Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 4 Issue 3 (2024)

Fintech For Impact: How SMES are Shaping the Future of Global Trade

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Abstract:

Purpose: The research articles explore the dimension of SMEs (Small and Medium enterprises) in terms of characteristics, opportunities, challenges, service criteria, technology adoption, and Support systems for growth and development. The research article provided in-depth insight into how the Industry, Government, and policymakers can benefit from the data insights.

Methodology/Design/Approach: These ventures suffer operational and structural issues due to the lack of infrastructure for implementing financial technologies. To address this issue, the classification Approach has been applied, and various aspects of SMEs have been addressed analytically.

Results: The results show that with technology, SMEs can get more funds regarding their business process, and technology will enhance the supply chain architecture.

Originality: This Literature review paper focuses on the different dimensions of Fintech implementation in SMEs in global trade. A significant gap is seen between developed and developing countries concerning technological advancement in business activities.

Keywords: FinTech, SMEs, Literature Review, Research Article, Business, Technology

Introduction:

SMEs are regarded as the foundation of India's socioeconomic growth. As a developing nation, India is currently the world's third-largest start-up cluster, featuring 84 technology companies, 25,000 advanced online start-ups, and a dynamically growing enterprising ecosystem. As per the National Association of Software and Service Companies, SMEs (in India) are divided into two types, namely Manufacturing Enterprises and Service Enterprises, following the terms of the SMEs Development Act, 2006 (Singh et al., 2022). The SME sector is growing across all regions in terms of economy, producing a broad range of goods and services to satisfy the needs of both local and international consumers. By generating significant employment opportunities at a lower capital cost than large industries, India's SMEs significantly boost the country's economy. They also encourage industrialisation in rural and underdeveloped areas, which lessens regional imbalances and ensures a more equitable distribution of wealth and income across the country.

According to statistics, there have been 633.9 million active SMEs in India each month since approximately 2018–19. There were an estimated 127,000 exporting Enterprises in India as of 2018–19, up from the projected 47,000 exporting SMEs in 2005–06 (SMEs Annual Report 2020). To accomplish the aim of a $5 trillion economy by 2025, SMEs must thrive even more. According to the BSE SMEs platform, about 60 SMEs are expected to enter the market in a year (2021–2022) to obtain equity money to meet their business demands (Barroso & Laborda, 2022). The Udyam portal, which includes the Udyam Assist Platform (UAP), registered 4,00,42,875 SMEs as of March 2024, according to Ministry of Micro, Small, and Medium Enterprises data. This number has been consistently increasing. Of these, 3,93,18,355 are categorised as micro-enterprises, making up around 97.7% of the overall amount. There are 608,935 small firms, which comprise approximately 1.5% of the total registered entities. Additionally, 55,488 medium-sized enterprises account for nearly 0.8% of the total (FICCI-EY et al., 2024).

Currently, India has 6.3 crore SMEs, projected to increase to approximately 7.5 crore. Of these, 2.5 crore SMEs have previously obtained loans from formal sources. This expansion's anticipated compound annual growth rate (CAGR) is 2.5%. In FY23, the Ministry of SMEs awarded Rs. 23,583.90 crore (US$ 2.84 billion), representing a substantial increase of about 260% from the Rs. 6,513.13 crore (US$ 786.75 million) invested in FY19. As of October 2023, the cumulative bank credit extended to SMEs under priority sector lending reached US$ 279.18 billion, reflecting a 22.8% increase from the prior year and an 11.8% rise from September 2023, according to the latest sectoral deployment data from the RBI (FICCI-EY et al., 2024). In 2022, the annual average of SMEs in the United Kingdom utilising foreign credit was 36%. In 2022, lending to SMEs decreased in numerous nations, influenced by escalating interest rates and diminished credit availability stemming from heightened risk perception among banks. The decrease in loan demand has been more significant among major corporations than SMEs, indicating that large organisations possess more considerable liquidity reserves than SMEs, which depend heavily on debt financing. Latin American nations, including Brazil, Colombia, and Mexico, experienced increased credit flow to SMEs, indicating a steady rebound from this metric post-2020. The supply of SME loans diminished, persisting in its decline.

In this research paper, the authors included all possible eras of Fintech adoption in SMEs, including definitions, characteristics, opportunities, challenges, and the gap between SMEs and technology adoption. The main contribution of this research paper is as follows:

1. Define the SMEs by comparing the turnover and services provided.
2. Describe the characteristics, challenges and opportunities of SMEs.
3. Analysing support and strength of emerging Fintech technologies in SMEs.
4. Evaluation of the gap between SMEs and technological infrastructure.
5. Government and private body sponsorship are available for the growth of SMEs.

Literature Review:

SMEs have surpassed agriculture as the second-largest source of job creation. SMEs are critical contributors to economic prosperity and the creation of jobs on a worldwide platform. Technological activities have become more crucial than ever as a source of competitiveness in the wake of the epidemic. As a result, it is essential to comprehend the elements that spur innovation in SMEs. The industry is a primary source of employment and contributes significantly to the country's GDP by producing diverse goods and services. According to the International Council for Small Business, SMEs employ less than 250 people, representing 70% of the employed population and 50% of the GDP in most middle-income nations (Singh et al., 2022).

According to prior studies with several researchers investigating the use of Fintech for SMEs, this review paper is based on significant classifications in the concerned domain. Figure 1 depicts the classification chart followed in this review paper to analyse Fintech implementation in SMES while emphasising some critical areas such as the definition of SMEs & Fintech, emerging technologies in Fintech, structural/Government support in Fintech application, challenges in the adoption of Fintech in SMEs.

Research Methodology:

This research article focuses on the examination of databases. The authors incorporated journal articles for review, eliminating conference proceedings, master's theses, doctoral dissertations, textbooks, and unpublished manuscripts. The study articles pertain to Fintech adoption in SMEs with reconvening, Artificial Intelligence, ERP, Deep Learning, and Cloud Computing. The first phase identifies and selects research papers based on the title, abstract, and keywords; however, full-text screening was done in the second phase. The most recent research work has been included in the research paper. The literature identification was based on "SMES & IT & Fintech (Blockchain, Artificial intelligence, cloud computing, Robo consultant, deep learning, big data, big tech, machine learning, IoT)", as shown in Figure 1.

Construe of FinTech in SMEs:

Over the years, several factors have contributed to the evolution and growth of Fintech in SMEs. To understand the trends in this domain, the authors explored several journal articles, research reports, and official documents from the government; the critical analysis is provided in the subsections below.

Definition of SMEs:

SMEs keep their revenue, assets, or employee count below a predetermined level. SMEs might be defined differently depending on the country (Kumar & Kumar, 2022). Through the SMEs Act of 2006, the government established SMEs. Restricted to investment regulations, SMEs generate, manufacture, process, or preserve goods and commodities. As registered with the pertinent government agencies, SMEs are described as investments in machines and equipment (Nagaraj & Vaibhav, 2020). The government amended the criteria, enhanced the investment ceiling, and established new regulations in 2020 (Nagaraj & Vaibhav, 2020).
As per The Ministry of SMEs (Ministry of Micro, Small & Medium Enterprises, 2022), The revised classification of SMEs is provided in Table 2. The scope of SMEs become more comprehensive than before. SMEs Revised Classification seems to deal with the division between entities that offer goods and services and also improves the investment and annual turnover benchmarks for such entities (Nagaraj & Vaibhav, 2020). Start-ups compensate more than 90% of all industrial units in emerging economies, significantly impacting export, domestic trade, business growth, and socioeconomic evolution (A. Singh et al., 2019).

