third, this study relies on a single informant's perceptions. Although top managers are key decision makers, additional research can examine differences among the firm's leadership and their concern towards DSC building. Fourth is regarding the research setting of this study. As the context of emerging economies like India differs from that of the Western world, we recommend refining and fine-tuning the model. Inclusion of factors from the external environment, such as institutional pressures, as antecedents to DSC can help capture the regional differences. Future research can also replicate this model for other economic sectors, such as services and high-technology enterprises, since firms in these domains are increasingly aiming to be socially and environmentally responsible.

6 | CONCLUSION

Drawing on the hierarchy tenet of DC theory, this study disentangles the various capability combinations that can drive the firm's sustainability performance in the context of a developing nation, India. Our results indicate that while DSC can augment sustainability performance through MC, it cannot influence environmental performance through RC. Further, contextual conditions of high turbulence and low inertia moderate the effects of DSC, increasing its positive impact on sustainability performance. The study, therefore, points to the need to incorporate environmental scenarios in the orchestration of resources to achieve desired outcomes. Setting the survey in large manufacturing firms provides a nuanced understanding of the sectoral peculiarities in leveraging DSC. Our results demonstrate that the DSC of these firms results in stronger social performance than environmental performance. Overall, our integrated model can aid in the refined understanding of resource reconfiguration and encourage future research to examine alternate mechanisms that strengthen the implementation of DSC in organizations. This study's contributions will also benefit similar resource-scarce economies striving to achieve their climate targets and SDGs.

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CONFLICT OF INTEREST STATEMENT
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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APPENDIX A

Survey Questionnaire

DSC

"My firm is capable of …"
Monitoring capability
Establishing formal and informal communication channels with external stakeholders
Engaging in an active dialog with external stakeholders regarding sustainability issues, through meetings, conferences, and newsletters
Explaining company's strategic sustainability plans and asking for feedback from external stakeholders
Steering new sustainable development strategies through public consultation process
Constantly updating the knowledge base of new environmental information collected from the outside
Using the information about emerging customer preferences to guide the development of green market strategy
Seizing capability
Designing strategic plans to systematically navigate the development of new sustainability initiatives
Keeping a formal governance structure to manage the broad research about emerging best practices and technologies regarding sustainability
Encouraging and supporting employees to share good practices and new sustainable ideas
Keeping dedicated teams to guide and manage collaborative sustainability projects with external stakeholder groups
Continuously experimenting with new clean technologies
Focusing on the development of practices and procedures that have a low level of environmental impact
Reconfiguring capability
Performing auditing and risk analysis about the potential factors that cause environmental impacts
Providing training for employees and suppliers concerning sustainability
Regulating organizational sustainability behaviors and operations by introducing a standard environmental management system, such as ISO9000 or ISO14001
Managing external factors that cause negative sustainable impacts by collaborating with external business partners

RC

"My firm has the ability to …"
Create relationships with new partners
Maintain relationships with existing partners
Develop mutual trust with strategic partners
Develop mutual commitment and goals with strategic partners
Build on partners' strengths
Effectively communicate with partners
Work on joint problem-solving
Achieve targets when negotiating
Achieve win–win rewards

MC

"My firm is relatively strong compared to competitors in the following aspects …"
Managerial competencies
Knowledge and skills of employees
Firm climate
Efficient organizational structure
Coordination
Ability to attract creative employees
Strategic planning

OI

"When facing economic shift and market changes …"
We are reluctant to seek new development directions
We are reluctant to change our current business model
We are reluctant to change our investment patterns
We are not able to seek new development directions
We are not able to change our current business model
We are not able to change our investment patterns

"In the past 3 years …"
Customers' preferences for product features have changed quite a bit over time
We are witnessing demand for our products from customers who never bought them before
New customers tend to have product-related needs that are different from those of our existing customers
Our competitors are constantly changing their product features
Our competitors are constantly changing their sales strategies
New competitors are entering our industry
The technology in our industry is changing rapidly
It is unlikely that today's technological standard will still be dominant 5 years from now
Technological breakthroughs contribute to the development of new product ideas in our industry

"In the past 3 years, my firm's activities resulted in …"
Reduction in air emission
Reduction in waste (water and/or solid)
Decrease in consumption of hazardous/harmful/toxic materials
Decrease in frequency of environmental accidents
Increase in energy saved due to conservation and efficiency improvements

"In the past 3 years, my firm's activities resulted in …"
Improving employees' occupational health and safety
Improving community health and safety
Development of economic activities
Providing inducements to engage local employment
Lowering the adverse impact of products and processes on the local community