Influence of blockchain technology in SME internationalization: Evidence from high-tech SMEs in India

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A R T I C L E   I N F O

A B S T R A C T

This study examines the impact of blockchain technology (BCT) on small and medium-sized enterprises' (SMEs) internationalization. Further, it examines how Amazon as a platform reframes the global partnership environment via the BCT network that enables Indian SMEs to operate globally. Data were collected from 291 employees at 43 high-tech SMEs in India. They revealed untapped interest in how Indian SMEs will use Amazon for global operations. Several factors, such as processes to strategize, synergize, and standardize, are described as needing to be addressed before SMEs can boost integrated business efficiency, especially with regards to marketing capacity, scale, scope, and financial performance. The study represents a critical theoretical contribution to Amazon-based global operations by developing the 3S Triangle Model, which could provide a basis for future business practice. Furthermore, the study defines and addresses the evolution of BCT that Amazon has used—and continues to use—as a global operations platform. At the convergence of BCT, Amazon, and global retail activities, we propose and advance an integrated model of BCT-driven global operations among SMEs that provides a holistic view of state-of-the-art practices and exciting avenues for future study.

1. Introduction

Small and medium-sized enterprises (SMEs) play a significant role in economic development for most Asia-Pacific countries, particularly India (Weaven et al., 2021). SMEs' traditional approach is inadequate to sustain existing global business operations (de Villiers et al., 2020). Studies have identified several reasons why operations of SMEs are lacking: First, SMEs' transactions are frequently maintained in conjunction with a centralized system backed by third-party software vendors (Woods et al., 2019). Second, there is a substantial amount of scattered information throughout the dispersed lifespan, such as an updated bill, assessments of real-time efficiency, and varying maintenance requirements (Rakshit et al., 2021a,b). Third, standard information frameworks do not have an efficient mechanism for exchanging expertise and resources (Rakshit et al., 2021a,b). To compete with multinational competitors, SMEs must establish innovative market models focused on performance, sustainability, and higher product/service quality (O'Dwyer and Gilmore, 2018). The adoption of blockchain technology (BCT) could be a first step in addressing these challenges. BCT is a groundbreaking technology in the financial world that benefits from high confidentiality, irreversibility, delivery,

transparency, and precision (Ahluwalia et al., 2020a). Despite this promising opportunity for SMEs to globalize their businesses by adopting BCT (Jin and Hurd, 2018), existing research often neglects the effect of BCT on global-market-entry strategy.

A BCT-based framework for SMEs' global operations through Amazon is proposed to address the above challenges (Wong et al., 2020). This strategy combines BCT, smart contracts, and other related developments in global business operations (Ilbiz and Durst, 2019). BCT has the potential to solve problems inherent in SME global operations by addressing issues of visibility and traceability; yet in order for the technology to evolve and support SMEs, its implementation would be a slow process and would require cooperation between various internal functional departments and different players. Prior research has investigated the theoretical underpinnings and internationalizing global operations of SMEs (Merugula et al., 2021; Islam et al., 2021). While these studies are significant, gaps exist in the relationship between processes to strategize, synergize, and standardize and in the integrated business performance of SMEs (Paul, 2020). Additionally, these studies have highlighted a knowledge gap in applying BCT. As such, additional academic research is proposed to overcome it and improve BCT-driven Amazon's global market operations. However, none of the studies

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have assessed BCT-based theoretical underpinnings of SME internationalization and Amazon's global operations. This study's theoretical framework is founded on the SCOPE framework and 5S Pentagon Model (Paul, 2020). Studying the influence of SMEs' integrated business performance in the global market via the lens of BCT-based marketing capabilities may shed light on the elements that contribute to enhancing the international operations of SMEs.

The primary goal of this research is to identify how scale, scope, and financial performance interrelate following adoption of BCT in global operations among SMEs. Indeed, global operations represent an important growth path, as SMEs stand to gain from engaging in cross-border activities. Thus, by investing in and implementing BCT, SMEs can take advantage of new technologies designed to improve business activities. Furthermore, BCT entails enhancements that reduce both processing errors and costs (in time and overhead) associated with purchasing. These improvements are likely to boost organizational performance. The study examines how BCT influences the entrance of Indian SMEs into the global market through the Amazon platform (Orji et al., 2020). Specifically, it answers two key research questions: (1) How do BCT systems influence the entrance of Indian SMEs into the global market? and (2) How does BCT impact integrated business performance for SMEs in light of global market operations?

This study responds to these research questions in the following ways: First, it explains how SMEs can interact with BCT and integrate technologies to take advantage of emerging opportunities in developed markets and create new markets in the global context (Wang et al., 2020). Second, it illustrates the frameworks for collaboration between SMEs, other organizations, and stakeholders, all of whom may have various priorities but can find common ground through blockchain networks (Chowdhury, 2018). Third, it clarifies BCT's role in improving SMEs' monitoring of and interaction with sustainability (Ilbiz and Durst, 2019). Thus, this study advances a BCT-based 3S Triangle Model, which was modified from the SCOPE framework and 5S Pentagon Model (Paul, 2020). The SCOPE framework is based on the 5S Pentagon Model, which provides a holistic view of adoption drivers and challenges for businesses of all sizes and industries. This paper discusses how SMEs can use BCT to change corporate activities and generate 'win-win' results in the foreign market. We outline how SMEs' lack of current capacity can be improved at the corporate level, augmenting credibility and faith in sustainability efforts in the global industry. While this study focuses on Indian SMEs, its applicability is broader. Indeed, two aspects of the methodological analysis may be replicable: First, this model may be extended to SMEs in other developed economies to discern if similar conclusions apply. Second, the results could guide other emerging economies in evaluating BCT-related problems that SMEs face in an era of globalization and industry convergence.

The findings suggest that SMEs may expand their operations internationally by adapting BCT and collaborating with Amazon. This new theoretical structure combines issues of marketing capabilities and the influence of integrated business performance (Wang et al., 2019). This study is novel in its addition of a construct focusing on Amazon's global operations to the theoretical framework. Additionally, the findings indicate the rising role of networking and BCT in SME marketing behavior and identify a study vacuum in specific SME marketing practices (Ilbiz and Durst, 2019). As a result of this vacuum, understanding of how marketing competence is perceived and implemented in SMEs remains unclear, and it continues to be a source of discussion among academics and practitioners (Dutta and Saini, 2021). Integrating SMEs' performance in the worldwide market is required for internationalization, independent of the marketing method or theme. Furthermore, an in-depth examination of the role, organization, and management of marketing capabilities in SMEs was conducted, using a widely recognized framework in the marketing literature that encompasses both strategic and operational marketing processes and SMEs' unique global market approach. The findings provide valuable information about evolving marketing behaviors and practices among SMEs, which help

them successfully navigate difficulties of the current global market.

The paper is structured as follows: research is situated in a specific context, which is discussed in Section 2 by first providing an overview of Indian SMEs and their global operations. Then, the justification for SMEs using the Amazon platform for international expansion (drawing on BCT) is discussed. With its description of research frameworks, methods, and tools, Section 3 describes the methodological procedure. Section 4 describes the findings and interpretation of blockchain domain dynamics. The final section presents the paper's conclusions, summarizes important observations across industries, and provides a series of lessons learned alongside their potential impacts.

2. Literature review

2.1. Indian SMEs' global operations

The SME sector's relevance to and impact on India's overall economic growth is well known (Gherghina et al.,2020). SMEs seek to pursue a foreign market by finding new business fields (such as new business exploration, new product development, partnership, licensing, and so on). For most countries in the Asia-Pacific region, like India, SMEs play a crucial role in economic development. SMEs usually suffer from resource shortages in domestic and international markets relative to major organizations. Since 1991, the Indian Government has eased import controls, facilitating trade development to boost India's economic status within the global system (Todd and Javalgi, 2007). Recognizing SMEs' role in the global and national economies, India's governments and development organizations have been keenly involved in creating SMEs (Sahi et al., 2020). BCT in the global network economy is becoming a crucial export driver in this context. SME e-commerce systems dramatically minimize corporate acquisition costs and improve organizational operations productivity (Adomako et al., 2021). Cost savings, convenience, and many custom choices continue to be the driving factors for business-to-business and business-to-consumer e-commerce development for SMEs (see Table 1).

With the exponential growth of SMEs, individual SMEs may experience dramatic changes such as increases in turnover or income, resulting in decreased earnings and profits. Growth contributes to the challenge of SME management (Alaassar et al., 2021). Expanding an SME does not just mean coping with the same challenges on a bigger scale; establishing and enhancing best processes are also often a core element of an SME's growth. Indeed, a small company experiencing a powerful burst of growth will see its activities changed in many ways. SMEs in India need to transform their business models to include BCT so that they ensure consistent success and long-term sustainability. Systems based on BCT will minimize costs and offer a convenient and straightforward way to connect and transmit data globally (Upadhyay, 2020).

2.2. SCOPE framework

Even though several models—such as the Uppsala model and RBV—have been widely employed in research, perspectives on them vary. Practitioners and researchers argue that robust models are still required. The "SCOPE" model framework (Paul, 2020) is proposed to assist SME growth, conduct industry analyses for informed decisions, and develop strategies to compete in the global market. According to this framework, SMEs should conduct an effective study before expanding their global business operations. The SCOPE model postulates tactics for SMEs to export, participate, and thrive in the world market. The SCOPE model enables individuals to critically consider SMEs' growth and to better analyze their industries. This framework can be generalized to other contexts, no matter the industry or country of origin, in both emerging and developed countries.

Table 1

Blockchain Technology (BCT) and global operations of SMEs in the business research context.