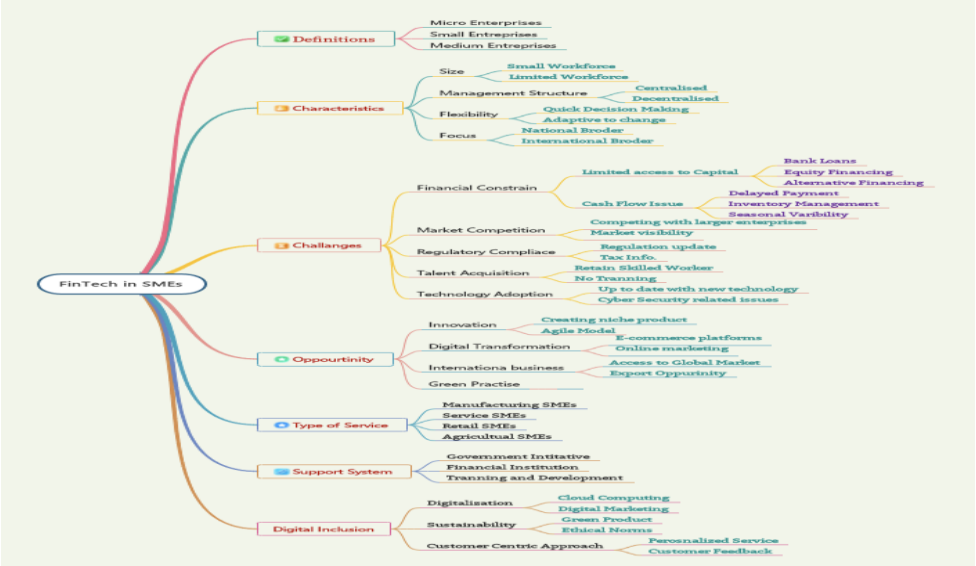


Figure 1: Fintech implementation in SMEs using the classification approach

Table 2: Revised Definition of SMES Categorised by Govt. of India. Source: (*Ministry of Micro, Small & Medium Enterprises*, 2020)

Modifications to the classification are effective as of July 1, 2020.			
Consolidated Criteria: Capital Expenditure on Plant and Equipment and Annual Revenue.			
Categories	Micro (M)	Small (S)	Medium (M)

Manufacturing enterprises and service-oriented enterprises	The annual turnover shall not surpass Rs. 5 crores, and the investment in plant and machinery or equipment shall not exceed Rs. 1 crore.	Maximum investment in machinery, machinery, or equipment is Rs. 10 Crore; maximum annual turnover is Rs. 50 Crore.	Annual turnover does not exceed Rs. 250 crores, and investment in plant and machinery or equipment does not surpass Rs. 50 crores

Note: 10,000,000/40 or 250,000 dollars as of 09/11/2022

Evolution of Fintech in SMEs:

An initial examination of trends indicates that the term "Fintech" gained widespread usage in 2014, facilitating a revolution in the public opinion of the financial sector. Fintech has a more extended history than the term itself. According to earlier research on the field's development, regardless of the size of their activities, high-tech or digital start-ups are heavily emphasised in the literature about SMEs (Alt et al., 2018). Despite the complexity of the process involved in implementing digital-oriented strategies, small and medium-sized businesses should prioritise this research so they can compete with larger competitors despite their disadvantages of being new and tiny (Jafari-Sadeghi et al., 2023). At the global scale, the rate of dissemination and adoption of technological innovations is inversely proportional to the size of the business, with adoption rates significantly lower among micro-enterprises. A survey indicates that 51% of British SMEs have identified digitisation as their foremost priority for the time being (Ragazou et al., 2022).

SMEs exhibit significant variation in their adoption of technological transformation, resulting in three distinct categories: (a) SMEs demonstrating advanced digital maturity that facilitate the alleviation of challenges by expediting the shift to digital enterprises; (b) SMEs facing liquidity constraints; and (c) SMEs possessing inadequate technological proficiency yet bolstered by substantial social capital. UK SMEs exhibit a higher rate of innovative technology adoption than their European peers. Figure 2 represents the frequency of publication in the domain of Fintech implementation in SMEs within recent years (2019 – 2022); it means that the number of publications in this domain is rising. Furthermore, Figure 3 depicts the contribution made by various disciplines in Fintech implementation. It can be seen that computer science, business, and management are among the top-rated disciplines that contribute actively to Fintech implementation.

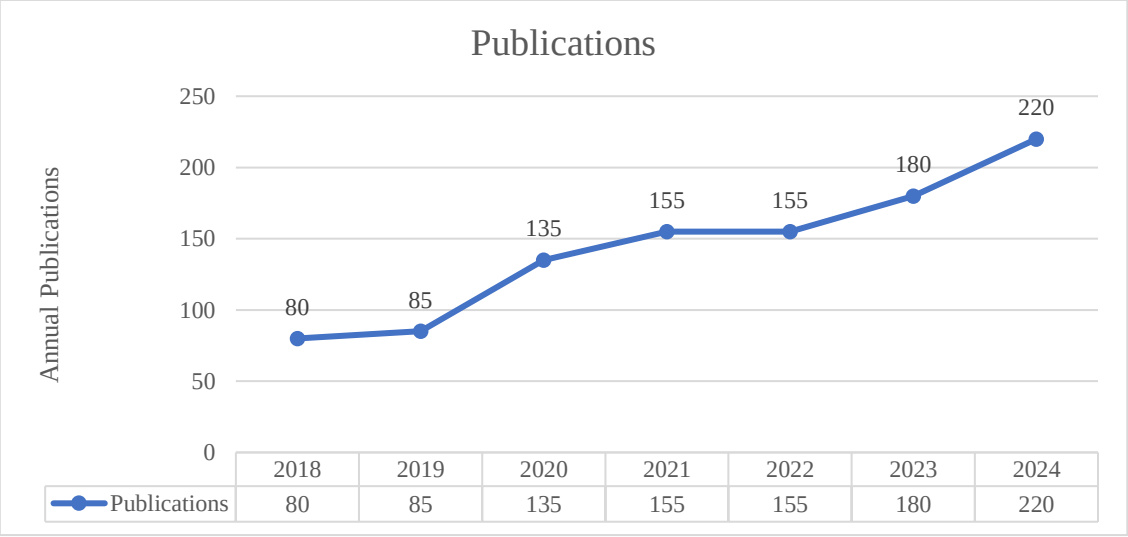


Figure 2: Scholarly Publications on SMEs & Fintech

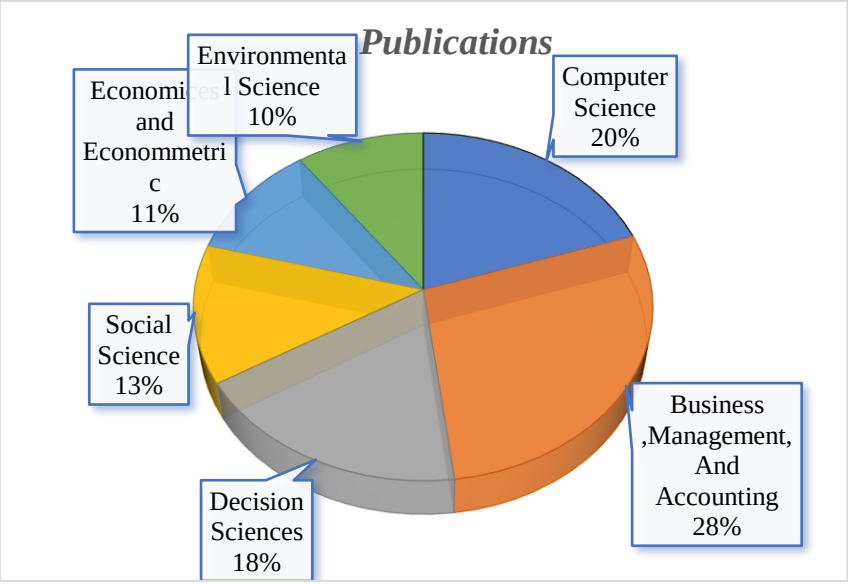
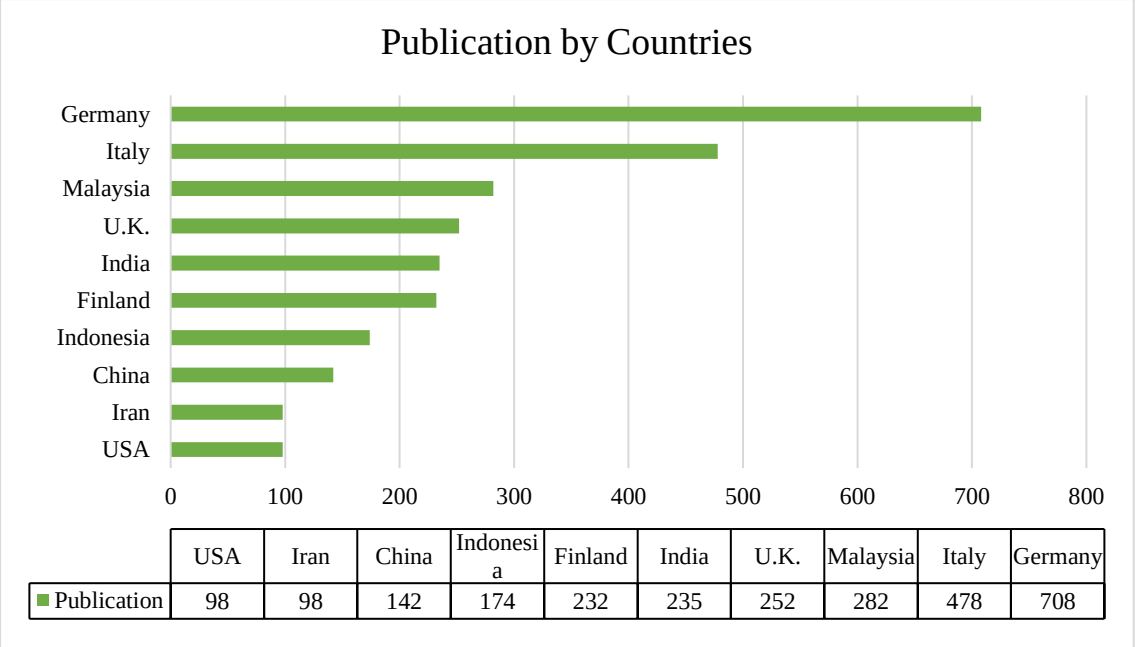


