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Paradoxes on sustainable performance in Dhaka's enterprising community: a moderated-mediation evidence from textile manufacturing SMEs

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Abstract

Purpose – Manufacturing small and medium-sized enterprises (SMEs) are heading towards smart manufacturing despite growing challenges caused by globalisation and rapid technological advancement. These SMEs, particularly textile SMEs of Bangladesh, also face challenges in implementing sustainability and organisational ambidexterity (OA) due to resource constraints and limitations of conventional leadership styles. Adopting paradoxical leadership (PL) and entrepreneurial bricolage (EB) is important to overcome the challenges. However, these dynamics are less explored in academia, especially in the Bangladeshi textile SMEs context. Hence, the purpose of this study is to investigate the influence of the adoption of smart technologies (ASTs), PL and OA, EB on sustainable performance (SP) of textile SMEs in Bangladesh.

Design/methodology/approach – A cross-sectional and primary quantitative survey was conducted. Data from 361 textile SMEs were collected using a structured self-administrated questionnaire and analysed by partial least square structural equation modelling (PLS-SEM).

Findings – The statistical outcome confirms that ASTs and PL significantly influence SP and OA. OA plays a significant mediating role for PL and is insignificant for ASTs, and EB significantly moderates among ASTs, PL and SP.

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Research limitations/implications – As this study is cross-sectional and focussed on a single city (Dhaka, Bangladesh), conducting longitudinal studies and considering other parts of the country can provide exciting findings.

Practical implications – This research provides valuable insights for policymakers, management and textile SMEs in developing and developed countries. By adopting unique and innovative OA, PL and EB approaches, manufacturing SMEs, especially textile companies, can be more sustainable.

Originality/value – This study has a novel, pioneering contribution, as it empirically validates the role of multiple constructs such as AST, PL, OA and EB towards SP in the context of textile SMEs in a developing country like Bangladesh.

Keywords Entrepreneurship, Bricolage, Smart technologies, Ambidexterity, Paradoxical leadership, Sustainability

Paper type Research paper

1. Introduction

Manufacturing firms have witnessed incredible transformations during the past century (Del Giudice *et al.*, 2021). The firm's prime objectives are expanding production scale, lowering costs and enhancing product quality (Zhang *et al.*, 2021). To achieve the organisational goal, firms simultaneously focus on resource maximisation while increasing productivity and efficiency. However, in the past decade, flexibility, responsiveness and agility are becoming top priorities to gain a competitive advantage (Gunasekaran, 1999; Ong *et al.*, 2020). The capacity to explore new and innovative ways to create value has become crucial for maintaining a stand-alone position (Gunday *et al.*, 2011; Hossain *et al.*, 2020), mainly for manufacturing organisations.

Increasingly, manufacturing firms are embracing the Fourth Industrial Revolution (IR4.0), integrating physical and cyber realities into a single, complex, turbulent environment led by consistent and radical technological disruption through innovation (Culot *et al.*, 2020). Due to the turbulent market environment, firms are continuously being pushed to be technology-focussed (Lalic *et al.*, 2020) and ambidextrous (Derbyshire, 2014).

Ambidexterity refers to an organisation's capacity to explore and exploit opportunities and technological innovations (O'Reilly and Tushman, 2013). As a technology and heavy resources-dependent sector, manufacturing firms are under pressure to develop ambidexterity (Gastaldi *et al.*, 2022) to ensure resource efficiency. However, manufacturing firms in developing countries still use conventional processes and tools (Herzallah *et al.*, 2017).

The sustainability aspects of business activities are gradually gaining momentum (Jansson *et al.*, 2017). Consumers' awareness of green is growing due to the increasing influence of environmental effects on their purchasing decision and their pro-activity to reduce their ecological footprint. Unfortunately, compared to small firms, big enterprises practice more sustainability (Chassé and Boiral, 2017; Gallego-Schmid *et al.*, 2018). Due to having greater organisational control, financial stability and a greater proclivity to develop sustainability strategies (Potts, 2010), big firms have sufficient resources (Lucas *et al.*, 2004) to combat environmental pollution (Hasan *et al.*, 2020).

On the contrary, SMEs diverge from big firms considering the size and distinctive characteristics such as an informal management style, owner–manager authority, overall decision-making processes and a solid commitment to the community. However, the aggregate environmental impact of SMEs is substantially more significant than large corporations (Dey *et al.*, 2020).

Prior research documented that several impediments prevent manufacturing SMEs from implementing sustainability. For instance, resource-constraint, lack of awareness or lack of intention to invest in technology adoption due to the more extended return period

(Adedeji *et al.*, 2020; Adel *et al.*, 2020). SMEs adopt smart technologies (STs) to maintain competitiveness, use external cooperation and foster innovations that are essential for survival (Chung *et al.*, 2022). Although Camilleri (2019) states that advanced smart technology is a critical, competitive and successful tool for promoting sustainability. ASTs assist manufacturing firms in achieving sustainability by supporting information flow in the production process (Saunila *et al.*, 2019). Manufacturing industries should develop a smart technology-driven production and service delivery environment to boost their productivity and commitment to sustainability.

To tackle the abovementioned resource constraint issues of SMEs, "entrepreneurial bricolage (EB)" arose as a proliferating new concept. Levi–Strauss and Wolfram initiated the idea of bricolage to illustrate situations where one must use "whatever is available" (Fu *et al.*, 2020). Later, this term extended to a business's process of producing different value-added products and services from existing resources (Fultz and Baker, 2017) and using minimal resources (Cai *et al.*, 2019). As SMEs have more flexibility, risk-taking capacity and proactivity than large firms (Nor-Aishah *et al.*, 2020), EB is more applicable. Firms with a higher level of EB tend to develop low-cost, finest products and services for customers through extemporisation and experimentation (Cai *et al.*, 2019). Additionally, EB stimulates innovation (Katila and Shane, 2005) and promotes sustainable performance (SP) (Salunke *et al.*, 2013).

Considering the business's fast-paced, ambiguous, volatile and intensely competitive nature, conventional leadership has constraints in adopting dynamic concepts such as EB (Zhang *et al.*, 2021). Strategic leadership, particularly paradoxical leadership (PL), emerged as an effective solution for overcoming business ambiguity, uncertainty and complexity (Najmaei, 2018). Applying a paradox theory lens, PL has been characterised as "apparently conflicting yet interconnected; leadership behaviours used to meet concurrent and contradictory follower expectations" (Alfes and Langner, 2017). Manufacturing SMEs are the primary users of natural resources and impact more adversely on the environment than any other industries (Hossain *et al.*, 2022). Additionally, manufacturing sectors use many harmful materials and generate massive toxic wastages (Sendawula *et al.*, 2020; Govindan and Hasanagic, 2018; Hossain *et al.*, 2022). Therefore, demand consolidates efforts to ensure sustainability from policy formulation to end-product processing.