Primary topic	Research Context	Key References
Adoption of blockchain among Malaysian SMEs in supply chain and operations management	Examines the impact of various criteria and regulatory support on SMEs' adoption of blockchain for operations and supply chain management.	Wong et al. (2020)
Blockchain in operations management and manufacturing activities: Opportunity and hurdles	Indicates that BCT may impact diverse operations management, industrial processes, and business models.	Lohmer & Lasch (2020)
Blockchain demystifying: A critical study of problems, implementations, and possibilities	Logically develops an interconnected structure for integrating BCT in an organization.	Upadhyay (2020)
Industrial blockchain-based product lifecycle management system in Industry 4.0	Identifies blockchain-based applications in four new product lifecycle phases: co-design and co-creation, accurate tracking and tracing, constructive maintenance, and supervised recycling.	Liu et al. (2020)
Blockchain-enabled execution framework for logistics financing for capital-constrained retail e-commerce	Suggests the introduction of a blockchain-enabled logistics financing network as an automated e-commerce retail and logistics financing approach.	Li et al. (2020)
BCT and startup funding: Cost-economics of a transaction perspective perception	Describes how a BCT-based finance mechanism will mitigate issues and contribute to a more robust and decentralized entrepreneurial financing method.	(Ahluwalia et al., 2020b)
Industrial transformation blockchain: A forward-looking roadmap to policy advice with multi-stakeholder involvement	Findings include generating and implementing blockchain potential in specific European industrial and corporate ecosystems, while considering political, economic, social, technological, legal, and environmental concerns.	(Pólvora et al., 2020)
Blockchain appropriation for Small and Midsize Enterprises	Examines an appropriation system under nine factors: cost management, internalization, digital asset representation, unchanging data recording, network scale, open and coordinated ledger, scalability, fair trade, and funding.	Ilbiz & Durst (2019)
Early mover pitfalls and information spillover impact on the finance and innovation efficiency of blockchain startups	Studies blockchain firms and finds that knowledge spillover operations favorably moderate entry time and investment.	Park et al. (2020)
Prototype of a distributed ledger technology (DLT)-enabled platform for value-added tax (VAT) settlement, as well as design concepts for DLT platforms	The suggested prototype and design concepts illustrate how accounting information systems, distributed ledger technology, and public governance might be linked to improve societal welfare.	Søgaard (2021)
SMEs SCOPE framework: A new analytical lens for progress and success of internationalization	Introduces a new framework SCOPE—postulates methods to export, compete, and thrive in the global market for SMEs. It is accompanied by a model called Pentagon.	Paul (2020)
Supply chain design and blockchain applications based on big data	Adds to the growing body of knowledge on big data and blockchain by emphasizing crucial implementation recommendations and	Sundarakani et al. (2021)

Table 1 (*continued*)

Primary topic	Research Context	Key References
	challenges for supply chain management.	
Creation of social capital via the stages of internationalization: Relationships between SMEs from Britain and India	Finds that market expectations drive the growth of social capital and internationalization.	Puthusserry et al. (2019)
Dimensional impact on internationalization and success of Korean SMEs' entrepreneurial orientation: The mediating effect of marketing capabilities	Examines entrepreneurial orientation and marketing potential as international size and reach generators, which are understudied despite their importance to internationalization efforts.	(Jin et al., 2018c)
Exploring the effect of digital channels on the internationalization of SMEs: New Zealand SMEs' use of the Chinese business entry portal Alibaba	Examines how New Zealand SMEs entering the Chinese market use digital platforms, focusing on Alibaba.	Jin et al. (2018)

2.3. Blockchain in SMEs

BCT has reduced lead time; reinforced transparency, reliability, and effectiveness in all market aspects; and has made international business more cost-effective and efficient (see Table 1). First implemented in 2008, it is a public ledger maintained de-centrally as a single data record in blocks on network nodes (Wang, 2021; Zhang et al., 2021). Further, BCT is a distributed ledger system that uses a cryptographic architecture to decentralize transaction record control (Javaid et al., 2021). Cryptographic components are used to communicate between nodes in a peer-to-peer network that is geographically dispersed throughout the world (Qiao et al., 2022). Several distinct users who do not know each other run a blockchain-based network without a need for a central authority (Javaid et al., 2021). Furthermore, BCT's digital signature function suggests that to secure the validity and legitimacy of data transfers or transactions, a blockchain framework depends on public–private key encryption (Wang et al., 2022).

2.4. Digital online platforms for SMEs

Digital online platforms, such as Amazon, deliver several e-commerce variants, including business-to-business (B2B), business-to-consumer (B2C), and even consumer-to-consumer (C2C) (Pólvora et al., 2020b). Hundreds of thousands of SMEs, startups, and partners use Amazon Web Services to launch and scale up their companies. Such technological pioneers generate tremendous economic benefits, and with their inventions, they delight consumers. Jeff Bezos left his job at D. E. Shaw and founded Amazon in 1994 (Bezos and States, 2019). Amazon's website was released in July 1995, following a year of software development by a team of 10 staff. From the outset, Bezos's corporation concentrated on making e-commerce attractive, safe, and convenient for first-time internet shoppers.

The enterprise was not competitive until 2001, and it faced some financial challenges even after becoming profitable. Yet by the third quarter of 2016, it was the fourth most successful listed corporation in the United States. Amazon formally entered the Indian market on June 5, 2013, though its presence in the country was limited to serving as a pure marketplace, connecting domestic merchants with commercial customers. Amazon promotes SMEs as a fundamental component of its business and as extensions of its customer-centric culture.

However, it is not just SMEs listed on Amazon that are flourishing—Alibaba has provided another home for these shops. Where Amazon's model concentrates on assembling and merging disparate companies to collect rentals, Alibaba focuses its business strategy on matching, serving as a pure broker across most of its sites. Their approaches in these objectives are somewhat different: Amazon seeks to

create its own logistic network, while Alibaba depends on an extant network of external parties to function. Owing to the amount of data that Amazon and Alibaba have on both their customers and the goods listed on their websites, each business can generate value for external parties through data mining. Ultimately, taking a more dynamic viewpoint with in-depth insight into business model creativity may also be part of future strategies for these companies.

3. The proposed model of blockchain-driven SME global operations

This study proposes a blockchain-driven SME global operations framework by extending the SCOPE framework. This framework's main objective is to improve the international diversification of the SMEs' global market expansion policy. BCT can improve all facets of the market process, fully liberated from territorial boundaries such as operations, marketing, and financing (*Kimani* et al., *2020*).

In a post-COVID context, the velocity of SMEs' global operations is a crucial feature of international strategic decision-making and has become an important issue in expanding international markets. Because Indian SMEs have promise but are not technologically oriented, they must compete and survive in a competitive market. BCT can improve the relationship between SMEs' speed of global operations and their integrated business performance (IBP). There is insufficient literature focused on BCT-driven SME global operations. Consequently, there is a need for in-depth research on the BCT-driven SME global operations framework.

BCT can be transformative for the architecture, organization, processes, and strategic planning of SMEs' global operations (*Pólvora* et al., *2020a*). The capacity of blockchain-driven SMEs can guarantee information security, tracking, and validity, along with intelligent contractual partnerships for a trustless world. This requires a significant revisit of the global operations of SMEs' smart contracts that helps describe the relationship of network entities within the proposed framework (*Balasubramanian* et al., *2021*). Reliability and accountability help promote the transfer of content and information across the BCT-driven SMEs' global operations more efficiently (*Centobelli* et al., *2021*).

As a result, the suggested framework (Fig. 1) may pave the way for a wider shift away from an industrially robust, information-based, and custom-made economy. Contemplating the impact of BCT on SMEs' global operations helps one to identify in more depth the potential consequences on SMEs' global operations. The framework includes certifiers and standards bodies that check stakeholders' profiles and goods in real time. A significant aspect of BCT-driven SMEs' worldwide operations architecture is the disintermediation of financial agents, including payment networks, currency markets, and money transfer providers.

This study proposes three general outcomes of BCT use among SMEs: authenticity, transparency, and decentralization. The technology will minimize transaction costs, extend the reach of transactions, and enable peer-to-peer transfers. Through these advancements, it will provide a new framework for distributed SME global operations business models. The introduction of decentralized finance has contributed to this modern model, which leverages BCT to create an alternative financial structure that can be more transparent, disruptive, compatible, globalized, and transposable. Although various problems need to be tackled before it is widely deployed, BCT has historically enabled experiments with decentralized business structures among SMEs and technologists.

The key strength of BCT lies in its potential to securely verify, monitor, and share transactions with transparent and encrypted records. This ability enables global procurement, manufacturing, and distribution networks for SMEs. While the localization drivers of nations are the most significant influences on global commerce, BCT may help promote the safe sharing of company-specific funds in a dispersed manner by reducing risk. SMEs will now need to adjust their composition and governance structures to represent structural demands in various countries or reconfigure relationships (*Abubakar* et al., *2019*).

An Amazon and BCT-driven SME could offer a highly convenient service that connects public networks and builds and operates scalable private networks. Transparent, permanent, and cryptographically verifiable transaction logs are required under the proposed system, which must be administered entirely by a trusted decentralized authority. Therefore, an Amazon-connected and BCT-driven SME has several advantages: First, the transaction log could be used to keep track of every action; SMEs can easily construct blockchain networks across several AWS accounts, allowing a group of individuals to perform transactions and exchange data without the need for a centralized authority. Second, "Hyperledger Fabric" is well suited for applications that need strict privacy and authorization controls for a known group of users, while "Ethereum" is well suited for massively dispersed blockchain networks where data disclosure is necessary for all stakeholders. Third, as the number of registered users on the network increases, BCT-driven SMEs can quickly scale the network while maintaining security. Finally, BCT-driven SMEs increase the reliability of services, ensuring transaction distribution across the world.
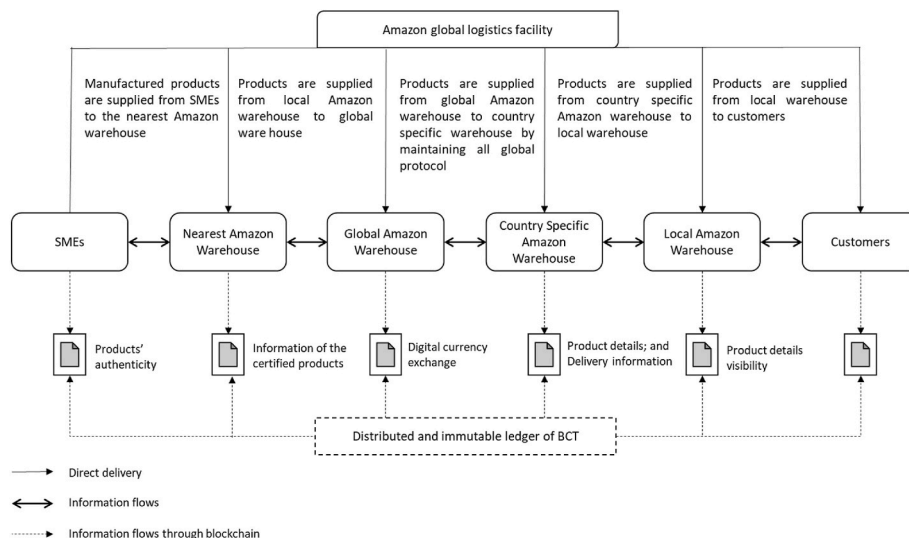

Fig. 1. Model of blockchain-driven SME global operations.

3.1. 3S Triangle Model for Amazon and BCT-driven SME global operations

Most managers have little or no understanding of the blockchain paradigm in the SME market. Therefore, they remain unaware of how its implementation could change their business. That creates a disconnect between the technology's advantages and presently available expertise levels. Based on the SCOPE theoretical framework and 5S Pentagon Model, this study introduces a modern and applicable 3S Triangle Model (Fig. 2) related to the Indian SME industry's context in successfully implementing BCT for global operations. That model provides a more in-depth view of the blockchain application and fixes concerns related to its implementation as an outcome at SMEs' organizational level.