Figure 3: Author's complication from Scopus.

Figure 4 shows the contribution of various countries in the context of Fintech implementation in SMEs. Observations say that Germany contributed more than other nations in this field. The authors also tried to provide a graphical presentation of several citations made by prominent articles over the years, as shown in Figure 5.



	USA	Iran	China	Indonesia	Finland	India	U.K.	Malaysia	Italy	Germany
Publication	98	98	142	174	232	235	252	282	478	708

Figure 4: Geographical distribution of literature on SMEs & Fintech

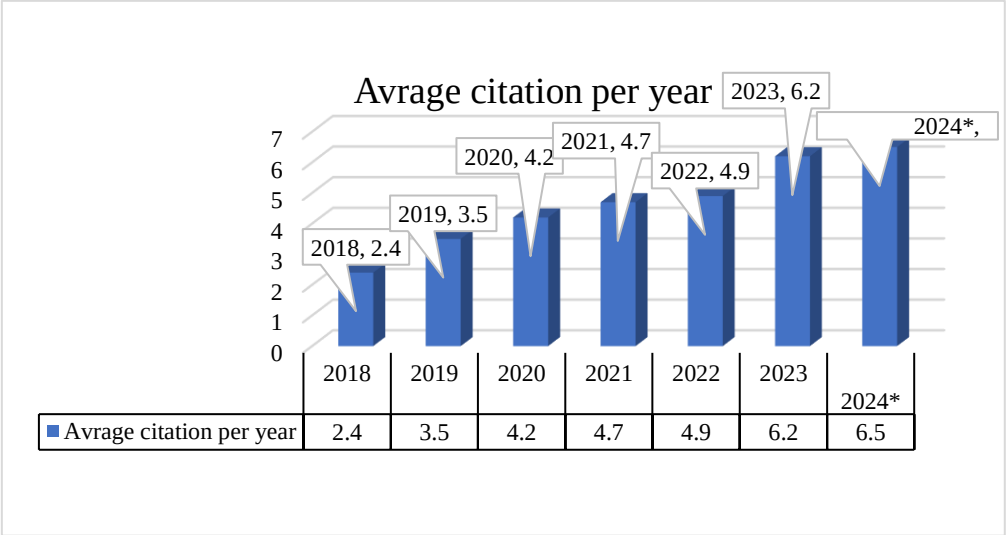


Figure 5: Average number of citations per year on SMEs & Fintech

Figure 6 represents the prominent author and their citation or references used by an academician in the years of ongoing or planned research.

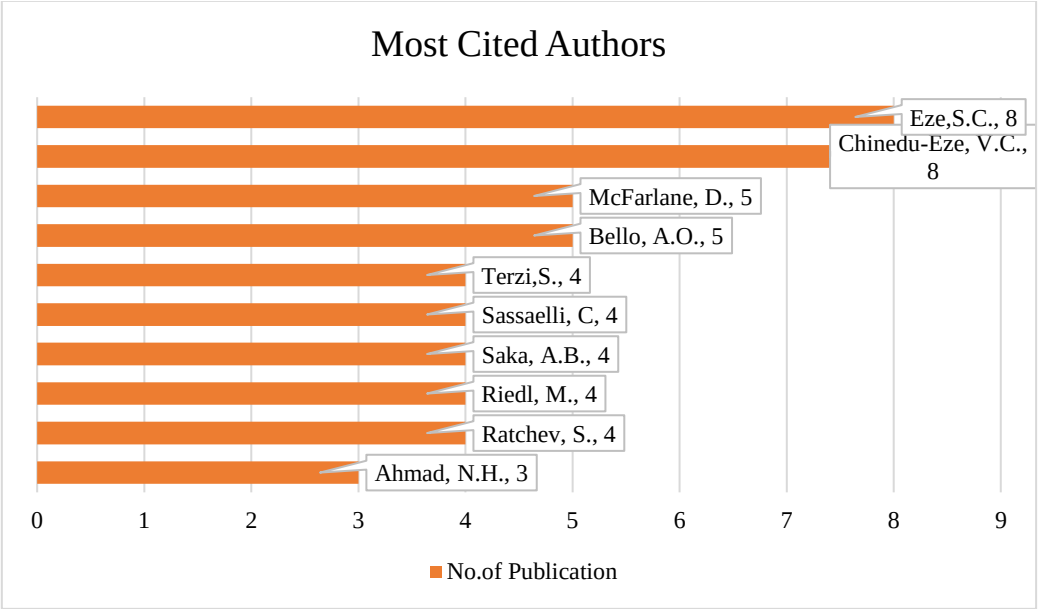


Figure 6: Author's complication

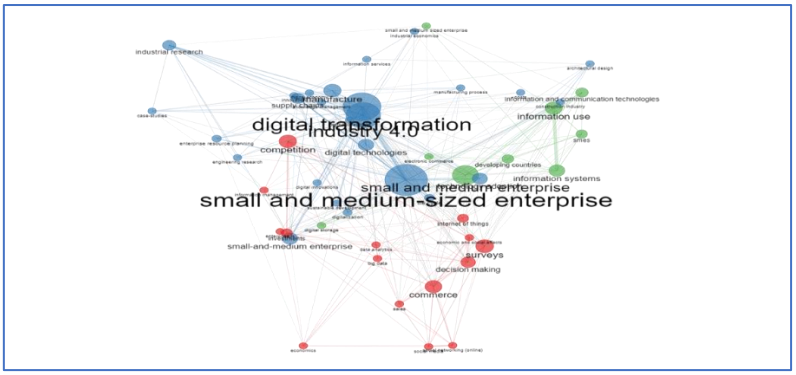


Figure 8: Bibliometric map on SMEs Fintech implementation.

Figure 8 describes the bibliometric map of fintech implementation in SMEs. The treemap in Figure 9 defines the hierarchical data of keywords accrued in the literature on SME Fintech adoption. The keywords small and medium-sized enterprise show the most frequency. Figure 10 shows the contribution of books, conference reviews, review papers, and articles. Research articles make a significant contribution.