An extensive literature review exposed a need for more research examining AST, AL, OA, EB and SP in intra-organizational contexts within manufacturing firms, particularly in the context of Bangladeshi textile SMEs. Numerous studies have been attempted in diverse settings, such as ambidexterity in the circular supply chain (Güemes-Castorena and Ruiz-Monroy, 2020; Nathan *et al.*, 2021), ambidextrous innovation leadership in construction project culture (Zheng *et al.*, 2021), ambidextrous leadership in firm performance (Selamet *et al.*, 2020) and PL in the supply chain industry (Saha *et al.*, 2020). However, no study has integrated AST, AL, EB, OA and SP into a unified framework to the researchers' best knowledge. Thus, this study fills this gap, which significantly contributes to the corpus of knowledge on leadership and sustainability. Secondly, to the researcher's consciousness, the effect of AST on OA with the interaction of EB is yet to be explored. Gastaldi *et al.* (2022) examined AST in innovation performance and structural ambidexterity but did not consider EB. This study aims to bridge that gap too. Thirdly, this article advances the existing literature contextually. Prior studies focussed on the developed market context (Belhadi *et al.*, 2021; Crespo and Navarro, 2018; Klonek *et al.*, 2021) and rarely focussed on the manufacturing SME perspective in developing countries (Javed *et al.*, 2021; Nor-Aishah *et al.*, 2020).

The current study examines AST, PL, EB and SP issues in a rapidly developing country (Bangladesh), as the country has evidenced significant economic growth in recent years and has been labelled as another of "Asia's emerging tigers". It is noted that Bangladesh is the world's second-largest exporter of textile goods after China. On the other hand, Bangladesh's textile companies depend on foreign buyers such as Walmart, H&M, Levi's, Nike, Adidas, M&S, American Eagle, Old Navy, GAP. Due to the cultural, sociocultural demographics, economic, technological, political and environmental dynamics, companies' management must re-strategise to adapt (Rana *et al.*, 2020). In this aspect, implementing STs, adopting PL and using available resources is crucial. Consequently, the current study is more relevant to tackle the abovementioned challenges.

The cultural and industrial negligence regarding sustainability resulted in two heinous incidents that took more than thousands of lives: the Rana Plaza and Tazrin fashion accidents. Additionally, this industry was categorised as a "Red industry", as it is the second-largest contributor to environmental pollution. It is predicted that the study's findings will aid the industry in becoming more sustainable.

The paper is structured as follows. Section 1 presents a brief description of the issues, introducing the constructs with the study's novelty. Then, theoretical discussion, the literature review of the variables, and hypotheses are formulated in Section 2. After that, the research methodology is described in Section 3, followed by interpretations of the statistical outcome in Section 4. Hypotheses are tested in Section 5. The discussion of the findings, contributions, limitations and recommendations for future research are provided in Sections 6, 7 and 8, respectively. The article concludes with the summary of the whole study in Section 9.

2. Literature review

2.1 Adoption of smart technologies

The development and implementation of STs have become a frequently discussed topic in academia and industry. STs are intelligent and innovative technologies that enable connectivity, communication and automation through big data analytics, Internet of Things (IoT) and cloud computing (Frank *et al.*, 2019). Moreover, a few more STs explained by Ardito *et al.* (2019), Culot *et al.* (2020); Zheng *et al.* (2021) for advanced automation such as collaborative robots, additive manufacturing, augmented and virtual reality, simulation, cloud manufacturing, artificial intelligence and cyber security. These STs significantly impact conventional manufacturing in four process areas: smart production, smart products, smart supply chain and smart working (Frank *et al.*, 2019; Meindl *et al.*, 2021). Additionally, sustainability researchers are initiating to integrate STs with sustainability. de Sousa Jabbour *et al.* (2018) developed a paradigm for merging IR4.0 and ecologically friendly production.

Several research asserts that industrial IoT, big data analytics and the cloud are critical enablers of this manufacturing revolution (Lasi *et al.*, 2014). STs work cooperatively with conventional information technology systems: enterprise resource planning (ERP), computer-aided process planning and product data management/product lifecycle management, as well as with traditional automation systems: programmable logic controllers and supervisory control and data acquisition systems (Lu and Ju, 2017). A smart manufacturing factory entails smart products (intelligent service), smart data (big data and machine learning) and smart operation (human-technology integration), all of which are hosted on highly secured cloud infrastructures (Yoon *et al.*, 2019). The textile sector embraces smart technologies as well. Wearable e-textiles are gradually displacing conventional electronics. Smart fabric transducers, sensors, actuators, energy harvesters, advanced green technologies, textile electrodes, microfluidics filters and chemical sensing are just a few examples of smart textile applications (Hossain *et al.*, 2020; Jager *et al.*, 2020).

Today, it is widely accepted that ASTs assist businesses to ensure efficiency (Xu and Duan, 2019) and maximise the utilisation of assets. For example, some businesses apply IoT platforms to extract machines' data and quickly inform maintenance teams. This application averts catastrophic effects and minimises possible downtime (Sowmya *et al.*, 2020). Other businesses harness machine data and construct condition-based algorithms to forecast when maintenance will be required, thereby extending the life of machines and components (Shin and Jun, 2015). Besides exploitation activities, firms conduct exploratory activities implementing STs to redesign goods or processes.

Attaran (2020) claimed that exploratory activities require time, experimentation and calculated risks to accelerate new product development (March, 1991). At the same time, exploration is also relevant for adjusting business models with the adoption of STs. Bressanelli *et al.* (2018) investigated the influence of IoT and big data analytics on business models in the circular economy. They identified that the company's capability to innovate with STs is vital for sustainability. Nevertheless, businesses struggle to embrace STs for several impediments. Lack of clarity about the rewards of investing in STs, lack of commitment (Kamble *et al.*, 2018), lack of benchmarking (Lu *et al.*, 2020), concern about security (Viale Pereira *et al.*, 2017) and inadequate skills by operators and managers (Pinzone *et al.*, 2017) are few constraints.

2.2 Paradoxical leadership

Specifically, paradoxical leaders exhibit participative and directive behaviours (Alfes and Langner, 2017). Participatory behaviour "entails collaborative decision-making or shared influence in decision-making, sharing information with others, holding workers accountable, and providing [. . .] autonomy and flexibility in their job" (Alfes and Langner, 2017). However, this leadership style can create an amorphous work climate with unfocussed subordinates. Conversely, directive behaviours enforce the rules, regulations and leaders' views and provide intensive monitoring (Alfes and Langner, 2017).

PL works as a catalyst for ambidextrous innovation (Papachroni *et al.*, 2015). Zhang *et al.* (2015) defined paradoxical leader behaviour as seemingly conflicting yet interconnected behaviours that simultaneously meet organisational and team members' demands and resolve organisational conflicts.