Marketing capability (MCAP) is an SME feature at the boundary of internal and external environments. Particular importance has been given to MCAP across all SMEs, since marketing is a feature that bridges business processes and expectations. These advantages would make it easy for MCAP because they allow the business to use best practices to strengthen customer relationships.

4. Research framework and hypothesis development

This study aims to explore the impact of 'strategize', 'synergize', SMEs' IBP, and 'standardize' on SMEs' IBP in the international market based on blockchain-driven marketing capabilities (Fig. 3).

SMEs that use blockchain for MCAP *(Jin et al., 2018c)* will enjoy many advantages when implemented successfully due to greater transparency and increased speed and security. Additionally, by using BCT to simplify their global operations market processes, SMEs can achieve greater scale, scope, and productivity in operations.

This article first conceptualizes BCT for SME global operations as a direct approach to the international performance of global business operations for SMEs. Second, it recognizes and conceptualizes crucial antecedents to the growth of SMEs' global operations after thoroughly reviewing the literature and various case studies on BCT-driven strategies for SME global operations *(Ahluwalia* et al.*, 2020a)*. Later sections point to 'strategize', 'synergize', and 'standardize' with marketing capacity tested as necessary to grow the scale, scope, and financial performance-driven IBP of SMEs on a blockchain-coordinated network. They include discussion of the conceptual and theoretical aspects and the expected connections between these constructs (Table 2). Third, the article constructs and validates a model to describe the expected relationships among the antecedents of the influence of BCT on SME global operations. It draws on a comprehensive data set of BCT-driven SMEs to validate the model and related hypotheses. Finally, it reports on the original model results and the testing of hypotheses.

4.1. Strategize (STR)

This study adds to the existing literature in this field by helping to understand the decisions that go into marketing strategies in global market operations. Researchers describe strategic orientation as an organizational function that recognizes challenges, opportunities, and sustainable competitive advantage in guiding the progress of a business in light of the SCOPE framework and 5S Pentagon Model. Its impact on companies' IBP has been thoroughly studied (Paul, 2020). We assess the strategic orientation findings within the BCT-driven SME global operations literature to discuss strategic orientations advantageous to SME global operations (Paul and Mas, 2019). As the previous discussion shows, there is little understanding of how strategy formulation affects global business activities and global operations speed (Gancarczyk and Gancarczyk, 2018). Thus, the study attempts to address this research gap by investigating the strategic attitude toward market capability common to IBP. Regarding BCT-driven SME global operations, the following hypothesis is proposed:

H1. Firms' strategic orientation (Strategize) positively influences the marketing capability (MCAP)

4.2. Synergize (SYN)

SMEs must create differentiable significance in today's economic environment. To do so, a certain amount of synergy between the strategic plan and innovative technology is required. To merge or collaborate to be more productive—or to cause objects or individuals to do so—is to use synergy. Synergy is paramount in the twenty-first century for competitiveness. Increased competitiveness, constant volatility, transition, and complexity have driven businesses to accept creativity as a critical component of their overall strategy. As a result, researchers and practitioners have long debated how organizations might improve their synergies. The aim is to combine the capabilities of both SMEs to boost operating efficiency for customers.

Instead of diversifying into unrelated industries in the first decade after their creation, SMEs should synergize with other companies, concentrating on their aptitudes and core enterprises (Puthusserry et al., 2019). SMEs synergize the competitive options that organizations must accept (Puthusserry et al., 2019) and can opt for an international strategy to access both new customers and the vital production factor. SMEs synergize their tactics by extending into global markets with shorter psychological barriers to their respective home countries. In the case of BCT-driven SME global operations, the following is therefore hypothesized:

H2. SMEs synergize orientation (Synergize) positively influences the marketing capability (MCAP)

4.3. Standardize (STA)

SMEs typically operate via unstandardized laws and guidelines, creating industry confusion. To avoid uncertainty and increase market presence, SMEs must standardize their policies and procedures so that industry partners know exactly what to expect.

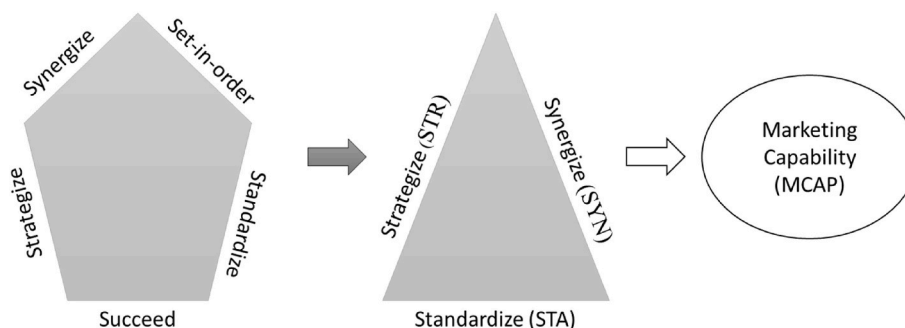There is mounting evidence that SMEs developing high-tech

Fig. 2. 3S Triangle Model modified from the SCOPE framework and 5S Pentagon Model.
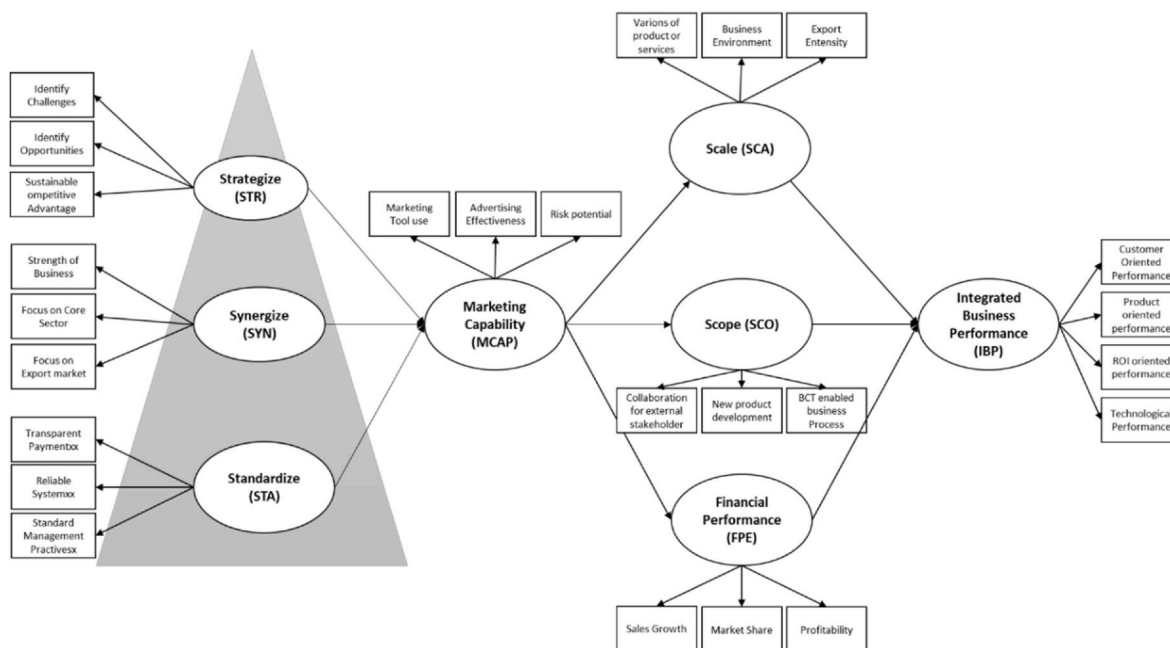
Fig. 3. Research framework.

Table 2
Development of constructs with item sources and year.

Constructs	Items	Sources & year
1. STR (Strategize)	Identify challenges	Paul (2020)
	Identify opportunities	Gancarczyk & Gancarczyk (2018)
	Sustainable competitive advantage	Paul & Mas (2019)
2. SYN (Synergize)	Strength of business	Paul (2020)
	Focus on core sector	Puthusserry et al. (2019)
	Focus on the export market	(Jin and Hurd, 2018)
3. STA (Standardize)	Transparent payment	Paul (2020)
	Reliable system	Abbasi et al. (2021)
	Global management practices	Jin et al. (2018)
4. MCAP (Marketing Capability)	Advertising effectiveness	(Jin et al., 2018c)
	Use of marketing tool Use	Martin & Javalgi (2016)
	Risk potential	Falahat et al. (2020a); Jean and Kim (2020)
5. SCA (Scale)	Variations of products or services	(Jin et al., 2018c)
	Export intensity	Owoseni & Twinomurinzi (2018)
	Greater Extent internationalize	(Khaskheli et al., 2017; Liñán et al., 2020)
6. SCO (Scope)	Collaboration for external stakeholder	(Jin et al., 2018c)
	New product/service development	Abubakar et al. (2019)
	BCT enabled business process	(Li et al., 2020; Hajli, 2015)
7. FPE (Financial Performance)	Sales growth	(Jin et al., 2018c)
	Market share	Park et al. (2020)
	Profitability	(Lopes de Sousa Jabbour et al., 2020)
8. IBP (Integrated Business Performance)	Customer-oriented	(Jin et al., 2018c)
	Product-oriented	Singh et al. (2019)
	ROI	Jin et al. (2018)
	Technological	Upadhyay (2020)

products can benefit from an integrated approach to BCT standardization. Yet SMEs may underestimate the importance of standardization, or they may see such it as merely an additional cost to be borne by them.

Standardization offers many advantages to Indian SMEs (Abbasi et al., 2021). The use of standards would allow them to minimize costs, boost their creative ability, and increase their productivity via transparent payments, reliable systems, and global management practices (Jin and Hurd, 2018). There are several institutes in India which are giving SMEs a great boost to organizational growth and development. The institutes comprise government agencies (e.g., Ministry of MSME) and business organizations (e.g., FISME, WASME, and others). The Indian Ministry of MSME encourages SMEs to participate in the standardizing process and ensures that Indian SMEs make a meaningful contribution to the standardization system. Thus, the following hypothesis is formulated:

H3. SMEs' standardization (Standardize) positively influences the marketing capability (MCAP)

4.4. Marketing capability (MCAP)

Entrepreneurial creativity, adaptability, efficacy, and fast decisions are specific strengths of SMEs, whereas large firms benefit from economies of scale, context, market knowledge, and capital and technological assets. Marketing capability measures businesses' ability to anticipate developments in the markets and alter their marketing behavior as a result (Falahat et al., 2020b; Jean & Kim, 2020).