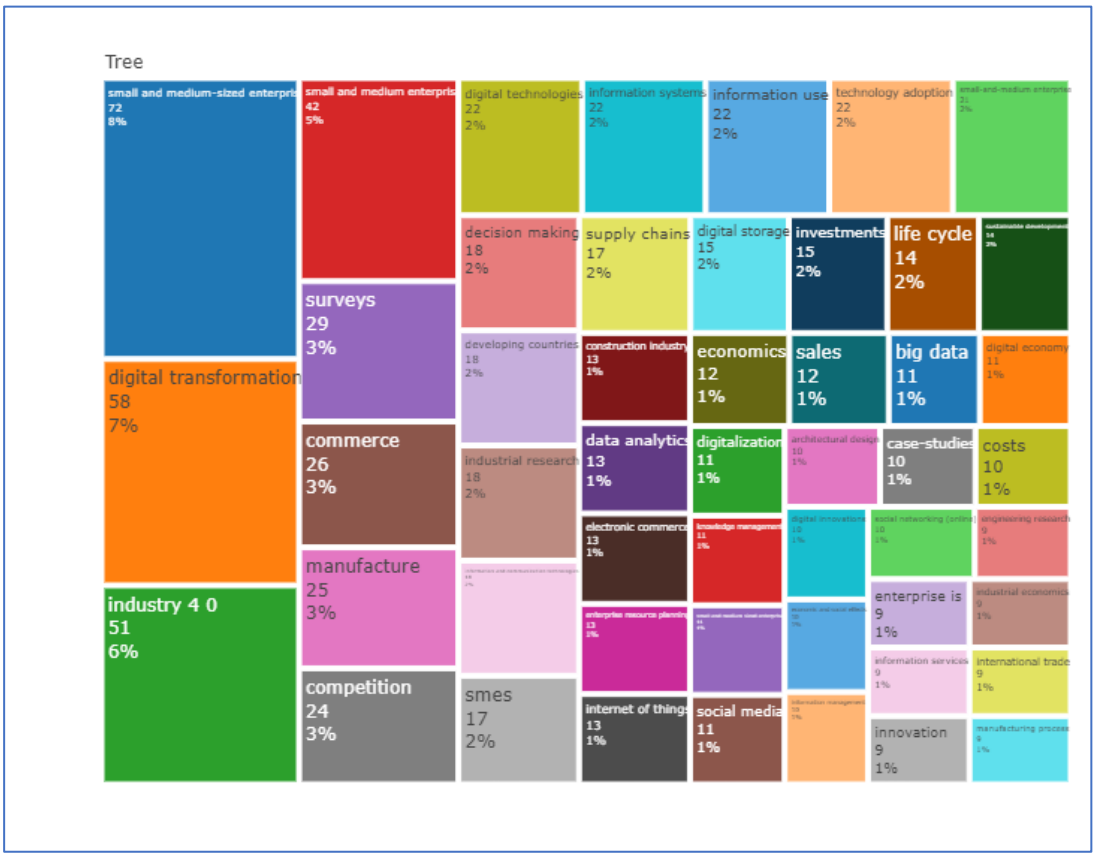


Figure 9: Hierarchical data of keywords accrued in the literature on SMEs Fintech

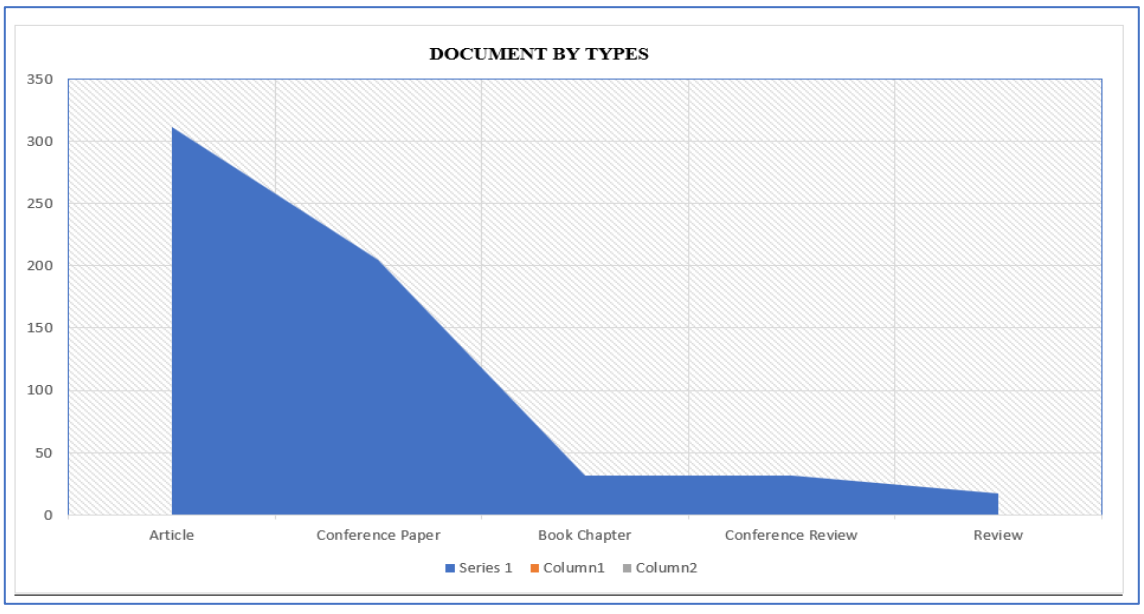


Figure 10: The literature on SMEs & Fintech from 2019 to 2024.

Growth in Fintech implementation in SMEs:

Fintech, or "Innovative and Disruptive Financial Services by Non-Financial Companies," has served as the significant worldwide engine of transformation in the financial market. The environment of competition of businesses is evolving because of the surge of digitisation and the advent of simulation technologies such as artificial intelligence, big data, 3D printing, the Internet of Things, and nanotechnology. Research on SMEs emphasises high-tech or web-based start-ups, regardless of their operational scale (Jafari-Sadeghi et al., 2023). This transition has emerged in services such as mobile transactions, security, and interactive portfolio management based on multiple factors, along with the rapid advancement of technology, underlying economic transformation, the statutory framework, and rising customer requirements. Online shopping witnessed a substantial traffic increase of around 35.5% from January to June 2020, prompting the Fintech industry to develop digital goods and services that enhanced customer experience. Indeed, for e-commerce firms to prosper, entrepreneurship and innovation are essential.

The limits implemented by numerous governments globally are anticipated to have caused a 21% to 26% rise in everyday transactions through mobile financial applications. Technologies have also produced detrimental effects, including a surge in the misappropriation of funds and the exploitation of financial and credit card information to divert money—this has become recognised as a significant problem as the economy has increasingly depended on technology. According to a study investigating the US financial services industry, global financial companies are currently projected to pay $3.25 in costs per dollar of theft loss. Despite frequently being referred to as a new sector, financial services have a significant history that may be separated into three sections. The initial phase, financial technology 1.0, saw the creation of ATMs, SWIFTs, mainframe computers, and other technologies. Fintech 2.0 was constituted by the internet and the Internet of Things in the subsequent period. Fintech is moving from a stage known as Fintech 2.0 to one known as Fintech 3.0, which is defined by adding new technologies.

In the opinion of several, Fintech is the beginning of a revolution that will alter the financial ecosystem and create new winners and losers. Lending, coverage, securities, deposits, management, and transaction and monetary systems are the most well-known Fintech subcategories. However, insufficient investigation has been conducted to examine the causes of digital transformation among non-digital global SMEs. The assessment is particularly critical for SMEs since they can rival more prominent alternatives despite their disadvantage of being innovative and smaller, even though implementing digital-oriented strategies is a complicated task (Jafari-Sadeghi et al., 2023). Table 3 presents the annual report (2020-21) of the Ministry of Small and Medium Enterprises as of December 2020.

Furthermore, Tables 4 & 5 represent the industry's stages of Fintech adoption. Numerous individuals argue that Fintech anticipates a revolution that will revolutionise the financial sector, creating new beneficiaries and detractors. Lending, insurance, securities, deposits, asset management, and payment systems comprise the primary Fintech subcategories (Moreira-Santos et al., 2022).

Table 3: December 2020 Ministry of SMEs Annual Report (2020-21)

Electronic Settlements for the Ministry of SMEs and its Related Entities (2020-21) (as of December 2020)							
Sl. No.	Organisation	Transactions					
		Sum of Amount		By Electronic Path		%	
		Transactions	Value in Rupees (In crores)	Transactions	Value in Rupees (in crores)	Electronic Transactions (in %)	Value of Electronic Transactions (in %)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	KVIC	3673719	4102.92	3202965	4059.54	87.19	98.94
2	NSIC	74534	12918.52	69938	12705.74	93.83	98.35
3	DC office (Tool Room +DI offices +HQ)	94856	954.74	88450	891.61	93.24	93.39
4	COIR BOARD	15,823	288.13	12,884	272.50	81.42	94.57
5	NISMES	1833	9.52	1658	6.56	90.45	68.91
6	MGIRI	764	10.85	726	10.63	95.02	97.97
	TOTAL	**3861529**	**18284.67**	**3376621**	**17946.58**	**90.19**	**92.02**

Table 4: Stages of Fintech adoption

Level of Fintech adoption	Eria - Asian Study (Asean et al., 2019, p. 4) Concentrated on SMEs in Asia	Singapore (2019, 49): Digital Adoption across Firms and Impact on Firm-Level Outcomes ("Digital adoption by Singaporean firms, including SMEs")
Initial stage	Office 365, messages via email, access to PCs and cell phones	Utilisation of the internet, computer systems, online presence, and information and communication technology security
Moderate stage	Online visibility through a site, networking websites, and e-commerce platforms, along with the accessibility of portable devices and computers.	E-payments, e-commerce, software as a service
Progressed stage	Management of resources, relationship building, analytics, big data, robotics, imaging devices, payment card readers, and essential servers.	Web of Things, statistical analysis, and intelligent machines

Source: based on "Using Technology Adoption among Firms and Impact on Firm-Level Outcomes in Singapore" and ASEAN et al. 2019

Table 5: Stages of Fintech transformation in the industry.