2.3 Organisational ambidexterity

Duncan (1976) used the term "ambidexterity" in organisational studies. Nonetheless, scientific discussion over the idea began in 1991 when (March, 1991) offered the terms "exploitation" and "exploration" to refer to the two contrasting tactics that comprise ambidexterity. Ambidexterity is defined by O'Reilly and Tushman (2013) as "an organisation's capacity to explore and exploit". In the same vein, OA is a firm's capability to maintain a dual orientation: exploitation and exploration (Fu *et al.*, 2020; Lubatkin *et al.*, 2006). Ambidextrous firms pursue exploiting existing competencies and looking for new prospects concurrently (Jansen *et al.*, 2012). Hence, OA enabled firms to leverage short-term opportunities while capitalising on long-term innovative advancements.

Exploitation acts are relevant with "refinement, efficiency, selection, and implementation", whereas exploration involves "search, variation, experimentation, and discovery" (March, 1991). These activities can stabilise the organisation (Sastry, 1997) and enhance the firm's ability to adopt new technologies (Gibson and Birkinshaw, 2004).

2.4 Entrepreneurial bricolage

EB refers to the entrepreneurial behaviour of using available resources to pursue new opportunities (Santos *et al.*, 2020). When resources are scarce, it becomes an organisation's growth and innovation strategy (Senyard *et al.*, 2014). Additionally, EB defines as "making something out of nothing" (Fisher, 2012), with "nothing" referring to underutilised resources that can be recombined to create productive resources. EB entails mobilising available resources to seize potential opportunities (Gunday *et al.*, 2011).

Without bricolage, enterprises do not seek new prospects but replicate those already in the market (Bojica *et al.*, 2018). Bricolage is essential for organisations while operating within resources limitation. Firms must adapt and improve their bricolage capabilities to compete with giant and technologically advanced multinational corporations (Cai *et al.*, 2019). Through improvisation, enterprises with a greater capacity for bricolage can develop low-cost, value-added solutions.

2.5 Hypotheses development

2.5.1 Adoption of smart technologies and sustainable performance. Scholars have examined STs as a precursor to exploitation throughout the past few decades (Hansen *et al.*, 2020; Lee *et al.*, 2020; Lu *et al.*, 2020; Malhotra, 2005). Businesses adopt STs for resource maximisation and efficiency enhancement (Gastaldi *et al.*, 2022). Ali and Azad (2013) evaluated the benefits of ASTs from a production standpoint, emphasising the maximisation of time-cost trade-offs and minimal energy usage.

Through practical information processing, STs assist in production planning and control decisions (Nguyen *et al.*, 2018). Enhancement of operational efficiency can minimise costs and boost profits (Kang *et al.*, 2016). In an advanced manufacturing setting, businesses embrace the IoT, cloud computing, big data and analytics to efficiently and efficaciously collect and analyse production and operations-related data. IoT provides a global network in which tags, sensors, actuators and other physical objects are heterogeneously connected across factories to share data and interact (Ardito *et al.*, 2019). As an example of an IoT application, machine-to-machine communication enables distant data collection and exchange (Frank *et al.*, 2019). Cloud computing enables the remote storage of operational data in real-time and on-demand access to data shown in a cloud (Iqbal *et al.*, 2018).

Environmental activities must be integrated into product advancement and production processes (Singh *et al.*, 2021; Schniederjans and Hales, 2016). ASTs can provide cost-effective solutions for eco-friendly product design, manufacturing and service procedures. ASTs provide updated information and accelerate the development of green products and eco-design innovations (Dubey *et al.*, 2019).

According to de Sousa Jabbour *et al.* (2018), manufacturing enterprises apply ASTs to collect and process accurate consumption data, enabling the 5 R's method (reduce, repair, reuse, recycle and remanufacture) to product development. Radiofrequency identification (RFID) tags and sensors implanted in items capture data on a product's life cycle and monitor the status of components for reuse, recycling and remanufacturing (Joshi and Gupta, 2019). Subsequently, ASTs encourage eco-friendly product manufacturing to ensure environmental sustainability performance. Additionally, using ASTs helps collect and synthesise the data on raw materials and energies (Lee *et al.*, 2020). Smart manufacturing firms integrate sensors and RFID technology into a production system for efficient data collection and real-time environmental control.

Bai and Sarkis (2017) take a similar stance, concluding that modern manufacturing technologies can enable green manufacturing production processes. de Sousa Jabbour *et al.* (2018) and Peukert *et al.* (2015) also agreed that ASTs reduce greenhouse gas emissions. In textiles, Hossain *et al.* (2022) emphasise using ASTs such as effluent treatment plants (ETPs) to reduce water pollution and smart electric sensors to monitor energy usage. Eco-friendly building design that is Leadership in Energy and Environmental Design certified can ensure adequate light and air for employees besides reusing natural energy. As a result, ASTs tend to support SP by enabling the development of eco-friendly products and green production processes (Kiel *et al.*, 2017; Machado *et al.*, 2020). Thus, we propose the first hypothesis:

H1. The adoption of smart technologies has a positive influence on sustainable performance in textile SMEs.

2.5.2 Paradoxical leadership and sustainable performance. Paradoxical leaders may develop new processes and apply novel methods to enhance organisational performance. However, how operational leaders must deal with tensions and dilemmas has received scant attention. According to Andriopoulos and Lewis (2009), Lewis and Smith (2014), "if organisations are capable of managing tensions proactively and integrate seemingly contradictory requirements, success is certain".

This leadership inspires knowledge acquisition for product development besides maintaining existing processes (Lewis and Smith, 2014). PL is a dynamic ability that determines an organisation's level of holistic thinking, adaptability, strategic agility (O'Reilly and Tushman, 2013) and organisations' ability to overcome inertia. Thus, PL strengthens an organisation's aspiration to embrace new technologies and skills to foster exploratory innovation.

From another perspective, PL combined both transactional and transformational leadership. According to Birasnav *et al.* (2015), transactional leadership fails to establish relational commitment and trust with stakeholders, and these leaders prioritise existing processes rather than developing new ones (de Sousa Jabbour *et al.*, 2018). Moreover, transactional leaders focus on the status quo instead of responding to crises quickly (Ensley *et al.*, 2006). By contrast, transformational leaders assist organisations in adapting to the rapid pace of environmental change by inspiring their followers to sacrifice their interests, build principles and provide creative solutions for complex problems (Bass and Riggio, 2006). Rosing *et al.* (2011) found that PL improves information exchange and positively impacts governance mechanisms that contribute to the firm's sustainability. Thus, this study hypothesised:

H2. Paradoxical leadership positively influences sustainable performance in textile SMEs.

2.5.3 Adoption of smart technologies and organisational ambidexterity. Researchers asserted that digital technologies were a precursor to exploitation (Malhotra, 2005; Parida *et al.*, 2016; Stein and Zwass, 1995; Xue *et al.*, 2012). Additionally, businesses that embark on a digital transformation journey aim to achieve operational and resource efficiency (Gastaldi *et al.*, 2018). Regarding ASTs, Ali and Azad (2013) evaluate their operational avails such as optimisation of time, investment and energy.