Capability in this area is critical for a company's ability to generate financial revenue from the markets, and it is one of the top priorities for managers and stakeholders. A business possesses a set of capabilities across its whole range of operations (Lin et al., 2021). Among these competencies, marketing capability captures a firm's ability to maximize market performance through marketing resources such as salespeople, marketing, and customer relations (Patel et al., 2021). Due to its unique characteristics, such as inimitability and complexity, it is one of the most critical kinds of capability in the firm (Davcik et al., 2021). Marketing capability enables a business to achieve higher customer satisfaction and hence higher levels of loyalty, which translate into more predictable cash flows and customer retention (Sulistyo and Siyamtinah, 2016). For one, a firm with strong marketing skills is more likely to organically combine its core resources into a high level of operational complexity, which is difficult to replicate (Zhang and Zhu, 2021). For example, a high level of marketing competence results in increased social complexity, which entangles the business in a network of many

parties, including workers, channel members, key client groups, and third-party supporting organizations (Ren et al., 2015).

Furthermore, it has been discovered that MCAP is the main influence protecting an SME from threats, as an organization with a large MCAP can create significant sources and variability that suppress imitation operations from rivals (Falahat et al., 2020a). One study found that marketing capacity has a significant influence on SMEs' growth, value generation, and effective worldwide operations, particularly in combination with excellence in other areas (Jin et al., 2018c). Marketing helps to develop scale and scope and to achieve financial performance (Martin and Javalgi, 2016). Despite MCAP's importance, the literature lacks evidence of how SMEs' marketing capacities promote the global operations of their scale, scope, and financial results (Sun et al., 2021). It is critical to link these factors to MCAP because they are among the most important determinants of a firm's results. The theories listed above combine to form a solid foundation for developing the link between SCA, SCO, FPE, and MCAP. This connection can be seen in different ways. To begin, MCAP necessitates resource inputs. These advantages will aid firm MCAP by allowing the firm to use best practices to improve IBP. These considerations lead to the following hypotheses:

H4. Marketing capability positively influences the scale of SMEs' global operations

H5. Marketing capability positively influences the scope of SMEs' global operations

H6. Marketing capability positively influences the financial performance of SMEs' global operations

4.5. Scale (SCA)

With various attributes and operating in many industries, SMEs can scale up at different stages of their life cycles to take advantage of new market opportunities and strengthen their global competitiveness. Scaling-up SMEs are a competitive force that frequently contributes to increased aggregate productivity by ensuring the integration and upgrading of small businesses.

The study of SME global operations has used numerous methods to analyze the internationalization of a business. In this analysis, the company's international revenue scale is determined by the overseas sales ratio to overall sales (Jin et al., 2018c). The bigger the markets are, the more it is possible to maximize economies of scale (SCA). The further diversified the economies of scale are, the more diversified the preferred approach for SMEs' global operations is, and vice versa (Owoseni and Twinomurinzi, 2018). Typical future strengths of smart BCT-based SMEs include scale, entrepreneurial dynamism, reach, marketing expertise, versatility, productivity, and fast decision-making for financial and technical capital. In exchange, BCT-based marketing skills have dramatically increased global operations and increased Indian SMEs' financial efficiency (Khaskheli et al., 2017; Liňán et al., 2020). The business SCA is also believed to have significant positive impacts on IBP. These considerations lead to the following hypothesis:

H7. SMEs business scale positively influences the integrated business performance

4.6. Scope (SCO)

Industrial clusters are advantageous to firms largely because of the external economies of scale and scope that they provide. Businesses in the SME sector can receive assistance with upgrading through a variety of means. Both global customers and local export representatives can help to generate demand for SMEs' products that might otherwise go ignored. Clusters also provide for economies of size and breadth, as well as a strategy of concentration. A company's outer business models emerge in conjunction with the company's growth in size and breadth.

The scope (SCO) of a company's foreign operations is calculated by

the number of foreign countries it operates (Jin et al., 2018c). We monitor market diversification because business scope can affect the breadth of a business's information and therefore influence the MCAP of the company (Abubakar et al., 2019). Three specific levels are protected by supporting MCAP: international, national & local, and operational. Indeed, businesses in the SME sector must know the essential specifics and the scope of the IBP (Li et al., 2020; Hajli, 2015). These considerations lead to the following hypothesis:

H8. SMEs business scope positively influences the integrated business performance

4.7. Financial performance (FPE)

By using profitability measures, financial performance (FPE) measures were used to determine the financial capabilities of SMEs. According to this study, the adoption and implementation of BCT practices play an important role in positively shaping an SME's reputation, which leads to improved FPE and strategic advantage. The study will look at FPE using profitability metrics like return on investment, financial leverage, capital, gross profit, and net profit.

A primary measure of operational achievements for SMEs is FPE. Financial indicators will help analyze SMEs' financial conditions, so IBP includes financial metrics (Park et al., 2020). A strategic management method for conceptualizing and measuring IBP is output measurement. Financial data can be interpreted as an operating performance metric and a measure of potential FPE (Lopes de Sousa Jabbour et al., 2020). These considerations lead to the following hypothesis:

H9. SMEs financial performance positively influences the integrated business performance

4.8. Integrated business performance (IBP)

IBP is a taxonomy that was created to compare intra- and interorganizational performance. Performance is generally measured at the business level using four indicators: cost, time, quality, and flexibility. Frameworks for IBP driven by blockchain are developing with a variety of different endorsements (Jin and Hurd, 2018). They give SMEs excellent market prospects, promote technological creativity, improve productivity through the use of SCA, SCO, and FPE, and create widely sought-after, high-quality, consistent options for clients and customers (Singh et al., 2019). The IBP definition powered by blockchain implies that SMEs will contract to provide resources or functions on a convenient, secure schedule in the future (Upadhyay, 2020).

5. Methodology

An online survey tool was used to gather a sample by which to validate the suggested study model (Jardim et al., 2021). This section outlines the construct's measurements and describes the sample and the method for gathering data (Fiorentino and Bartolucci, 2021). The constructs used in this survey were adapted from existing studies to suit research context maintain content validity. The first section reviewed the literature on SMEs in India, Indian SMEs' global activities, the SCOPE framework, and Blockchain in SMEs (Bodlaj and Čater, 2022), and from it eight important constructs emerged: STR, SYN, STA, MCAP, SCA, SCO, FPE, and IBP (Zhang and Zhu, 2021). Alongside this review, 11 CEO interviews were performed to establish a new theory of the SME 3S Triangle Model. Research data were mostly derived from a questionnaire developed based on existing literature and was administered via email to senior managers at many high-tech SMEs in India over 8 months. The back-translation was verified and altered by outside scholars to ensure accurate identification of constructs.

Several methods were used to discuss propositions and maximize construct feasibility (Paul et al., 2021). First, each firm completed a standardized questionnaire survey. Second, a multi-company global

operations workshop was conducted with a few SMEs to hear more about their international expansion strategies. Third, issues that emerged during data processing were further explored via casual e-mails and brief phone calls. Finally, secondary data from company websites, fiscal reports, and news releases was used to analyze businesses' global operations practices and to explore future improvements in their incentive harvesting. Data sources were triangulated to minimize the possibility of unintended bias and account for individual decisions, thus raising the analysis's validity.

The survey measures' validity was developed by integrating recommendations from an active executive class with BCT and SME global operations research expertise. A pilot study with 11 successful SME global operations researchers was performed to ensure face validity. Participants were invited to complete the survey online and to make notes on possible problems relating to SMEs' BCT and global operations. They were also asked to provide suggestions for improving the survey's comprehensibility and readability. We made small adjustments based on their input and finalized the survey. The next step was to get 291 potential specialists from 43 SMEs with a mastery in SME global operations interested in participating. To guarantee that solitary specialists were represented in the sample, members with expert-level information on BCT and SME global operations were chosen and advised about the interview process and safeguarding of their data.

The Mann–Whitney *U* Test was used to screen for potential non-response bias. There were no considerable varieties ($p < 0.05$), and in this way, no non-response bias could be recognized when contrasting the distinctions accordingly with each of the 11 forecasts.

In this way, the overall study design relied on both qualitative and quantitative examination to think about (1) the impact of BCT on SMEs' global operations and (2) how Indian SMEs can utilize Amazon for Worldwide Market Tasks (Amazon, 2020). The design was organized across five stages (Fig. 4).

5.1. Data sample

The sample size constrains the outcome of this work. Due to limited resources (and the low number of high-tech SMEs in India relative to other parts of the world), only feedback from 291 target interviewees across 43 high-tech SMEs was collected. The limited sample size may result in a skewed outcome, or a less generalizable understanding of the state of BCT for SME global operations. However, it was not easy to get further interviewees, as many employers did not encourage them to provide additional details. In comparison, it was customary not to provide details that may, directly and indirectly, affect their companies in the SME market. Future studies should target more interviewees of different experiences and expand the industry sectors as well.

Demographic Analysis: In the preliminary study, 52 (17.87%) of the female respondents and 239 (82.13%) were male CEOs/marketers/ managers of SMEs from the comprehensive survey, suggesting that at the managerial level, this segment is male dominated. A full 156 (53.60%) were aged 25 years or below, 90 (30.93%) were aged 26–35 years, 27 (9.28%) were aged 36–45 years, and 18 (6.19%) were 46 years or older. Regarding education, 199 (68.38%) of the participants had earned a bachelor's degree and beyond, while 41 (14.09%) had only a bachelor's degree, and 51 (17.53%) were professionally qualified. Table 3 summarizes the main demographic profile of respondents.