Transformational level	**Fintech (after 2008)**
External organisation - Regulation - Business model innovation - Governance of infrastructure - Payment style	More rigid regulations: lower defence Wireless and broadband connections assigning tasks An increase in non-cash payments

Network organisation - Networking - Margins and cost structure - competition - cultural - customer retention	A large number of skilled allies Rising rivalry and reduced margins New businesses and lateral entry active and nimble Lower switching expenses
Internal organisation - A business-oriented perspective - Communication with customers - Fundamental skills - Service portfolio - Automation - IT Architecture - Vertical integration	Customer-centric Online first, Omni- channel Online distribution; platforms Low integration Small, diverse providers Fully- automated processes Modular systems, APIs

Emerging technologies contributing to Fintech implementation:

The emerging technologies involved in Fintech implementation in the field of SMEs are discussed in the subsections below.

Blockchain

Blockchain technology simply serves as a log of online activities. It is not "simply a record," though, as it may also include "smart contracts," which are computer programs saved on the blockchain that function intended with no chance of interruption, restriction, or theft (Beck et al., 2017). Blockchain technology can potentially lower processing and operational costs and budgetary irregularities. Moreover, established financial organisations have begun integrating this technology into their corporate practices. Additionally, blockchain technology has several additional uses outside the economic business and may be used in other fields (Barroso & Laborda, 2022).

Smart Contract

Wearable technologies could incorporate intelligent contracts. A collection of promises agreed upon by all parties is stored in software and is carried out automatically when certain conditions are satisfied. They are referred to as smart contracts. These contracts may make blockchain operations and transactions even more straightforward. From a legal and technological perspective, they enable more growth at a rate of accessible and permanent interactions. According to specific standards, intelligent contracts might replace nearly any financial transaction owing to their mathematical character.

Cloud Computing

A financial model for information systems where computational services are provided to users across a network intentionally, irrespective of hardware and geography, is called cloud computing. Cloud computing facilitates learning by extracting information from both structured and unstructured sources. Understanding the subject can be used to store scientific knowledge, which can then expand on existing processes and facilitate

information utilisation. Irrespective of industry or sector, the data produced serves as a facilitator for organisational learning. Cloud accounting can benefit SMEs by providing an online platform that offers real-time financial, inventory, workflow, sales, and expense data at competitive prices. According to a 2018 Harvard Business Review research paper, cloud computing is less prevalent in SMEs than in larger enterprises. Even though cloud computing may benefit all companies economically, current research substantially underestimates its use in SME environments and as a tool for providing information. This is unexpected, considering SMEs frequently prioritise using already-existing knowledge with little room for innovation (Saratchandra et al., 2022).

Enterprise Resource Planning

Web-based ERP software, called cloud-ERP, is typically hosted in sizable storage systems, and client businesses join the software service through a network operator (Collan & Savolainen; Haddara et al., 2021). Personalising the cloud-ERP systems can be difficult, expensive, and time-consuming because they are frequently standardised. Therefore, the adaptability of the small business and the cloud service provider services partner is very risky and critical during the ERP adoption process (Faasen et al., 2013; Haddara et al., 2021; Zaidi Abd Rozan & Haji Salum, 2017).

Near Field Communication

A digital network called Near Field Communication (NFC) allows two electronic devices to interact when they are close. The technology is effortless and straightforward since it only requires touching bright things to function. This technology is regularly utilised since it enables customers to pay with credit or debit cards and mobile devices close to an NFC device on a payment counter. In this case, the payee receives the money instantly via an online network.

Digital Payment System

Fintech's electronic currencies may boost a company's current cash inflows and relieve economic hardships, allowing the company to invest more money in innovative projects. Rapid payments can lower the management fees that customers incur when buying things, increasing their purchase frequency; digital payments, however, are advantageous. Client pleasure results in a decrease in the businesses' deferred revenue. The growth of financial technology stimulates electronic borrowing and makes quick transfers conceivable (Ding et al., 2022). Figure 11 represents the increasing rate of digital payment in SMEs, where the year 2021 shows a greater hick in mobile payments.

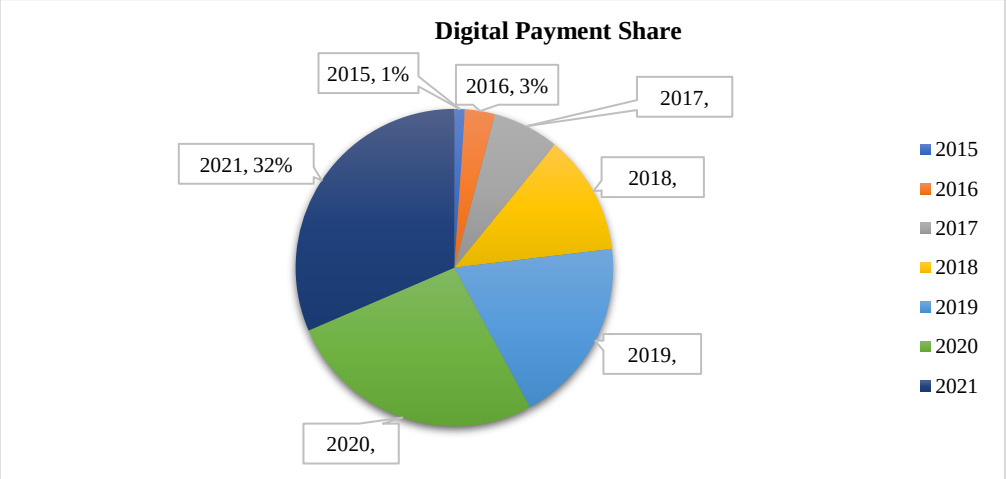


Figure 11: Increasing rate of digital payment in SMEs.

Robo Advisors

The clamour for investment management amenities is rapidly rising. Financing, credit, and general liability are also included in this technological service. It is best to use terms like investment analyst or Robo-advisor. They serve as a mechanical and automated solution that delivers management and financial advising without the involvement of a human advisor. They employ a checklist to pose numerous enquiries and align customers with monetary items. Concerns have been expressed regarding Robo-advisor surveys since it remains uncertain whether they collect all the necessary data to address the customer's advantageous interests.

Machine Learning (ML)

A category of technologies known as mechanical intelligence can simulate living beings in previously trained technological systems without additional training. ML is a compilation of algorithms that predict new scenarios based on previously established methodologies. ML emphasised interpreting the incoming data and learning to generalise patterns to anticipate potential data. Big Data analytics increasingly depends on computational resources and algorithms for machine learning. Data reconstruction, an essential element of machine learning, is employed to develop products and analyse data from unprocessed input. In many industries, including health, IoT, search engines, and more, machine learning is extensively used to investigate the accurate predictions of Big Data (Jan et al., 2019).

Big Data Analytics

The expression "big data analytics" emphasises processing chemistry in extensive information collections. Several data sets are described in the "Four V's Aspect" (Volume, Variety, Velocity, and Veracity). Banks or Fintech companies may utilise historical data or current elements unrelated to creditworthiness to compute a customer's credit score. Big Data is the accumulation of enormous amounts of unprocessed electronic information that is complex to organise and interpret using conventional technologies. The essential objective of statistical mining is to extract pertinent connections from the vast amounts of accessible information for forecasting and decision-making. Big Data Analytics encounters various challenges in data analysis and machine learning, including diverse input data formats and sizes, rapid broadband transmission, data management efficiency, information accuracy, unclassified and isolated input data, swift pattern recognition, data cataloguing, and data processing.