Once businesses have realised the primary benefits of their first digitisation expenditures, the newly implemented digitisation system enables the integration of ASTs with the operation (Gastaldi *et al.*, 2018). Digital technologies are projected to enhance data collecting and processing, enabling businesses to adapt quickly to market changes and uncover new business opportunities (Chaudhuri *et al.*, 2011). These adoptions of ASTs create an uncertain situation in the organisation, which leads to OA (Fu *et al.*, 2020). Based on the discussion, the next hypothesis follows:

H3. The adoption of smart technologies positively correlates with Organisational ambidexterity in textile SMEs.

2.5.4 Paradoxical leadership and organisational ambidexterity. Paradoxical leaders empower subordinates and escalate their productivity in innovation (Jansen *et al.*, 2012). PL emphasises meeting organisational requirements and adhering to formal standards while using prior experiences and practices to increase work efficiency (Jansen *et al.*, 2009). This leadership style increases resource optimisation and synchronisation of flexibility (Lewis *et al.*, 2014). At the management level, exploration encompasses flexibility, pursuing potential market opportunities, strong renewal and adopting unique skills. Nonetheless, management exploitation involves operations centred on efficiency, short-term objectives and repetitive processes that leverage existing knowledge.

Paradoxical leaders confront conflicting values proactively and adjust their leadership styles based on the situation. They increase production by fostering competition while concurrently fostering changing activities by establishing freedom. They are dedicated to creating collaboration and with exact formal procedures that seek control (Lewis *et al.*, 2014). Leaders at the operational level face ambidextrous tensions and paradoxes regularly. Operative leaders are critical in managing tensions, and particular abilities and a paradoxical mentality are required to address tensions proactively and promote ambidexterity. Operational leaders should foster trust and abstain from anxiousness or defensiveness. However, executives can create a high-performance environment and induce an ambidextrous working environment through the concurrent use of exploration and exploitation, specifically developing and improving the underlying competencies, demonstrating a paradoxical mindset and implementing the appropriate management practices (Patel, 2019):

H4. Paradoxical leadership positively correlates with organisational ambidexterity in textile SMEs.

2.5.5 Mediating role of organisational ambidexterity. Smart technologies are considered a precursor to exploitation (Malhotra, 2005) through maximisation of resource utilisation and increased management and production efficiency (Gastaldi *et al.*, 2018). Gastaldi *et al.* (2022) addressed this argument, but that study was conducted in a non-manufacturing context. ASTs can enhance data collection and processing capabilities and enable organisations to cope with radical market changes (Soto-Acosta *et al.*, 2018).

Gastaldi *et al.* (2018) assessed the association between STs and innovation performance using OA as a mediator, and they discovered that STs positively influenced innovation performance. Belhadi *et al.* (2021) found the mediating influence of OA between IR4.0 competencies and sustainability. Though the influence of OA as a mediator is well established, it still needs to be explored in the sustainability of textile SMEs. Thus, we hypothesise as follows:

H5. Organisational ambidexterity mediates positively on the relationship between adopting smart technologies and sustainable performance in textile SMEs.

The effect of different leadership styles on ambidexterity varies by the organisation (Rao-Nicholson *et al.*, 2016). Complex organisational situations demand complex leadership. Vargas (2015) demonstrated that combining transformational and transactional leadership ensures PL, which increases organisational performance. Moreover, Liu and Fang (2006) developed a behavioural model of leadership based on power and emphasised the importance of project leaders' behaviours or styles in influencing the performance of project team members. PL styles may have a synergistic effect on fostering the overall effect of the organisation, including SP (Greco *et al.*, 2021).

Burawat (2019) stated that SP requires resource efficiency, carbon footprint reduction, boosting green practices and stakeholder integration with a strategic leadership approach (Alzawahrah and Alkhaffaf, 2021). OA is a proactive synergy of exploitation and exploration that can move SMEs toward sustainability (Shafique *et al.*, 2021). OA uses existing resources and new opportunities to generate breakthrough innovation (Hughes *et al.*, 2018). Thus, it can foster SMEs' to engage in sustainable acts through exploratory and exploitative innovation. Based on the above discussion, we hypothesise as follows:

> *H6*. Organisational ambidexterity mediates positively on the relationship between paradoxical leadership and sustainable performance in textile SMEs.

2.5.6 Moderating role of entrepreneurial bricolage. The existing research indicates that EB maximises the resources (Steffens and Senyard, 2009). According to the resource-based view (RBV) theory, firms acquire resources and capability improvement through value creation to attain excellence (Grant, 1996). The EB also aids firms in gaining a competitive advantage and improving SP (Hooi *et al.*, 2016; Ali and Azad, 2013), as it is a transformative process (Phillips and Tracey, 2007). Moreover, a firm's technology orientation ensures the firm's readiness methodologically and innovatively. The bricolage theory poised that EB supports organisations through technological resource availability leads to innovation and improves firm performance. From the RBV perspective also, technology orientation focusses on the organisation's competitive advantage through technological resources. In the current technology-driven world, organisational performance will accelerate with the leveraging of technology resources, and as a consequence, the organisation's SP will increase too.

However, the scarcity of resources does not limit EB; instead, it generates new knowledge and refines learning patterns for exploration and exploitation (Sivathanu and Pillai, 2019). Additionally, current organisational knowledge indicates that excessive exploration or exploitation may have a detrimental effect on the growth performance of new enterprises, and those enterprises must understand the ambidextrous learning balance to achieve the best results (Wang and Li, 2008). Organisations with a high capacity for bricolage can combine existing technologies with locally available resources (Iqbal *et al.*, 2020), resulting in more sustainable use of materials and tools. Thus, the below hypothesis proposed:

> *H7*. EB moderates positively on the relationship between adopting smart technologies and SP in textile SMEs.

Fultz and Baker (2017) assert that EB influences organisational performance ambivalently. EB acts as a catalyst for change or innovation, particularly in SMEs, when institutional support is insufficient or resources are scarce during times of uncertainty (Urban and Mutendadzamera, 2021; Gunday *et al.*, 2011). Young small organisations perceive bricolage as an opportunity to tackle resource constraints, and this approach shapes them to emerge as innovative organisation (Senyard *et al.*, 2014), which ease the way to adopt sustainability (Hooi *et al.*, 2016).

Prior studies had established a strong link between EB and leadership. According to Zhou *et al.* (2019), bricolage requires strong leadership. EB enables leaders to devise novel strategies for maximising available opportunities (Bacinello *et al.*, 2021). Additionally, Guo *et al.* (2016) agreed that EB positively affects a business model's innovation. Fu *et al.* (2020) demonstrated that EB enhances firms' dynamic capability, implying ambidexterity. Peteraf (1993) identified the EB-related factors influencing ambidexterity, emphasising heterogeneity and inimitability. On a different note, Abdul-Halim *et al.* (2020) discovered that EB is positively associated with the business environment. Nonetheless, a hostile environment (heavy industry competition) negatively affects EB among manufacturing SMEs. Furthermore, Iqbal *et al.* (2020) assumed EB could be a moderator of sustainable leadership–SP association. However, that study did not conduct an empirical examination of the relationship. Thus, we will test the interaction of EB on the PL–SP relationship:

H8. Entrepreneurial bricolage moderates positively on the relationship between paradoxical leadership and sustainable performance in textile SMEs.