6. Results

This section is organized into three sub-sections: The first presents a confirmatory factors analysis (CFA) that seeks to determine the appropriateness and fit of the proposed relationship structure between the observed constructs, while considering latent variables. The second discusses the multiple regression models. Supplementary analysis using structural equation modeling (SEM) is given in the last subsection. SEM
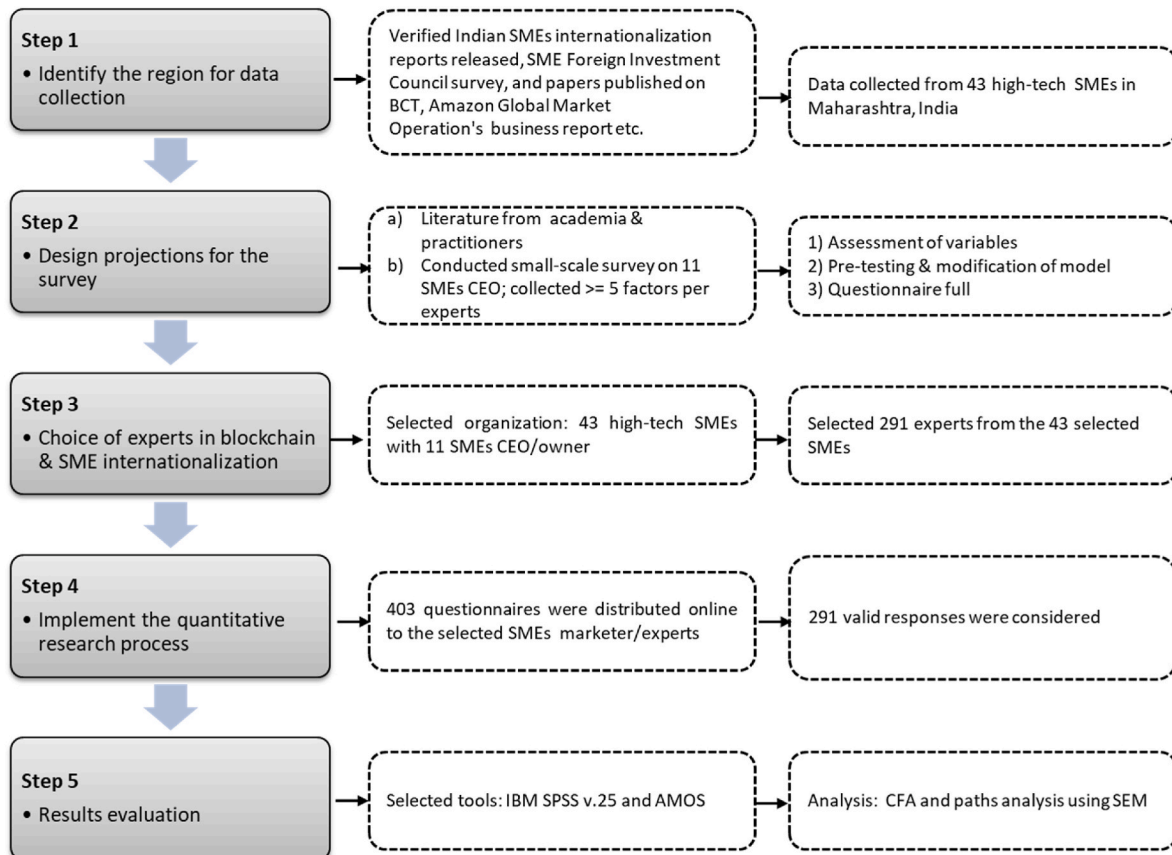

Fig. 4. The study design procedure.

Table 3
Demographic details of the Respondents.

Attribute	Alternatives	Cumulative Frequency	Percent (%)
Gender	Male	239	82.13
	Female	52	17.87
Qualifications	Under Bachelor's Degree	41	14.09
	Bachelor's Degree and above	199	68.38
	Professional Degree	51	17.53
Age (in years)	25 year or under	156	53.60
	26–35 years	90	30.93
	36–45 years	27	09.28
	46 and above	18	6.19
SME's Age	5 years and less	10	23.26
	6–10 years	27	62.79
	More than 10 years	06	13.95
Volume of Employees	1-20 employees	14	32.56
	21-50 employees	23	53.49
	More than 50 employees	06	13.95
Responsibility of the company	SMEs Owner/CEO	9	20.93
	SMEs Marketer	24	55.81
	Other Employee	10	23.26

seeks to resolve the outcomes of multiple regressions that affirm the different constructs' marginal position in IBP's interpretation. In this way, the potential relationships between STR, SYN, STA, MCAP, SCA, SCO, FPE, and IBP are estimated and then established by SEM models.

6.1. The measurement model evaluation

The information learned from separate respondents has been checked for normality. The skewness is within the spectrum of ±3, and for all variables observed, kurtosis is within ±10. A high-shared variation and a comparatively low uniqueness of variance were shown by the Kaiser-Meyer-Olkin (KMO) sampling adequacy test (0.898). Bartlett's test for Sphericity (Chi-square = 6941.067, df = 300) (Bentler, 1990) is firmly validated. The sample size adequacy verifies the appropriateness of performing Factor Analysis on these data. To ascertain relationships between measurable variables and factors, confirmatory factor analysis

(CFA) was applied. The Cronbach's alpha was measured for all constructs and substantial, as it is greater than 0.7—this confirms reliability. The minimum number of items for each construct should be three when testing CFA, and all approximate standard loadings were greater than 0.70, and the Average Variance Extracted (AVE) exceeded the recommended level of 0.5 for all constructs, indicating strong convergent validity. Moreover, each construct's Composite Reliability (CR) is greater than 0.70 (Table 4) (Hair et al., 2016).

Comparative fit index (CFI) brings up a decent fit score of 0.983 by matching the standard value with the goodness of fit index (GFI) at 0.866; it is marginally lower than the recommended scale of 0.90. The root mean square approximation error (RMSEA) is 0.040, showing data consistency and great fit. The CMIN/DFI measured value is 1.460, indicating a good match for the model. The AGFI (0.884), RMSEA (0.040) (Byrne, 2013), TLI (0.980) (Kline, 2016), CFI (0.983), IFI (0.984) (Hooper et al., 2008), PNFI (0.782), and PGFI (0.693) values indicate that the proposed model is statistically acceptable, as the corresponding values of these parameters are greater than or rather similar to the suggested set of good-fit parameters.

6.2. The structural model evaluation

A structural model was hypothesized for this study (Fig. 4) based on the field study and CFA findings. The model was evaluated using Moment Structures Analysis (AMOS). The structural model provided in Fig. 5 is tested first and then used in experiments with SEM.

Comparative fit index (CFI) brings up a decent fit score of 0.951 by matching the standard value, with the goodness of fit index (GFI) at 0.858—marginally lower than the recommended scale of 0.90. The root mean square approximation error (RMSEA) is 0.066, which shows data consistency and a great fit. The CMIN/DFI measured value is 2.273, indicating a good match for the model. The AGFI (0.824), RMSEA (0.066), TLI (0.944), CFI (0.951), IFI (0.952), PNFI (0.804), and PGFI (0.694) values indicate that the proposed model is statistically acceptable, as the corresponding values of these parameters are more significant than or somewhat similar to the suggested set of good fit parameters (Table 5).
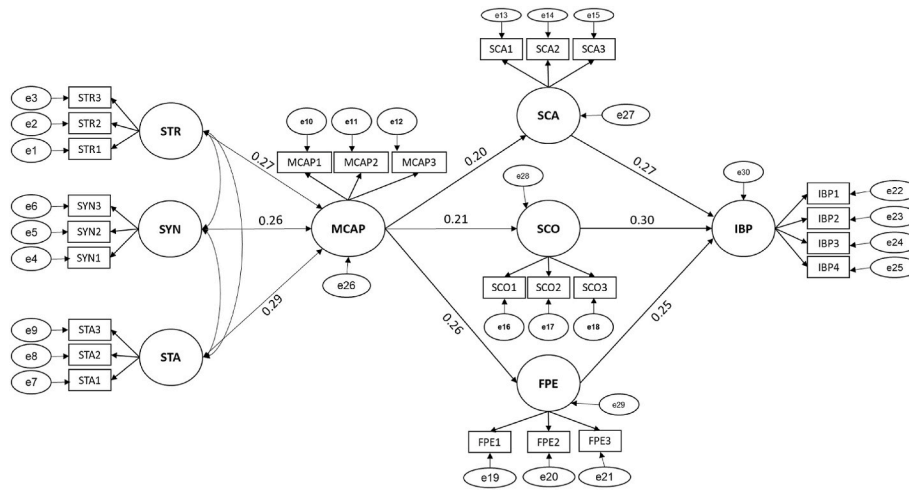
Table 4
Result of confirmatory factor analysis, composite reliability (CR), and average variance extracted (AVE).

Items	Skewness	Kurtosis	Factor Loading	Constructs	α*	AVE	CR
STR1	−1.615	1.324	0.928	STR	0.944	0.850	0.850
STR2	−1.552	1.255	0.917				
STR3	−1.539	1.147	0.922				
SYN1	−1.512	0.934	0.890	SYN	0.939	0.838	0.940
SYN2	−1.555	1.16	0.915				
SYN3	−1.55	1.205	0.941				
STA1	−1.162	0	0.866	STA	0.926	0.811	0.928
STA2	−1.443	0.798	0.918				
STA3	−1.28	0.43	0.916				
MCAP1	−1.068	−0.493	0.924	MCAP	0.918	0.793	0.920
MCAP2	−1.071	−0.347	0.916				
MCAP3	−0.95	−0.565	0.829				
SCA1	−1.743	2.104	0.934	SCA	0.930	0.817	0.930
SCA2	−1.63	1.874	0.868				
SCA3	−1.85	2.55	0.908				
SCO1	−1.633	1.531	0.887	SCO	0.920	0.796	0.921
SCO2	−1.663	1.853	0.881				
SCO3	−1.652	1.763	0.908				
FPE1	−1.38	0.955	0.853	FPE	0.874	0.700	0.875
FPE2	−1.111	0.308	0.850				
FPE3	−1.642	1.54	0.806				
IBP1	−0.773	−0.85	0.908	IBP	0.951	0.831	0.952
IBP2	−0.95	−0.454	0.918				
IBP3	−0.758	−0.706	0.917				
IBP4	−0.802	−0.654	0.907				

α* = Cronbach's Coefficient.

Fig. 5. A comprehensive structural equation modeling for SME global operations.

Table 5
Structural model results.

Hypothesis	Structural Equations	Coefficients (β)	t-value	p-value	Result
H1	STR → MCAP	0.273	4.650	***	Supported
H2	SYN → MCAP	0.264	3.413	***	Supported
H3	STA → MCAP	0.295	3.753	***	Supported
H4	MCAP → SCA	0.204	3.293	***	Supported
H5	MCAP → SCO	0.207	3.305	***	Supported
H6	MCAP → FPE	0.259	4.062	***	Supported
H7	SCA → IBP	0.274	4.885	***	Supported
H8	SCO → IBP	0.302	5.301	***	Supported
H9	FPE → IBP	0.249	4.279	***	Supported

Notes: *** Significance level: $p < 0.001$.