Artificial Intelligence

Vector support networks (SVM) and host-based and network optimisation algorithms based on ML and AI have attracted prominence during the 1990s. Gradually, AI methods have been employed to strengthen conventional categorisation techniques. However, because significantly greater financial data has various properties, several issues exist, including limited interoperability, overfitting, and high computing costs (Muthukumaran & Hariharanath, 2023). Through algorithms, programming, and technologies (such as machine learning, deep learning, and computational linguistics), businesses leverage AI to perform intuitive and compassionate activities similar to people's. An AI-powered conversational agent engages with individuals employing human language. The agents' communication methods—text-based and speech-based—can be analysed to differentiate them. Apple's Siri illustrates a proclamation assistant, whereas small talk bots that respond to written language are word-based agents (Rizomyliotis et al., 2022).

Deep Learning

Deep learning, a fundamental component of cognitive computing, is applied to deal with Big Data analytics to get important information from the massive amount of data. Deep learning utilises monitored and uncontrolled methods, incorporating machine learning techniques to automation produce hierarchical data representations for feature classification automatically by the human brain's natural signal processing. Deep learning has gained prominence among scholars in recent years in its efficacy across various research domains, including natural language processing, machine vision, and pharmacology. Meanwhile, internet giants like

Facebook, Apple, and Google constantly focus on gathering enormous amounts of electronic content and are demonstrating a significant enthusiasm for deep project-based learning.

Internet of Things

Although every device will be connected to the web and have an identity that can be handled remotely, this revolutionary invention of the Internet of Things will produce enormous amounts of data. Multiple devices with numerous sensors attached will create diverse and complex data sent to a central point for processing or decision-making. Big Data technologies are needed to process this volume of data effectively because typical data mining approaches cannot accommodate such a massive spectrum of unregulated and unstructured data.

Industry 4.0

The revenue model, integrating economic (i.e., value generation and capture) and technical aspects of innovations while enabling trial-and-error learning, serves as the primary instrument for entrepreneurs to tackle these challenges (Al-Debei & Avison, 2010; Hedman & Kalling, 2003; Remane et al., 2017; Steininger, 2019). As time advances, newer and innovative participants in the Fintech sector may possess a competitive advantage in developing and implementing novel services and technology, providing more specialised "modular" products tailored to specific market segments. Likewise, large technology companies might leverage significant engagement to significantly diminish price sensitivity (Fu & Mishra, 2022). Figure 12 illustrates the intersection between Fintech and the industrial transformation facilitated by technology in Industry 4.0. Figure 13 illustrates the various technological applications of Fintech in SMEs.

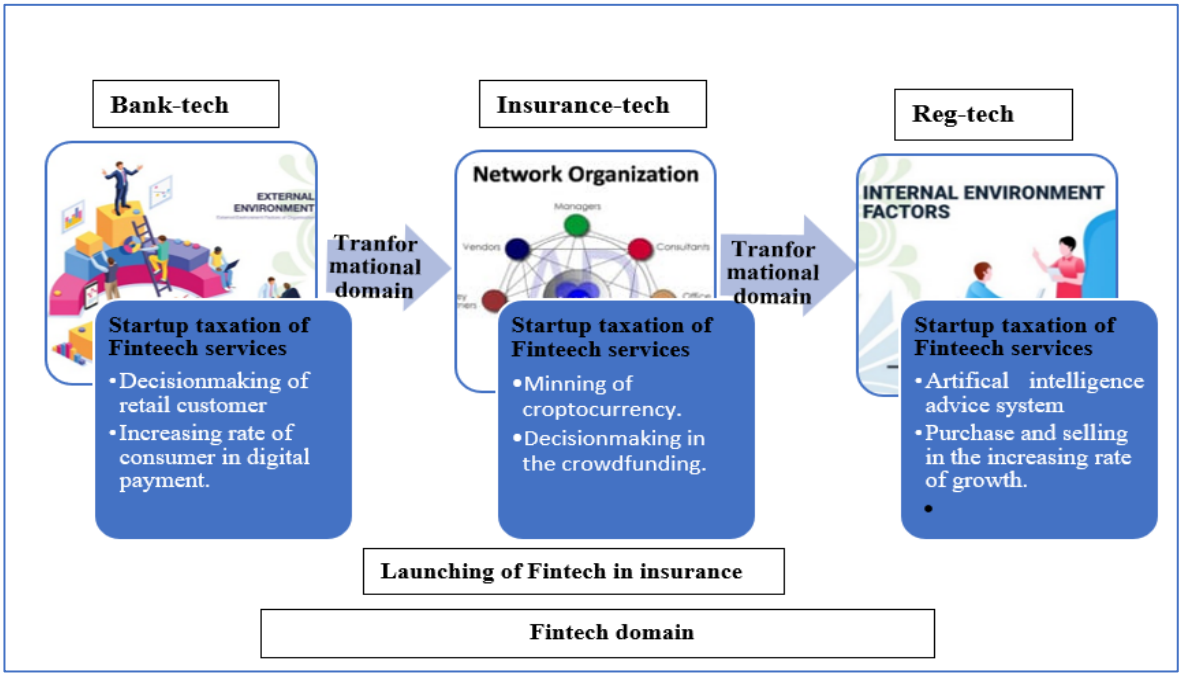


Figure 12: Fintech and industrial revolution through the technology in Industry 4.0.

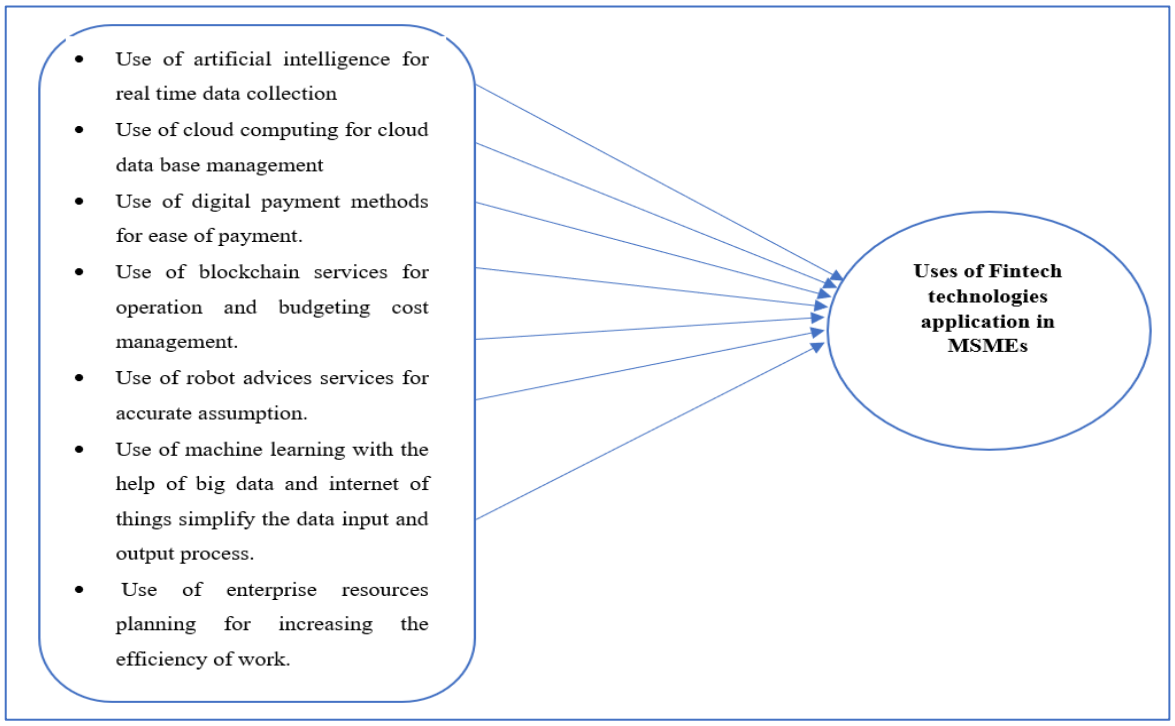


Figure 13: Uses of Fintech technologies application in the field of SMEs

Structural Support/Govt Support to Fintech Implementation in SMEs

Structural/government support is required to implement Fintech technologies in the SMES sector.

Banking Support to SMEs

In April and June 2020, a global study on SMEs was conducted in Australia, Europe (including Greece, Italy, Spain, and the UK), and South America (including Argentina and Bolivia), encompassing diverse geographical contexts. The researchers indicated that financial concerns were a significant concern for the expansion of SMEs, among various other variables (Singh et al., 2022). Concerning firm formation and associated attributes, banks exhibit a reluctance to embrace change; nonetheless, they have gradually adjusted to the evolving business landscape over the years. Consequently, they have commenced modifying and implementing some approaches necessitated by automation. Researchers advise conventional banking institutions to legislate and innovate, lest they face dire repercussions for neglecting the burgeoning innovative sector that has partially astonished the business.