The study conceptual model is displayed in Figure 1 with the hypotheses indicating the proposed relationships.

3. Research methodology

3.1 Research design

The research design of this study is positivism philosophy, quantitative methodology, cross-sectional time horizon, survey strategy and probability sampling method with stratified random sampling technique.

3.2 Study population and sample

The study collected data from textile SMEs in Dhaka, Bangladesh, through a survey questionnaire instrument. Dhaka is Bangladesh's economic and business centre, and most of the country's SMEs are situated here. According to the Industrial Policy of Bangladesh (2016), small and medium-sized enterprises (SMEs) employ between 31 and 120 people, whereas medium-sized businesses employ between 121 and 300 people. Thus, the investigation focussed on textile SMEs with between 31 and 300 employees. The Bangladesh Textile Mills

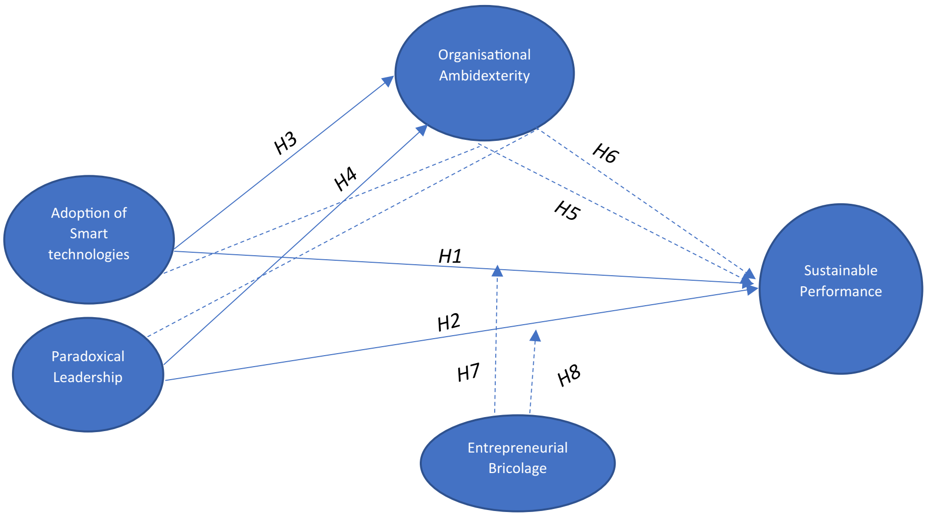

Figure 1.
Conceptual model developed by authors

Association provided the list of SMEs (1695) located in Bangladesh (Bangladesh Textile Mills Association, 2017). Specifically, there are weaving (809), spinning (399), washing (246) and dyeing (241) SMEs available in the textile industry. As 38% of SMEs are situated in Dhaka (SME Foundation, 2018), 38% of samples were taken from these four textile SMEs to ensure proper stratification, providing a 641 sample size. After approaching them, 371 questionnaires were returned. Thus, the response rate is 57.87% which is highly acceptable in social science research. Following the screening, 10 cases were removed from the list of responses due to multiple responses and missing values. As a result, 361 cases were analysed finally.

3.3 Respondents' selection criteria

A single respondent represents each textile SME. The unit of analysis is Dhaka's textile SMEs (Organisation). The respondents in this study were top and middle management supervisors from manufacturing textile SMEs in Dhaka. The supervisory level respondents were chosen considering their extensive experience implementing sustainability in their organisations. This capability enabled the collection of high-quality data for this study. Memon *et al.* (2020) stated that when the unit of analysis is the firm or the respondents are top management, the response rate may be lower than when the unit of analysis is the individual.

3.4 Pre-test and pilot test

A pre-test was done to determine the questionnaire's validity and reliability (Fornell and Larcker, 1981). Five subject matter experts reviewed the questionnaire and provided suggestions. The questionnaire was modified following expert recommendations to confirm face validity. A five-point Likert scale quantified the operationalised constructs. The pilot test was conducted by collecting data from 30 respondents. Confidentiality and anonymity were assured to the respondents. The questionnaire was revised for final data collection based on the respondents' feedback. Cronbach's alpha (a) determines the data's internal consistency and reliability. The data were analysed using partial least square structural equation modelling (PLS-SEM). Smart-PLS is used because it can handle complex models, appropriate if the model has a weak theoretical foundation and offer greater statistical power (Hair *et al.*, 2017). As Silva *et al.* (2014) suggested, 100–200 responses are sufficient for PLS-SEM, and the number of responses is adequate.

3.5 Survey items and data collection

The construct measurement scale is adapted from prior existing studies (Table 1). Both Google Forms and printed questionnaires were distributed to increase the survey's response rate. After one month from the date of sending, follow-up calls were made.

4. Data analysis and results

4.1 Non-response bias and common method bias

Wallace and Cooke (1990) method is used in this study to check non-response bias (NRB). NRB is calculated to ensure an accurate reflection of a survey on the intended study population. The responses are collected within 30 days of respondents receiving the questionnaires; these are considered early responses, and late responses are assumed for other responses collected after 30 days. The author calculated the mean and standard deviation for the first 30 and last 30 respondents and found no significant variance between the two groups, indicating the study is free of NRB. The single-factor Harman test was applied to determine the common method bias (CMB) (Podsakoff *et al.*, 2003). The variance

Construct	Items	Source
Adoption of smart technologies	AST1: Computer-Aided Process Planning (CAPP) AST2: Automatic identification/Bar code systems/RFID/Industrial IoT AST3: "Smart" ICT applications supporting collaboration, connectivity, data processing, information mining, modeling, simulation AST4: Manufacturing Resource Planning (MRP) and/or Enterprise Resource Planning (ERP) AST5: Advanced manufacturing technologies, additive manufacturing, 3 D printing, high precision technologies (micro/nano-processing)	Gastaldi *et al.* (2022)
Paradoxical leadership	PL1: Leader uses a fair approach to treat all subordinates uniformly, but also treat them as individual PL2: Leader shoes a desire to lead but allows others to share the leadership role PL3: Leader controls important work issues but allows subordinates to handle details PL4: Leader success conformity in task performance, but allows for exceptions	Zhang (2015)
Entrepreneurial bricolage	EB1: Confident to find solutions with existing resources. EB2: Utilize existing resources to face challenges readily. EB3: Use existing available resources to process new problems effectively EB4: Handle new challenges from existing and competitive resources. EB5: Explore new solutions positively. EB6: Address new barriers from processing existing resources. EB7: Process existing resources to obtain solution project EB8: Process and wield existing resources that are planned for other aspects	Fu *et al.* (2020)
Organizational ambidexterity	Exploitation-exploration innovation OA1: We innovate with new products and services in our local market OA2: We frequently refine the provision of existing operations OA3: We frequently use new opportunities in new markets OA4: We innovate in improved, but existing products for our local market OA5: We innovate to improve the efficiency of existing operations	Sahi *et al.* (2020)
	Agility OA6: We change (expand or reduce) the variety of products available for sale OA7: We react quickly to new product or service launches by a competitor OA8: We respond quickly to changes in aggregate consumer Demand OA9: We shift quickly to contingency plans and crisis management Teams	Wamba *et al.* (2020)
	Configurability OA10: We systematically dispatch resources according to market change OA11: We systematically create flexible product and process	Dubey *et al.* (2019)