6.3. Path analysis

The path analysis procedure aided in analysis of the correlation between key factors (STR, SYN, STA, MCAP, SCA, SCO, and FPE) influencing IBP. SEM was used to test nine hypotheses about the effects of the STR, SYN, STA, MCAP, SCA, SCO, FPE, and IBP in this study. The relationship between STR, SYN, STA, MCAP, SCA, SCO, FPE, and IBP is summarized below.

i) Hypothesis 1 states that strategize (STR) positively affects marketing capability (MCAP) for SMEs' IBP. The standardized coefficients (β) of STR and MCAP are 0.273, the t-value is 4.650, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

ii) Hypothesis 2 states that synergize (SYN) positively affects marketing capability (MCAP) for SMEs' IBP. The standardized coefficients (β) of SYN and MCAP are 0.264, the *t*-value is 3.413, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

iii) Hypothesis 3 suggests that standardize (STA) has a positive effect on marketing capability (MCAP) for SMEs' IBP. The standardized coefficients (β) of STA and MCAP are 0.295, the *t*-value is 3.753, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

iv) Hypothesis 4 suggests that marketing capability (MCAP) positively affects scale (SCA) for SMEs' IBP. The standardized coefficients (β) of MCAP and SCA are 0.204, the *t*-value is 3.293, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

v) Hypothesis 5 suggests that marketing capability (MCAP) positively affects scope (SCO) for SMEs' IBP. The standardized coefficients (β) of MCAP and SCO are 0.207, the *t*-value is 3.305, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

vi) Hypothesis 6 suggests that marketing capability (MCAP) positively affects financial performance (FPE) for SMEs' IBP. The standardized coefficients (β) of MCAP and FPE are 0.259, the *t*-value is 4.062, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

vii) Hypothesis 7 suggests that scale (SCA) positively affects IBP. The standardized coefficients (β) of SCA and IBP are 0.274, the *t*-value is 4.885, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

viii) Hypothesis 8 suggests that scope (SCO) positively affects IBP. The standardized coefficients (β) of SCO and IBP are 0.302, the *t*-value is 5.301, $p < 0.001$, indicating statistical significance. The results support this hypothesis.

ix) Hypothesis 9 suggests that financial performance (FPE) positively affects IBP. The standardized coefficients (β) of FPE and IBP are 0.249, the *t*-value is 4.279, and $p < 0.001$, indicating statistical significance. The results support this hypothesis.

7. Discussion and conclusions

The findings provide deeper knowledge about SMEs' global operations and corporate ventures with Amazon. The research examines whether and how BCT-driven 3S Triangle Model frameworks for SMEs' global operations help them develop MCAP and IBP. As the analysis suggests, engagement with Amazon and BCT enables firms to develop their marketing capabilities by identifying, evaluating, and exploiting opportunities in the global market. Looking more closely at how SMEs interact with Amazon, we discovered that external SMEs engaging in Amazon-related ventures contribute to all phases of MCAP and IBP for international SMEs. We examined and evaluated the consequences of internationalization—a strategy used by SMEs—on firm performance. The internationalization of SMEs is likely to accelerate further as the global economy continues to integrate due to continuous reductions in government-imposed obstacles and advancements in technology (Soni et al., 2021). The study discovers that utilizing Indian Amazon benefits BCT-driven operations in worldwide SMEs. Its theoretical approach is substantiated by empirical studies that account for variables that may impact IBP.

The structural model findings indicated a strong association between MCAP and IBP and the BCT-based 3S Triangle Model. The use of Amazon

on SMEs' MCAP was widely related to SMEs' global operations in this study. SCA, SCO, and FPE have similar impacts on the IBP behavioral responses of SMEs. Although the two models (BCT-based 3S Triangle Model and BCT-based Amazon) are different, they are related to one another based on SMEs' global operations. Additionally, a few unexpected results are notable. In comparison to the theorized 3S Triangle Model, IBP had a statistically significant impact on SME expectations of global business operations.

The research presents how BCT platforms could affect international market entrance for Indian SMEs through Amazon Web Services. BCT's speed, low cost, and strong usability, reliability, and transparency characteristics have expanded the globalization of business. By encouraging anybody, anywhere in the world, to invest in SMEs created by team members residing in many countries, BCT has unexpectedly shaken the entire financing and investment structure. Yet despite BCT's many advantages, it is not yet widely adopted in many industrial sectors, especially among SMEs. The use of BCT in different industries has piqued researchers' interest in recent years. Combining BCT and SME global operations, a trustworthy partnership can be effectively formed between all parties in Indian SMEs and international business operations. Taking all of this into consideration, this study contributes significantly to the BCT-based SME global operations literature. In the context of Indian SMEs, this study examines how the BCT-based 3S Triangle Model affects the IBP of a firm's international expansion by Amazon. Second, it demonstrates how the 3S Triangle Model is extracted from the 5S Pentagon Model and SCOPE framework and their effect on MCAP. Finally, we look at Amazon's position in IBP and the global operations of Indian SMEs.

The research was carried out to answer the aforementioned research questions. To address RQ1, the Structure and 5S Pentagon Model were studied to present a detailed perspective of marketing capacity and IBP in relation to businesses, exploring the applicability of blockchain to their global operations. In response to RQ2, BCT-derived observations were used to explain the entry of Indian SMEs into the international market. The insights obtained from BCT were used to explore potential IBPs for SMEs in the context of global business operations agendas that research may address in response to RQ3. The results make valuable literature contributions and have many implications for both theory and practice.

As is the case with any study, certain constraints may impede generalizability. While Asian countries share a common systemic framework for policymaking, a single-country sample of SMEs may introduce bias into perceptions, as BCT spending and procurement practices vary between countries. Additionally, it should be noted that because significant corporations were omitted from this investigation, the conclusions cannot be generalized to their entire workforce. A larger sample size may generate more reliable data.

The size of a company does not determine its potential for global operations or advancement. As a result, multinational and innovation-driven SMEs constitute a core sector of many global economies. Enterprises and institutions helping Indian SMEs must accept BCT's introduction in SME global operations and aid Indian SMEs—many of which are at a crossroads— to progress in global business operations. International business operations are a way forward for Indian SMEs and the growth of the Indian economy overall; however, few active SMEs have adopted BCT intentionally or reflected on how the technology can aid their development in international markets. Additional studies can be done to evaluate the introduction of BCT and its effects on international business operations.

7.1. Theoretical implications

The study's findings make numerous references to worldwide business and policy literature on SMEs. They derive the current perspective of MCAPs STR, SYN, and STA roles in the international market for SMEs using the SCOPE framework and 5S Pentagon Model. However, the experimental investigation of this assumption is not theoretically consistent. By empirically testing the role of STR, SYN, and STA in driving SMEs' MCAP, empirical analysis (especially Hypotheses 1–3) extends this notion. It also gives a more comprehensive view of the role MCAP plays in international business activities. Secondly, provided that the sample consisted of SMEs, the study's findings contribute to the SCA, SCO, and FPE literature by demonstrating that the proposed integrated model is relevant not just to large businesses, but also to SMEs that have been rapidly globalizing. Third, by selecting SMEs within India's Single Industrialized Economies, the research adds to the BCT for SME international business literature. Finally, by describing STR, SYN, and STA as catalysts for MCAP, IBP, and the acceptance of BCT in increasingly internationalizing companies, we connect to the SCOPE framework and 5S Pentagon Model.

7.2. Practical implications

A literature analysis of IBP in SMEs reveals that the key contributions concentrate on creating theoretical models but not practical implementation guidance (Lim and Pan, 2021). BCT developments and communication technology upgrades have resulted in SMEs' opportunities to compete in emerging and developed countries' foreign markets (Nielsen et al., 2020). Improvements in the use of resources make it easier, throughout the day, to market a variety of goods and services from anywhere in the world (Alnafrah and Mouselli, 2021). This paper illustrates directions in which Indian SMEs can become competent. We propose a theoretical rationale for advancing blockchain applications in SME global operations. The key features of blockchains that lead to application designers' different choices are cost, efficiency, transparency, reliability, and security. Public blockchain costs fluctuate rapidly; enterprise providers for SMEs need to monitor their transactions and budgets closely. Considering the estimated number of transactions, the rates need to be fair. Different security, artificial intelligence, sensing, networking, and cloud-storage technology will complement blockchain to create productive business operations for SMEs battling COVID-19 (Kamble et al., 2021).

7.3. Technological implications

This exploratory paper demonstrates how BCT can significantly affect SMEs' global business activity functions via Amazon. First, it reaffirms the SMEs' steady shift away from their conventional finance role toward a more strategically controlled corporate entity (Kowalski et al., 2021). Second, emerging BCT possibilities for SME's business process automation are discussed, alongside evidence of how these innovations will reshape financing, accounting, and auditing systems in the coming years. Furthermore, this study adds to the current literature on blockchain-enabled integrated market ecosystems and their effect on SMEs' global operations. It emphasizes the importance of combining various innovations, such as artificial intelligence and big data, to reach a high automation level in these environments (Bischi et al., 2021). It is concluded that BCT significantly boosts a range of success metrics related to SME internalization (Fiorentino and Bartolucci, 2021).

7.4. Managerial implications

This analysis may also be of practical benefit to industry-based researchers who wish to expand the existing body of information further. The study presents a few practical repercussions for managers and organizational decision-makers who wish to promote the introduction and acceptance of BCT in SME global operations (Ahluwalia et al., 2020b). The findings can enable managers to better understand the interrelationship of BCT, SME global operations, and Indian SMEs' use of Amazon for Global Business Operations in a BCT context. There is substantial evidence regarding decision-makers' actions and the interaction between BCT and IBP.

Development in SMEs may well entail preparation, commitment, and work in initial phases. Establishing and enhancing BCT-driven standard practices is also often a crucial factor in the development of SMEs (Dutta et al., 2020). Duties must be delegated to enable efficient utilization of all resources—staff, services, equipment, capital, authority and duty matrix, and use of the BCT system—which will help minimize the influence of SMEs' dynamics (Rachana Harish et al., 2021). Planning well in advance and creating an action plan can help SMEs in this effort (Raj Kumar Reddy et al., 2021).

The essential purpose of this research was to explore BCT's effects through the SCOPE model's theoretical lens for SME global operations via Amazon. The investigation was limited by BCT's embryonic state and application in SMEs at present. This raises two points: (i) further analytical studies are required to assess the regulatory consequences of scalability for SMEs, and (ii) the critical efficiency problems, hidden capacity, and long-term importance of global supply chains for SMEs need to be analyzed empirically and their deficiencies discussed.

While the blockchain can validate obtained sensor data, it cannot detect previously compromised data that have been altered. Researchers must define strategies for detecting corrupted data before analyzing and registering on the ledger to effectively combine BCT and artificial intelligence. This raises two points: First, understanding SME auditors to consider the degree of acceptability and tolerance to different forms of financial technology, like blockchains and cryptocurrencies, should be discussed in future studies. Second, as the implementation of BCT will also impact the quality of financial reporting, it will be essential to unravel these effects across the various jurisdictions of SMEs. This study provides useful lessons for investigators, who can work to resolve these limitations in the future while advancing the objectives suggested in this study.

References

Anna Abbasi, K., Alam, A., Du, M., Huynh, T.L.D., 2021. FinTech, SME efficiency and national culture: evidence from OECD countries. Technol. Forecast. Soc. Change 163, 120454. https://doi.org/10.1016/j.techfore.2020.120454.

Abubakar, Y.A., Hand, C., Smallbone, D., Saridakis, G., 2019. What specific modes of internationalization influence SME innovation in Sub-Saharan least developed countries (LDCs)? May Technovation 79, 56–70. https://doi.org/10.1016/j.technovation.2018.05.004.