Establishing Fintech start-ups may address the competitive pressures exerted by the banking sector on financial technology. Fintech services are becoming more and more integrated with the conventional banking industry. In comparison, it is anticipated that a segment of conservative clients will continue to utilise traditional banking services. Small and medium-sized enterprises consistently choose financial products featuring user interfaces like those on mobile and the internet. A Javelin Research survey indicates that 56% of SMEs seek enhanced technical tools for banking services.

Non-banking support to SMEs

Having broader effects on the economy, access to credit is a crucial component in the survival and performance of businesses. The lack of finance for growth is a problem for companies in emerging nations, both small and medium-sized. SMEs depend on borrowings from unofficial credit providers as necessary buffers, particularly during a formal credit contraction, because the banking sector in those nations primarily prioritises large businesses. The complicated loan application processes and collateral requirements are the main factors

preventing these SMEs from obtaining financing (Bach et al., 2021). It has been observed that young companies with a technology niche heavily rely on personal finance. A multitude of emerging enterprises, designated as TBSFs (technology-based small firms), can be characterised by the vast range of their product and service offerings, which predominantly encompass scientific and technological expertise and methodologies.

They frequently employ personal funds because they have few material possessions and may find it challenging to obtain outside cash due to their lack of a track record (Neville & Lucey, 2022). The most practical funding approach for emerging, innovative enterprises has recently emerged as venture capital (VC) investment. Despite a substantial increase in venture capital over the past two decades in nations such as the United States, Europe, Canada, and China, it has predominantly focused on the technological industries. Insufficient funds have been designated for the manufacturing and agro-business sectors, constituting a substantial segment of the SME ecosystem, especially in developing countries such as Uganda. Venture capital firms offer necessary financing in return for stock interests in the portfolio companies. The VC finance paradigm is not universally applicable. Few start-up businesses are eligible for venture capital financing since VCs only choose businesses with significant potential for growth (Kato & Germinah, 2022).

NSIC Support to SMEs

To encourage the SMES industry, the government facilitates policies, strategies, and organisations. The creation of the NSIC (National Small Industries Corporation), a government of India firm, is one such initiative made by the Ministry of SMES. It was established to encourage the expansion of SMEs nationwide by offering assistance in marketing, finance, technology, and other services (Kant & Agarwal, 2022). NSIC makes financing initiatives like internal marketing, exports, bill discounting, and syndicated financing with banks easier. The growth and survival of micro, small, and medium-sized businesses depend on marketing, a strategic strategy for business development (Sudhakar et al., 2017). NSIC also offers programs to increase these businesses' competitiveness and controls and encourages groups of micro and small companies to combine their abilities to produce the same goods. Through its consortia policy, NSIC supports SMEs by facilitating their collaboration. NSIC's organisational design, method of operation, and nature encourage collaboration through policies or for the benefit of SMEs' basic survival. It promotes the development of partnerships among micro and small industrial businesses, combining their abilities. The institutional framework is the primary determinant of any Micro, Small, and Medium Enterprise's growth and success. The government made good preparations in this area to satisfy the needs of the quickly expanding small business sector.

The contribution of different institutional supports to fostering the expansion of MSMS is exceptional. For various goals, a small business owner receives various forms of help from multiple entities (Ilahi, 2014). By offering discounts on rentals and other expenses, NSIC makes it easier for small businesses to participate. SMEs gain exposure to global business practices and develop entrepreneurial skills by participating in these events. Numerous institutions at the federal and state levels have been established to hasten the development of SMEs such as Office of the Development Commissioner SMES-DIS (The Micro, Small, and Medium-Sized Enterprises Development Institute), NIESBUD (The National Institute of Entrepreneurship and Small Business Development), NSICs, SIDBI (The Small Industries Development Bank of India), The Directorate of Industries (DIs), and State Financial Corporations (SFCs) are the primary institution. Other than this, the contribution of Regional Testing Centres (RTCs), Khadi and Village Industries Commissions, State Small Industries Development Corporations (SSIDCs), and District Industries Centres (DICs) (KVICs) are also very high for the overall development of small units (Ilahi, 2014).

Government Support to SMEs

Authorities from multiple countries have supported SMEs alongside the innovations implemented by entrepreneurs. The CARES Act of 2020 was approved in the United States, while Australia has implemented a Recovery Loan Scheme to assist distressed businesses. The Indian government and the Reserve Bank of India have established various credit-granting schemes for SMEs (Reserve Bank of India - Press Releases, 2022; Press Information Bureau, 2022). The Indian government designated 15,700 crores for the industry in the Union Budget 2021–22 (Economic Survey 2020-21).

According to a July 2020 OECD assessment on SMEs, entrepreneurs express concerns over cash flow and doubt their company's survival (Pilar, 2021). The research indicates that recent governmental funding support in several nations has facilitated certain performance gains. Furthermore, the challenge requires a comprehensive strategy, effective policy intervention, and support programs to enable SMEs to endure the challenge and thrive. Increased government support will facilitate access to essential finance necessary for acquiring raw materials, disbursing wages, and addressing other needs during the ongoing crises while concurrently advancing without impediments (Singh et al., 2022).

Through policy engagement, the government helps SMEs secure funding during the early stages of industrial development. To boost the competitiveness of SMEs that might not receive enough investment from private financial institutions in the early phases of industrial development, governments have offered a range of financial support, such as loan guarantees, R&D tax credits, and direct subsidies. For SMEs in Korea, the Korea Technology Finance Corporation, or KOTEC, has chosen and carried out credit guarantees since 1997. When a company requests a guarantee, KOTEC responds with a guarantee letter to the financial institution (bank) after evaluating the SME's technology, market potential, and feasibility. Based on these assurances, banks give SMEs loans to support the commercialisation of technology commercialisation on Finnish SMEs. Government assistance can improve business growth and reduce flaws in the finance market. Company-level data from Korean SMEs endorses the development of small businesses that received loan guarantees, demonstrating the positive benefits of policy loans on company performance, including profitability and sales growth, even during the most recent recession.

The findings fluctuate concerning the type of loans and the attributes of the companies. The impact on growth is more pronounced for prospective new SMEs than established enterprises. Following a year of credit guarantees, firms that obtained them experienced an average sales growth rate increase of 7.35%. Regarding productivity growth, employment growth, and sales growth, the frequency of credit guarantees favoured performance (Kim et al., 2020). Under the leadership of the Honourable Prime Minister Sri Narendra Modi, the government have unveiled several programs and plans for the growth and promotion of SMEs throughout the nation (Kukar & Mehta, 2022).

To strengthen SMEs' ability to resolve their debt, a unique structure and e-courts have been implemented. Under the Aatmanirbhar Bharat Abhiyan, the Indian government implemented many steps in 2020. It includes Rs 20,000 crore in subordinated debt for SMEs (about 2.69419 billion USD) and Rs 50,000 crore in equity investment through SMES fund of funds (about 6.737275 billion USD). With a loan of 2.39 trillion rupees (2.39 trillion) already approved as of January 2021, SMEs benefited from the Emergency Credit Line Guarantee Scheme (Singh et al., 2022).

To ensure that the SMEs receive all of the advantages of these schemes promptly, the Government of India has been highly dedicated. By establishing new initiatives for independent work along with the injection of sources of finance and Ease of doing business throughout the nation, several schemes have been launched by the Indian government:

1. Prime Minister Employment Generation Programme
2. MUDRA Schemes
3. CGMSE (Credit Guarantee Fund for Micro, Small and Medium Enterprises)
4. ISEC (Interest Subsidy Eligibility Certificate)
5. MPDA (Market Promotion and Development Assistance Scheme)
6. SFURTI (Scheme of Fund for Regeneration of Traditional Industries)
7. ASPIRE (Technology Upgrading Scheme, A Scheme for Promotion of Innovation, Rural Industries, and Entrepreneurship)
8. CLCS & TU Scheme (Credit Linked Capital Subsidy Component)

Challenges in the Adoption of Fintech in SMEs

In the context of developing countries, effective Fintech adoption in the SMES has some hurdles that are discussed as follows:

Cyber Security

Digitalisation creates new opportunities for commercial and social activity in various spheres of life, including e-commerce, healthcare services, information flow and knowledge transfer, and possibilities for education and training (Tiwasing et al., 2022). Organisations rely heavily on IT and operational technology platforms to deliver goods and services. These systems are vulnerable to failures brought on by accidents, natural disasters, or even deliberate attacks by third parties that could prevent them from performing as intended. These errors and disruptions are known as cyber incidents, and each year, they cost businesses millions of dollars (Carias et al., 2021). Computer crime is causing more economic harm to Germany—at least 75% of all companies in 2019 experienced data theft, corporate espionage, or sabotage. Because employees frequently open harmful attachments or links, a problem in the private sphere, most (58%) successful cyberattacks are conducted via email. Operational disruptions, pandemic outbreaks, and cyber events were found to be the top three business risks for 2020 globally, according to the most recent 10th Allianz poll. These risks are closely related (Scholl & Schuktomow, 2021).