(continued)

Table 1.
Measurement of the constructs

Construct	Items	Source
	configurations	
	OA12: We generally have a less formal structure	
	OA13: We do not usually focus on traditions and legacy	
Sustainable performance	Economic performance	Kamble *et al.* (2018)
	SP1: Reduced costs of production	
	SP2: Improved revenue growth	
	SP3: Improved quality of products	
	SP4: Reduced lead time	
	Environmental performance	Belhadi *et al.* (2021)
	SP5: Reduced greenhouse gas emissions	
	SP6: Reduced water usage	
	SP7: Reduced energy use	
	SP8: Reduced consumption of hazardous/harmful/toxic materials	
	Social performance	Kamble *et al.* (2018)
	SP9: Improved working conditions	
	SP10: Improved safety and well-being	
	SP11: Community support/involvement	

Table 1.

found by a single factor was 28.76%, less than 50%, indicating that CMB is not a concern in the study context.

4.2 Demographic information

In total, 361 textile SMEs, types of company: 30.7% (spinning), 25.71% (dyeing), 23.6% (weaving) and 20% (washing). Company age: 32.14% (Less than 2 years, 27.86% (3–5 years), 25% (6–8 years), 12.86% (9–11 years) and 2.14% (12 years and above). Several employees: 18.57% (31–80 employees), 28.57% (81–130), 22.14% (131–180), 17.86% (181–230) and 12.86% (231–280).

4.3 Measurement model

Primary data were analysed using the SPSS v23 and SmartPLS 3.3.3. Prior to testing the hypothesised relationships, the study confirmed the model's expected reliability and validity.

4.4 Convergent validity

The result (Table 2) revealed that all the items factor loadings (FL) higher than 0.5 (Hair *et al.*, 2017), average variance extracted (AVE) higher than 0.5 thresholds (Hair *et al.*, 2017), Cronbach's alpha and composite reliability (CR) greater than 0.7, indicating the measure's acceptable reliability and high internal consistency (Hair *et al.*, 2017).

4.5 Discriminant validity

Fornell and Larcker (1981) criteria and heterotrait–monotrait (HTMT) ratio were applied to confirm discriminant validity. Table 3 demonstrates that the square root of AVE is higher than its correlation with other variables. Table 3 demonstrates that none of the values in the table are greater or equal to any of the two thresholds <0.90 (Henseler *et al.*, 2015) and <0.85 (Kline, 2015), confirming acceptable discriminant validity.

Constructs	Items	F. L	CA	CR	AVE
Adoption of smart technologies	AST1	0.826	0.864	0.902	0.648
	AST2	0.799			
	AST3	0.783			
	AST4	0.833			
	AST5	0.782			
Entrepreneurial bricolage	EB1	0.886	0.922	0.937	0.650
	EB2	0.759			
	EB3	0.803			
	EB4	0.702			
	EB5	0.795			
	EB6	0.824			
	EB7	0.788			
	EB8	0.875			
Organisational ambidexterity	OA1	0.786	0.949	0.955	0.620
	OA2	0.777			
	OA3	0.803			
	OA4	0.797			
	OA5	0.787			
	OA6	0.809			
	OA7	0.849			
	OA8	0.781			
	OA9	0.762			
	OA10	0.785			
	OA11	0.769			
	OA12	0.734			
	OA13	0.789			
Paradoxical leadership	PL1	0.813	0.816	0.879	0.644
	PL2	0.751			
	PL3	0.847			
	PL4	0.797			
Sustainable performance	SP1	0.740	0.916	0.929	0.545
	SP2	0.746			
	SP3	0.772			
	SP4	0.802			
	SP5	0.735			
	SP6	0.759			
	SP7	0.748			
	SP8	0.682			
	SP9	0.696			
	SP10	0.700			
	SP11	0.733			

Table 2.
Convergent validity

Constructs	AST	EB	OA	PL	SP
AST	0.805				
EB	0.350	0.806			
OA	0.396	0.429	0.787		
PL	0.315	0.265	0.323	0.803	
SP	0.327	0.333	0.364	0.313	0.738

Note: The off-diagonal values are the correlations between latent variables, and the diagonal is the square root of AVE

Table 3.
Discriminant validity assessment using Fornell and Larcker criteria

Henseler *et al.* (2015) proposed the HTMT method, which confirms discriminant validity between each pair of variables if the correlation values are less than 0.90. Table 4 below shows that the HTMT values are below the threshold of 0.90.

4.6 Assessment of the structural model

Hair *et al.* (2017) proposed six criteria for assessing the structural model using PLS-SEM. In the initial stage of assessing the structural model, it is important to address the latent collinearity issues. Also, it is crucial to assess the significance and relevance of the structural model relationship, by assessing the level of variance explained by the dependent variable (R^2), the level of effect size (f^2) and the predictive relevance (Q^2). Moreover, it is also essential to assess the corresponding *t*-values of the path coefficient via bootstrapping with 5,000 resamples. The results of R-square, effect size (f-square), collinearity (inner VIF) and predictive relevance (Q-square) have been presented in Table 5.

5. Hypotheses test

Table 6 and Figure 2 show the result of the direct effect examination of the effect of ASTs and PL on SMEs' SP. Both relationships were positively significant *H1* ($\beta = 0.177$, $t = 2.79$, $p = 0.005$) and *H2* ($\beta = 0.181$, $t = 2.946$, $p = 0.003$), hence *H1* and *H2* were supported. Second,

Constructs	AST	EB	OA	PL	SP
AST					
EB	0.391				
OA	0.432	0.452			
PL	0.375	0.301	0.365		
SP	0.363	0.361	0.388	0.353	

Table 4. Discriminant validity assessment using heterotrait–monotrait (HTMT)

R-square	Endogenous variables	R square	R square adjusted	0.26: Substantial, 0.13: Moderate, 0.02: Weak (Hair *et al.*, 2017)
	OA	0.291	0.279	
	SP	0.200	0.193	
Effect Size (F-square)	Exogenous Variables	OA	SP	0.26: Substantial, 0.13: Medium effect, 0.02: Weak effect(Hair *et al.*, 2017)
	AST	0.058	0.031	
	EB	0.120		
	OA		0.056	
	PL	0.044	0.035	
Collinearity (Inner VIF)	Exogenous Variables	OA	SP	VIF <= 5.0 (Hair *et al.*, 2017)
	AST	1.227	1.243	
	EB	1.198		
	OA		1.250	
	PL	1.194	1.171	
Predictive relevance (Q-Square)	Endogenous variables	CCR	CCC	Value larger than zero (0) indicates Predictive relevance (Hair *et al.*, 2017)
	OA	0.176	0.555	
	SP	0.105	0.446	