Adomako, S., Amankwah-Amoah, J., Tarba, S.Y., Khan, Z., 2021. Perceived corruption, business process digitization, and SMEs' degree of internationalization in sub-Saharan Africa. September 2020 J. Bus. Res. 123, 196–207. https://doi.org/10.1016/j.jbusres.2020.09.065.

Ahluwalia, S., Mahto, R.V., Guerrero, M., 2020a. Blockchain technology and startup financing: a transaction cost economics perspective. February Technol. Forecast. Soc. Change 151, 119854. https://doi.org/10.1016/j.techfore.2019.119854.

Ahluwalia, S., Mahto, R.V., Guerrero, M., 2020b. Blockchain technology and startup financing: a transaction cost economics perspective. Technol. Forecast. Soc. Change 151, 119854. https://doi.org/10.1016/j.techfore.2019.119854.

Alaassar, A., Mention, A.-L., Aas, T.H., 2021. Exploring a new incubation model for FinTechs: regulatory sandboxes. xxxx Technovation 102237. https://doi.org/10.1016/j.technovation.2021.102237.

Alnafrah, I., Mouselli, S., 2021. Revitalizing blockchain technology potentials for smooth academic records management and verification in low-income countries. Int. J. Educ. Dev. 85, 102460. https://doi.org/10.1016/j.ijedudev.2021.102460.

Amazon, 2020. Small Business Success in Challenging Times 2020 AMAZON SMB IMPACT REPORT.

Balasubramanian, S., Shukla, V., Sethi, J.S., Islam, N., Saloum, R., 2021. A readiness assessment framework for Blockchain adoption: a healthcare case study. Technol. Forecast. Soc. Change 165, 120536. https://doi.org/10.1016/j.techfore.2020.120536.

Bentler, P., 1990. Comparative fit indices in structural models permalink. Psychol. Bull. 107 (2), 238–246.

Bezos, J., States, U., 2019. Amazon.com, 2019. Harvard Business Review. October, 2019.

Bischi, A., Basile, M., Poli, D., Vallati, C., Miliani, F., Caposciutti, G., Desideri, U., 2021. Enabling low-voltage, peer-to-peer, quasi-real-time electricity markets through consortium blockchains. Appl. Energy 288, 116365. https://doi.org/10.1016/j.apenergy.2020.116365.

Bodlaj, M., Čater, B., 2022. Responsive and proactive market orientation in relation to SMEs' export venture performance: the mediating role of marketing capabilities. J. Bus. Res. 138, 256–265. https://doi.org/10.1016/j.jbusres.2021.09.034.

Byrne, B.M., 2013. Structural Equation Modeling with EQS. https://doi.org/10.4324/9780203726532.

Centobelli, P., Cerchione, R., Esposito, E., Oropallo, E., 2021. Surfing blockchain wave, or drowning? Shaping the future of distributed ledgers and decentralized technologies. April Technol. Forecast. Soc. Change 165, 120463. https://doi.org/10.1016/j.techfore.2020.120463.

Chowdhury, M., 2018. SME Productivity in the Era of Blockchain Disruption. In: Paper presented at the International Conference on Digital, Innovation, Entrepreneurship and Financing. INSEEC University, Lyon, France. June 11 to 12, 2018.

Davcik, N.S., Cardinali, S., Sharma, P., Cedrola, E., 2021. Exploring the role of international R&D activities in the impact of technological and marketing capabilities on SMEs' performance. J. Bus. Res. 128, 650–660. https://doi.org/10.1016/j.jbusres.2020.04.042.

de Villiers, C., Kuruppu, S., Dissanayake, D., 2020. A (new) role for business—promoting the United Nations' Sustainable Development Goals through the internet-of-things and blockchain technology. November J. Bus. Res.. https://doi.org/10.1016/j.jbusres.2020.11.066.

Dutta, P., Choi, T.-M., Somani, S., Butala, R., 2020. Blockchain technology in supply chain operations: applications, challenges and research opportunities. Transport. Res. E Logist. Transport. Rev. 142, 102067. https://doi.org/10.1016/j.tre.2020.102067.

Dutta, S., Saini, K., 2021. Statistical assessment of hybrid blockchain for SME sector. WSEAS Trans. Syst. Control 16, 83–95. https://doi.org/10.37394/23203.2021.16.6.

Falahat, M., Ramayah, T., Soto-Acosta, P., Lee, Y.-Y., 2020a. SMEs internationalization: the role of product innovation, market intelligence, pricing and marketing communication capabilities as drivers of SMEs' international performance. Technol. Forecast. Soc. Change 152, 119908. https://doi.org/10.1016/j.techfore.2020.119908.

Falahat, M., Ramayah, T., Soto-Acosta, P., Lee, Y.Y., 2020b. SMEs internationalization: the role of product innovation, market intelligence, pricing and marketing communication capabilities as drivers of SMEs' international performance. November 2019 Technol. Forecast. Soc. Change 152, 119908. https://doi.org/10.1016/j.techfore.2020.119908.

Fiorentino, S., Bartolucci, S., 2021. Blockchain-based smart contracts as new governance tools for the sharing economy. Cities 117, 103325. https://doi.org/10.1016/j.cities.2021.103325.

Gancarczyk, M., Gancarczyk, J., 2018. Proactive international strategies of cluster SMEs. Eur. Manag. J. 36 (1), 59–70. https://doi.org/10.1016/j.emj.2017.03.002.

Gherghina, S.C., Botezatu, M.A., Hosszu, A., Simionescu, L.N., 2020. Small and medium-sized enterprises (SMEs): the engine of economic growth through investments and innovation. Sustainability 12 (1). https://doi.org/10.3390/SU12010347.

Hair, J., Anderson, R., Black, B., Barry, B., 2016. Multivariate Data Analysis - Joseph Hair, Rolph Anderson, Bill Black. Barry Babin - Google Books, seventh ed. Pearson Education.

Hajli, N., 2015. Social commerce constructs and consumer's intention to buy. Int. J. Inf. Manag. 35 (2), 183–191. Retrieved from. http://10.0.3.248/j.ijinfomgt.2014.12.005%0Ahttp://libaccess.sjlibrary.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=lls&AN=100945878&site=ehost-live&scope=site.

Hooper, D., Coughlan, J., Mullen, M.R., Mullen, J., Hooper, D., Coughlan, J., Mullen, M.R., 2008. Structural equation modelling : guidelines for determining model fit structural equation modelling : guidelines for determining model fit. In: Dublin Institute of Technology ARROW @ DIT, 6, pp. 53–60, 1.

Ilbiz, E., Durst, S., 2019. The appropriation of blockchain for small and medium-sized enterprises. J. Innov. Manag. 7 (1), 26–45. https://doi.org/10.24840/2183-0606_007.001_0004.

Islam, N., Marinakis, Y., Olson, S., White, R., Walsh, S., 2021. Is BlockChain mining profitable in the long run. January IEEE Trans. Eng. Manag. 1–14. https://doi.org/10.1109/TEM.2020.3045774.

Jardim, L., Pranto, S., Ruivo, P., Oliveira, T., 2021. What are the main drivers of Blockchain Adoption within Supply Chain?—an exploratory research. Procedia Comput. Sci. 181, 495–502. https://doi.org/10.1016/j.procs.2021.01.195.

Javaid, M., Haleem, A., Pratap Singh, R., Khan, S., Suman, R., 2021. Blockchain technology applications for Industry 4.0: a literature-based review. Blockchain: Res. Appl. 100027. https://doi.org/10.1016/j.bcra.2021.100027.

Jin, B., Jung, S., Jeong, S.W., 2018. Dimensional effects of Korean SME's entrepreneurial orientation on internationalization and performance: the mediating role of marketing capability. Int. Enterpren. Manag. J. 14 (1), 195–215. https://doi.org/10.1007/s11365-017-0457-4.

Jean, R-J., Kim, D., 2020. Internet and SMEs' internationalization: The role of platform and website. J. Int. Manag. 26 (1), 100690.

Jin, H., Hurd, F., 2018. Exploring the impact of digital platforms on SME internationalization: New Zealand SMEs use of the Alibaba platform for Chinese market entry. J. Asia Pac. Bus. 19 (2), 72–95. https://doi.org/10.1080/10599231.2018.1453743.

Kamble, S.S., Gunasekaran, A., Kumar, V., Belhadi, A., Foropon, C., 2021. A machine learning based approach for predicting blockchain adoption in supply Chain. Technol. Forecast. Soc. Change 163, 120465. https://doi.org/10.1016/j.techfore.2020.120465.

Khaskheli, A., Jun, Y., Ahmed Bhuiyan, M., 2017. M-commerce and mobile apps: opportunities for SMEs in developing countries. J. Int. Bus. Res. Market. 2 (2), 20–23. https://doi.org/10.18775/jibrm.1849-8558.2015.22.3003.

Kimani, D., Adams, K., Attah-Boakye, R., Ullah, S., Frecknall-Hughes, J., Kim, J., 2020. Blockchain, business and the fourth industrial revolution: whence, whither, wherefore and how? May Technol. Forecast. Soc. Change 161, 120254. https://doi.org/10.1016/j.techfore.2020.120254.

Kline, R.B., 2016. Principles and Practice of Structural Equation Modeling. Fourth Edition - Rex B. Kline - Google Books, fourth ed. The Guilford Press, New York.

Kowalski, M., Lee, Z.W.Y., Chan, T.K.H., 2021. Blockchain technology and trust relationships in trade finance. Technol. Forecast. Soc. Change 166, 120641. https://doi.org/10.1016/j.techfore.2021.120641.

Li, M., Shao, S., Ye, Q., Xu, G., Huang, G.Q., 2020. Blockchain-enabled logistics finance execution platform for capital-constrained E-commerce retail. February Robot. Comput. Integrated Manuf. 65, 101962. https://doi.org/10.1016/j.rcim.2020.101962.

Lim, A., Pan, E., 2021. 'Toward a global social contract for trade' - a rawlsian approach to blockchain systems design and responsible trade facilitation in the New Bretton Woods era. J. Respons. Technol. 6, 100011. https://doi.org/10.1016/j.jrt.2021.100011.

Lin, W.L., Ho, J.A., Sambasivan, M., Yip, N., Mohamed, A. Bin, 2021. Influence of green innovation strategy on brand value: the role of marketing capability and R&D intensity. Technol. Forecast. Soc. Change 171, 120946. https://doi.org/10.1016/J.TECHFORE.2021.120946.

Liñán, F., Paul, J., Fayolle, A., 2020. SMEs and entrepreneurship in the era of globalization: advances and theoretical approaches. Small Bus. Econ. 55 (3), 695–703. https://doi.org/10.1007/s11187-019-00180-7.

Liu, X.L., Wang, W.M., Guo, H., Barenji, A.V., Li, Z., Huang, G.Q., 2020. Industrial blockchain based framework for product lifecycle management in industry 4.0. October 2019 Robot. Comput. Integrated Manuf. 63, 101897. https://doi.org/10.1016/j.rcim.2019.101897.