Notes: CCC = Construct Cross-validated Communality; CCR = Construct Cross-validated Redundancy

Table 5. Assessment of the structural model

Hypotheses	Beta/OS (β)	Confidence interval 95% bias corrected LL	UL	T	P	Decision
H1: AST → SP	0.177	0.060	0.295	2.795	0.005	Supported
H2: PL → SP	0.181	0.063	0.295	2.946	0.003	Supported
H3: AST → OA	0.224	0.103	0.315	4.144	0.000	Supported
H4: PL → OA	0.193	0.084	0.295	3.487	0.001	Supported
H5: AST → OA → SP	0.053	0.022	0.099	2.710	0.007	Supported
H6: PL → OA → SP	0.046	0.015	0.094	2.278	0.023	Supported
H7: AST × EB → OA	−0.007	−0.123	0.122	0.106	0.915	Not Supported
H8: PL × EB → OA	−0.106	−0.190	0.000	2.100	0.036	Supported

Notes: OS: Original Sample; LL: Lower Limit; UL: Upper Limit; Significant; $*p < 0.05$

Table 6.
Hypothesis testing

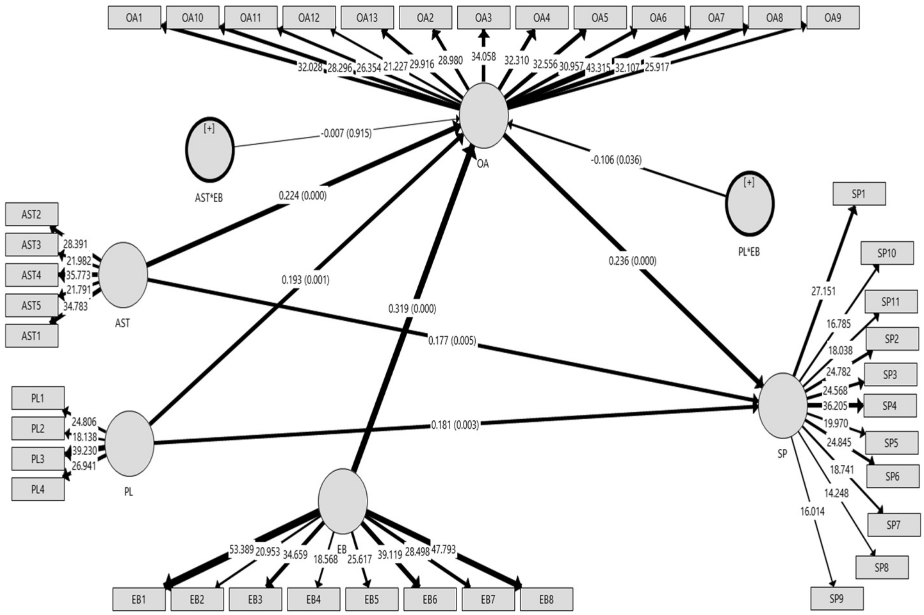

Figure 2.
Structural model with inner model *t*-values

the impact of AST and PL on OA was examined. The findings showed that both variables have a significant positive relationship with OA as *H3* ($\beta = 0.224$, $t = 4.144$, $p = 0.000$) and *H4* ($\beta = 0.193$, $t = 3.487$, $p = 0.001$). Third, *H5* and *H6* tested the mediation effect of OA on the relationship among AST, PL and SP. The findings confirmed positive mediation for both hypotheses. *H5* ($\beta = 0.053$, $t = 2.710$, $p = 0.007$, LL = 0.022, UL = 0.099) and *H6* ($\beta = 0.046$, $t = 2.278$, $p = 0.023$ and LL = 0.015, UL = 0.094). The positive values of both LL and UL confirm a significant mediation effect. Finally, the study examined the moderation effect of EB on the relationship among AST, PL and SP. Findings showed that AST has no moderating effect, as the *t*-values are higher than 0.05. *H7* ($\beta = -0.007$, $t = 0.106$, $p = 0.915$ and LL = −0.123, UL = 0.122). Conversely, PL has a significant moderating impact on SP, as *H8* ($\beta = -0.106$, $t = 2.100$, $p = 0.036$ and LL = −0.190, UL = 0.000).

6. Discussion

The results confirm the significant association for all hypothesised relationships except *H7*. Regarding the ASTs–PL positive association, several previous studies, including Belhadi *et al.* (2021), Gastaldi *et al.* (2018); Kouhizadeh *et al.* (2019), provided consistent results. ASTs enable businesses to implement data-driven methods for data collecting throughout the product life cycle, from material attributes to process parameters (Tao *et al.*, 2019). Hence, ASTs enhance integrated production systems in vertical and horizontal dimensions (Frank *et al.*, 2019).

Hossain *et al.* (2022) state that waste management should avoid unnecessary waste and minimise waste disposal through STs such as ETP. The textile industry in Bangladesh can reuse ETP-treated liquid and toxic wastewater to use in toilet cleaning and sprinkling on gardens and plantations. The ASTs enable SMEs to achieve long-term sustainability (Hossain *et al.*, 2020).

Furthermore, the positive association of PL-SP was consistent with earlier studies. Zhang *et al.* (2021) argue that mono leadership style is insufficient in the complex manufacturing setting, stressing a mixture of diverse leadership styles that provides flexibility to rapid-evolving environments. PL fill this demand by combining two leadership styles (Zhang *et al.*, 2015) and creating a synergy in the organisation to promote sustainability (Gebert *et al.*, 2010).

AST was found significant and positive with OA. This finding is consistent with Gastaldi *et al.* (2022), Malhotra (2005); Stein and Zwass (1995), Xue *et al.* (2012). When a company adopts STs and integrate them with the organisational operation, it fosters innovation, experiments and resource efficiency.

PL was also found to be significantly positive with OA. The leadership style of a leader influence the organisational exploratory innovation (Lavie and Rosenkopf, 2006), engage in holistic thinking and synchronise paradoxes with an open and inclusive attitude (Yi *et al.*, 2019).

The findings empirically confirmed the mediation of OA for both relationships (AST → OA → SP and PL → OA → SP). Gastaldi *et al.* (2022) demonstrated that Industry 4.0 improves an organisation's ability to pursue exploitation and exploration approaches, thereby encouraging OA. Additionally, ASTs enable organisations to respond quickly to market changes and identify unexplored business possibilities (Chaudhuri *et al.*, 2011). Numerous authors have coined STs as a determinant of exploitation (Hansen *et al.*, 2020; Xue *et al.*, 2012). With the support of the paradox theory of leadership, it is confirmed that firms' outcome enhances with the enhancement of PL (Rosing *et al.*, 2011). Ambidexterity can be promoted and cultivated through PL (Zakrzewska-Bielawska, 2021), which can resolve conflicts or tensions flexibly (Cunha *et al.*, 2019).

Finally, the empirical findings indicated a significant positive moderation on PL-EB-SP but an insignificant effect with AST and SP. Although EB cannot expand the resources, it ensures better performance, growth, efficient resource utilisation and diversity (Kouhizadeh *et al.*, 2019). Fultz and Baker (2017) and March (1991) added that EB enhances dynamic capabilities in contemporary companies with OA. EB achieves more with minimal resource utilisation and fosters frugal innovation (Sharmelly and Ray, 2018). In entrepreneurship, it is easier for SMEs to embrace PL due to their innovative behaviour and flexibility. EB places considerable emphasis on sustainability by reusing and recycling by-products. Top management of SMEs embraces EB for SP and initiates novel approaches that enhance profitability and sustainability (Schaltegger and Wagner, 2011; Hooi *et al.*, 2016). Thus, this finding is relevant. However, Bangladesh still needs to catch up in the usage of STs. The poor ranking (116 out of 132 countries) in the Global Innovation Index (2021) evidenced this claim. Due to inadequate financial resources, SMEs cannot adopt STs flexibly, so EB should be more adapted. The insignificant moderating findings for *H7* could be justified considering the abovementioned factors.

7. Contributions

7.1 Theoretical and empirical contributions

The study's outcome has enhanced existing knowledge and literature on entrepreneurship and sustainability domain. This study extends the applicability of the RBV theory with the integration of the paradox theory (Schad *et al.*, 2016) and Bricolage theory (Lévi-Strauss, 1962).

To begin, this research confirms previous findings that AST has a beneficial effect on SP. IoT, cloud computing, big data and analytics are some of the cutting-edge digital technologies emerging and developing fast within the context of Industry 4.0. Many manufacturing companies are embracing IoT (Frank *et al.*, 2019), big data analytics (Dubey *et al.*, 2019), cloud computing (Schniederjans and Hales, 2016) and other front-end technologies to better manage their operations and the environment through digital means (Ivanov *et al.*, 2019). Empirically exploring the consistent impact of ASTs on economic and environmental performance, this study classifies developing STs as a cohesive construct that shows the firm's information processing capacity. The results provide valuable insight into how new and creative digital technologies in the age of Industry 4.0 might be incorporated into an organisation without compromising its long-term viability. Secondly, the application of PL provides a new perspective for SMEs. The inclusion of EB as mediating variable makes the study model robust. Our study contributes to comprehending the relevant factors that contribute to OA in terms of theory.

Additionally, we identify a mechanism by which STs promote OA, thereby facilitating the establishment of a state conducive to successfully implementing operational ambidexterity. The such managerial capability enables businesses to achieve long-term objectives. Although the relationship between ASTs and SP for SMEs is well established in the literature, embedding OA, PL, ASTs, EB and SP, there is a scare in academia. The proposed model contributes to the theory comprehensively by integrating factors in developing countries' SMEs context. Thirdly, the scholarly studies in emerging Asian countries, SMEs such as Bangladesh, lack evidence regarding the role of PL, EB and OA in SP's determinants and outcomes. To address this knowledge gap, this study considers PL and ST as predictors of OA and SP as an outcome of OA. Finally, this study examines EB's moderating effect on SP, which is yet to examine.

7.2 Practical implications

The current study contributes significantly to policymakers, industry players and SMEs operating in developing countries, particularly Bangladesh. Manufacturing companies ensure competitiveness and longevity by embracing novel and innovative approaches. Adopting ambidexterity and EB has an effect that goes beyond the manufacturing facility and affects stakeholders. For instance, incorporating sustainability dimensions can boost productivity while reducing negative impacts on the triple bottom line (El-Khalil and Mezher, 2020).

This study contributes at the managerial level in several ways. Firstly, this study's primary contribution is to provide strategic direction to SMEs in developing countries such as Bangladesh. Policymakers should be aware of the complications of environmental performance, specifically when dealing with environmental concerns for SMEs in emerging economies. Secondly, this study suggests that PL has emerged as a novel and highly predictive factor for SP. Therefore, managers must prioritise PL, fosters eco-innovation and SP to increase strategic flexibility and business performance. The organisation must be conscious of the limitation of the existing leadership approach during the paradoxical and dynamic situation. PL helps management to keep the right balance of exploration and exploitation leadership. Thirdly, this study suggests that SMEs should prioritise strategic and long-term performance over short-term goal attainment. Sustainability and competitiveness are more important than short-term goals (Javed *et al.*, 2021). The EB findings would help SMEs overcome resource constraints and be sustainable. Fourthly, this research examines the mediating mechanism by which OA links PL, AST and SP. This study suggests that managers should coordinate with all stakeholders to ascertain the dynamic effect of advanced technology usage and the turbulence caused by complexity. With leaders exhibiting ambidexterity and EB behaviour, it appears possible to leverage STs to improve business performance sustainably. As a result, this study recommends that managers be ambidextrous to maximise the value of their current strategies and capabilities. Finally, our study's findings inspire textile SMEs to embrace ASTs in resource-constrained environments. Since manufacturing is a highly information-intensive industry, thus, textile SMEs can use ASTs to establish smooth knowledge-sharing mechanisms and to achieve operational and environmental success.

8. Limitations and future research directions

Apart from the theoretical and practical implications, this study has limitations that could guide future research. Although this study considers OA a mediator and EB a moderator of the relationship between PL, AST and SP, other indirect variables can be included in this framework to make it more comprehensive and robust. Environmental variables, such as competitive intensity, market volatility and technological volatility, may affect the relationship between PL and OA and between PL and SP. Thus, future research should examine the roles of such variables in greater detail in order to comprehend their moderating effects. Additionally, we operationalise the SP, EB and OA in the organisation context, and these concepts can be extended considering individual contexts, making them more comprehensive and complete.

This cross-sectional quantitative study focussed exclusively on SMEs in a single city, Dhaka, Bangladesh. Typically, the contingencies of SMEs act as a primary situational suppressor of diversity effects on SP. As a result, the findings may not be generalisable to the entire industry or other sectors such as service, non-governmental organisations, or not-for-profit organisations. Further studies involving additional regional SMEs, sector-specific SMEs or large businesses are suggested to overcome this limitation. Methodologically, comparative, qualitative or longitudinal studies across sectors can yield exciting findings.

This study examined the mediating role of bricolage from an entrepreneurial standpoint. Integrating entrepreneurial or knowledge bricolage with corporate strategy, strategic vigilance, flexibility, stakeholder behaviour, corporate culture and innovation knowledge would significantly contribute to the knowledge domain.

9. Conclusion

Undoubtedly sustainability is the focal attention of firms in the 21st century business landscape. This phenomenon leads to the questions of how textile manufacturing firms of Bangladesh ensure SP through AST, PL and OA and whether EB strengthens the relationship of these constructs. The exciting finding of the current paper is the insignificant mediating effect of EB on the AST-SP association. In a nutshell, the study's findings indicate that PL, OA and EB represent an exciting area of research and practice, requiring more research to understand their substantial impact on SP. This research attempts to set a solid theoretical and empirical basis for this area of research. Thus, future studies are encouraged to use this research for further examination.

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