Lohmer, J., Lasch, R., 2020. Blockchain in operations management and manufacturing: potential and barriers. March Comput. Ind. Eng. 149, 106789. https://doi.org/10.1016/j.cie.2020.106789.

Lopes de Sousa Jabbour, A.B., Ndubisi, N.O., Roman Pais Seles, B.M., 2020. Sustainable development in Asian manufacturing SMEs: progress and directions. Int. J. Prod. Econ. 225, 107567. https://doi.org/10.1016/j.ijpe.2019.107567.

Martin, S.L., Javalgi, R.R.G., 2016. Entrepreneurial orientation, marketing capabilities and performance: the moderating role of competitive intensity on Latin American international new ventures. J. Bus. Res. 69 (6), 2040–2051. https://doi.org/10.1016/j.jbusres.2015.10.149.

Merugula, S., Dinesh, G., Kathiravan, M., Das, G., Nandankar, P., Karanam, S.R., 2021. Study of Blockchain Technology in Empowering the SME. Proceedings - International Conference on Artificial Intelligence and Smart Systems, ICAIS 2021, pp. 758–765. https://doi.org/10.1109/ICAIS50930.2021.9395831.

Nielsen, C.P., da Silva, E.R., Yu, F., 2020. Digital twins and blockchain—proof of concept. Procedia CIRP 93, 251–255. https://doi.org/10.1016/j.procir.2020.04.104.

O'Dwyer, M., Gilmore, A., 2018. Value and alliance capability and the formation of strategic alliances in SMEs: the impact of customer orientation and resource optimisation. June J. Bus. Res. 87, 58–68. https://doi.org/10.1016/j.jbusres.2018.02.020.

Orji, I.J., Kusi-Sarpong, S., Huang, S., Vazquez-Brust, D., 2020. Evaluating the factors that influence blockchain adoption in the freight logistics industry. June 2019 Transport. Res. E Logist. Transport. Rev. 141, 102025. https://doi.org/10.1016/j.tre.2020.102025.

Owoseni, A., Twinomurinzi, H., 2018. Mobile apps usage and dynamic capabilities: a structural equation model of SMEs in Lagos, Nigeria. Telematics Inf. 35 (7), 2067–2081. https://doi.org/10.1016/j.tele.2018.07.009.

Park, G., Shin, S.R., Choy, M., 2020. Early mover (dis)advantages and knowledge spillover effects on blockchain startups' funding and innovation performance. J. Bus. Res. 109, 64–75. https://doi.org/10.1016/j.jbusres.2019.11.068.

Patel, P.C., Feng, C., Guedes, M.J., 2021. Marketing capability and new venture survival: the role of marketing myopia. Ind. Market. Manag. 93, 307–326. https://doi.org/10.1016/J.INDMARMAN.2021.01.020.

Paul, J., 2020. SCOPE framework for SMEs: a new theoretical lens for success and internationalization. Eur. Manag. J. 38 (2), 219–230. https://doi.org/10.1016/j.emj.2020.02.001.

Paul, J., Mas, E., 2019. Toward a 7-P framework for international marketing. J. Strat. Market. 28 (8), 681–701. https://doi.org/10.1080/0965254X.2019.1569111.

Paul, T., Mondal, S., Islam, N., Rakshit, S., 2021. The impact of blockchain technology on the tea supply chain and its sustainable performance. Technol. Forecast. Soc. Change 173, 121163. https://doi.org/10.1016/J.TECHFORE.2021.121163.

Pólvora, A., Nascimento, S., Lourenço, J.S., Scapolo, F., 2020a. Blockchain for industrial transformations: a forward-looking approach with multi-stakeholder engagement for policy advice. February Technol. Forecast. Soc. Change 157, 120091. https://doi.org/10.1016/j.techfore.2020.120091.

Pólvora, A., Nascimento, S., Lourenço, J.S., Scapolo, F., 2020b. Blockchain for industrial transformations: a forward-looking approach with multi-stakeholder engagement for policy advice. April Technol. Forecast. Soc. Change 157, 120091. https://doi.org/10.1016/j.techfore.2020.120091.

Puthusserry, P., Child, J., Khan, Z., 2019. Social capital development through the stages of internationalization: relations between British and Indian SMEs. Glob. Strat. J. 10 (2), 1–27. https://doi.org/10.1002/gsj.1361.

Qiao, Y., Lan, Q., Zhou, Z., Ma, C., 2022. Privacy-preserving credit evaluation system based on blockchain. Expert Syst. Appl. 188, 115989. https://doi.org/10.1016/j.eswa.2021.115989.

Rachana Harish, A., Liu, X.L., Zhong, R.Y., Huang, G.Q., 2021. Log-flock: a blockchain-enabled platform for digital asset valuation and risk assessment in E-commerce logistics financing. Comput. Ind. Eng. 151, 107001. https://doi.org/10.1016/j.cie.2020.107001.

Raj Kumar Reddy, K., Gunasekaran, A., Kalpana, P., Raja Sreedharan, V., Arvind Kumar, S., 2021. Developing a blockchain framework for the automotive supply chain: a systematic review. Comput. Ind. Eng. 157, 107334. https://doi.org/10.1016/j.cie.2021.107334.

Rakshit, S., Islam, N., Mondal, S., Paul, T., 2021a. Mobile apps for SME business sustainability during COVID-19 and onwards. J. Bus. Res. 135, 28–39. https://doi.org/10.1016/J.JBUSRES.2021.06.005.

Rakshit, S., Mondal, S., Islam, N., Jasimuddin, S., Zhang, Z., 2021b. Social media and the new product development during COVID-19: an integrated model for SMEs. Technol. Forecast. Soc. Change 170, 120869. https://doi.org/10.1016/J.TECHFORE.2021.120869.

Ren, S., Eisingerich, A.B., Tsai, H.-T., 2015. How do marketing, research and development capabilities, and degree of internationalization synergistically affect the innovation performance of small and medium-sized enterprises (SMEs)? A panel data study of Chinese SMEs. Int. Bus. Rev. 24 (4), 642–651. https://doi.org/10.1016/j.ibusrev.2014.11.006.

Sahi, G.K., Gupta, M.C., Cheng, T.C.E., 2020. The effects of strategic orientation on operational ambidexterity: a study of indian SMEs in the industry 4.0 era. August 2018 Int. J. Prod. Econ. 220, 107395. https://doi.org/10.1016/j.ijpe.2019.05.014.

Singh, S.K., Gupta, S., Busso, D., Kamboj, S., 2019. Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. November 2018 J. Bus. Res. 1–11. https://doi.org/10.1016/j.jbusres.2019.04.040.

Søgaard, J.S., 2021. A blockchain-enabled platform for VAT settlement. Int. J. Account. Inf. Syst. 40, 100502. https://doi.org/10.1016/j.accinf.2021.100502.

Soni, G., Mangla, S.K., Singh, P., Dey, B.L., Dora, M., 2021. Technological interventions in social business: mapping current research and establishing future research agenda. Technol. Forecast. Soc. Change 169, 120818. https://doi.org/10.1016/J.TECHFORE.2021.120818.

Sulistyo, H., Siyamtinah, 2016. Innovation capability of SMEs through entrepreneurship, marketing capability, relational capital and empowerment. Asia Pac. Manag. Rev. 21 (4), 196–203. https://doi.org/10.1016/j.apmrv.2016.02.002.

Sun, J., Maksimov, V., Wang, S.L., Luo, Y., 2021. Developing compositional capability in emerging-market SMEs. J. World Bus. 56 (3), 101148. https://doi.org/10.1016/j.jwb.2020.101148.

Sundarakani, B., Ajaykumar, A., Gunasekaran, A., 2021. Big data driven supply chain design and applications for blockchain: an action research using case study approach. Omega 102, 102452. https://doi.org/10.1016/j.omega.2021.102452.

Todd, P.R., Javalgi, R.R.G., 2007. Internationalization of SMEs in India: fostering entrepreneurship by leveraging information technology. Int. J. Emerg. Mark. 2 (2), 166–180. https://doi.org/10.1108/17468800710739234.

Upadhyay, N., 2020. Demystifying blockchain: a critical analysis of challenges, applications and opportunities. March 2019 Int. J. Inf. Manag. 54, 102120. https://doi.org/10.1016/j.ijinfomgt.2020.102120.

Wang, R., Lin, Z., Luo, H., 2019. Blockchain, bank credit and SME financing. Qual. Quantity 53 (3), 1127–1140. https://doi.org/10.1007/S11135-018-0806-6.

Wang, Y., 2021. Blockchain applications in logistics. Int. Encycl. Transp. 136–142.

Wang, Y.M.P.Y.S., Han, J.H., Beynon-Davies, P., Cruz-Jesus, F., Pinheiro, A., Oliveira, T., Balta, M.E., 2020. Dimensional effects of Korean SME's entrepreneurial orientation on internationalization and performance: the mediating role of marketing capability. Int. J. Inf. Manag. 14 (1), 1–7. https://doi.org/10.1016/j.ijinfomgt.2020.102118.

Wang, Z., Li, M., Lu, J., Cheng, X., 2022. Business Innovation based on artificial intelligence and Blockchain technology. Inf. Process. Manag. 59 (1), 102759. https://doi.org/10.1016/j.ipm.2021.102759.

Weaven, S., Quach, S., Thaichon, P., Frazer, L., Billot, K., Grace, D., 2021. Surviving an economic downturn: dynamic capabilities of SMEs. J. Bus. Res. 128, 109–123. https://doi.org/10.1016/j.jbusres.2021.02.009.

Wong, L.W., Leong, L.Y., Hew, J.J., Tan, G.W.H., Ooi, K.B., 2020. Time to seize the digital evolution: adoption of blockchain in operations and supply chain management among Malaysian SMEs. March Int. J. Inf. Manag. 52, 1–19. https://doi.org/10.1016/j.ijinfomgt.2019.08.005.

Woods, J., Galbraith, B., Hewitt-Dundas, N., 2019. Network centrality and open innovation: a social network analysis of an SME manufacturing cluster. IEEE Trans. Eng. Manag. 1–14. https://doi.org/10.1109/TEM.2019.2934765.

Zhang, F., Zhu, L., 2021. Social media strategic capability, organizational unlearning, and disruptive innovation of SMEs: the moderating roles of TMT heterogeneity and environmental dynamism. J. Bus. Res. 133, 183–193. https://doi.org/10.1016/j.jbusres.2021.04.071.

Zhang, T., Li, J., Jiang, X., 2021. Analysis of supply chain finance based on blockchain. Procedia Comput. Sci. 187, 1–6. https://doi.org/10.1016/j.procs.2021.04.025.

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