Unforeseen detrimental acts and disruptions have escalated due to the proliferation of wired and wireless connections and devices within SME networks. Striking a careful balance between cost and technical innovation has consistently been a challenge, particularly when attempting to convince finance directors of small SMEs to provide resources for their IT infrastructure. The UK's General Data Protection Regulations Act (GDPR) was acknowledged as part of the study's comprehensive framework (Rawindaran et al., 2021). Advanced Persistent Threats (APTs), carried out via several attack sources, routes, and combined cyberattacks, are a common foundation for new attacks, such as Ransomware 2.0, which encrypts and takes data.

Despite being the backbone of economies worldwide, SMEs suffer from even greater resource restrictions and the same technological hazards (Löffler et al., 2021). According to targeted surveys done for SMEs there, nearly 56 per cent of SMEs in the Middle East are at least aware of the need for cybersecurity. According to the researchers, one of every five SMEs in this study had been subject to cyberattacks in the first five years. Security mechanisms are used by 10.2 per cent of SMEs, and 12.45 per cent of SMEs employ endpoint security solutions. It was found that roughly half of SMEs plan to use cloud-based computing services (Pawar & Palivela, 2022). Entrepreneurs use different communication channels, including social media, mobile devices, and cloud services. More breaches result from this, increasing the vulnerability of SME systems. SMEs are more at risk from cybercriminals than other large businesses are. The frequency of security breaches on SMEs' systems has surged by 424% in 2018; this highlights the sector's susceptibility (Baci et al., 2022).

These findings sharply contrast how SMEs face cybersecurity challenges because they lack the knowledge and resources to do so (Haastrecht et al., 2021). Recent polls show that the percentage of small businesses reporting one or more incidents is around 41% and that lack of staff awareness continues to be the leading contributor to security incidents. Therefore, employee training is essential for reducing Internet use risks. SMEs are not exempted from these situations. Adversely, the considerable number of SMEs and their traditional lack of preparation makes them attractive targets for hackers, who earn substantially from the aggregated payload these businesses can obtain with little effort. Due to their vulnerability to cyber disasters, SMEs face significant impacts that could even require them to shut down or cease operations entirely for at least one day while rehabilitating. SMEs must be cyber resilient or able to foresee, identify, withstand, recover from, and adapt to cybersecurity threats to deal with the occurrences that could occur (Carias et al., 2021).

Since SMEs lack internal competence, they must rely on assistance from their external environment to deal with cybersecurity breaches. SMEs need cybersecurity solutions that differ from those of larger businesses primarily because they lack internal expertise. For a long time, it has been understood that sharing cybersecurity intelligence is crucial to increasing our community's cybersecurity resilience. Nevertheless, before recently,

initiatives in this area were dispersed and ineffectual. Due to insufficient internal cybersecurity expertise and resources, SMEs require distinct solutions from larger organisations. Moreover, any solution targeting SMEs must account for the diversity of these enterprises. Consequently, it is improbable that any prevalent techniques for leveraging shared incident data are suitable for SMEs, according to current cybersecurity intelligence sharing literature trends.

The comprehensive research by tech-consult in Germany reveals that, on average, among all organisations, IT protection duties only account for 10% of IT spending and, at most, only for roughly 3% of yearly sales. According to the study, many German businesses only agree to invest in IT privacy after substantial losses and harm have already been incurred (Scholl & Schuktomow, 2021). The current Gartner analysis, which examines patterns in IT budgeting growth through time from a global viewpoint, reveals that growth levels fell back to 2% in 2021 after reaching a peak in 2018 with the successful development of 3%. The National Cyber Security Alliance (ENISA) and the EU Agency for Cybersecurity have delineated four principal cybersecurity challenges that SMEs in the European Union and the United States would face during the pandemic year 2020.

1. Low levels of cyber knowledge, even though SMEs ought to make cybersecurity part of their culture.
2. There is a lack of remote IT security since more communications and data are sent over unsecured routes when people work from home.
3. Exorbitant expense of cybersecurity solutions overall—cash that many firms lack outright.
4. There are increased attacks to deceive online users, such as phishing.

German cybersecurity decision-makers admit their shortcomings. According to the Command Control Cyberspace Index 2020, one-third of businesses fail to adequately inform their workers about cyber hazards. Additionally, 42% don't consistently warn others about the risks of using technology while on business. Approximately 31% even claim that employees haven't had any input toward their company's security plan yet (Scholl & Schuktomow, 2021). To maintain the security of their data, SMEs must strike a balance. Standard procedures are being implemented following recent legal amendments, Brexit, the UK GDPR, Cyber Essentials, and many other initiatives as cyberattacks rise due to the proliferation of innovative technology.

Digital Infrastructure

The improvement of the company's information processing capability, which enables the gathering, interpretation, and synthesis of pertinent, accurate, and timely organisational data, is the foremost way that the infrastructure of Industry 4.0 technologies has a consequence. The significance of an appropriate combination of various Industry 4.0 technologies emphasises how the proper operation of digital manufacturing technologies can only be enabled in the presence of more fundamental technologies that provide the necessary digital and reliable data inputs. However, the coordinated application of various Industry 4.0 technologies necessitates modernising production facilities by harmonising their mechanical, electrical, and digital components, ensuring the standardisation of communication protocols within and throughout the supply chain (Battistoni et al., 2023).

The advent of technological advancement has fostered the evolution of the digital economy. Regardless of the considerable prevalence of technology across diverse platforms such as media, retail, and finance, most industries exhibit an average technological advancement rate of merely 40%. This shows that digital technologies have not yet been wholly utilised, and the nation's agenda still includes achieving a digital economy. This sentiment is seen in Malaysia due to uneven digitisation across many different businesses. Most industries are only beginning to follow the digital transformation curve (Low et al., 2022).

Considering that a significant portion of the Indian populace resides in rural regions, SMEs have facilitated the industrialisation process at the micro level by equipping rural, semi-urban, and peri-urban areas for the growth and advancement of SMEs. While 51% of SMEs are located in metropolitan areas, 49% are elsewhere. The SME sector has tackled the primary challenges affecting the Indian economy, including poverty, unemployment, and insufficient technological infrastructure (Majeed & Mushtaq, 2022).

Financial Literacy

Financial literacy is a broad notion that often refers to various information and skills, including familiarity with and comprehending financial products, knowledge of financial institutions, financial literacy, and competencies like budgeting and money management (Seraj et al., 2022). A significant aspect is technological competence. This is a valuable source of information that can assist SMEs in navigating the technological revolution and expanding their businesses in response to globalisation. SMEs may work effectively to gather, assess, interpret, and distribute timely and relevant information when they have a strong understanding of technology. Planning, communication, teamwork, providing excellent customer service, and administration all benefit from technological literacy. Business in a predominantly digital context, even for SMEs, impacts computer literacy (Nurjannah et al., 2022). Post-crisis, SMEs must exhibit adaptability when implementing a revised business strategy. To enhance this sector's successful operation and administration, the government should promptly furnish SMEs with the necessary resources. Financial literacy is a significant reservoir of knowledge. Consequently, it may be regarded as enhancing entrepreneurial capability as a form of human capital that enables organisations to obtain and oversee distinctive traits, thereby augmenting competitive capacity and establishing a vital source of sustained competitive advantage.

According to research on SMEs in Bangladesh, incorporating creative finance and technological adaption into business strategies can help small businesses grow sustainably. To flourish and survive, SMEs must be prepared to integrate digital technology. SMEs recognised the value of having knowledge of automation and technology in overcoming uncertainties. The innovation and performance of businesses are directly influenced by financial literacy. Additionally, it has a substantial and good impact on people's behaviour when saving money, which can help maintain their businesses' viability. It is also recognised that financial education can moderate several factors' effects on SMEs' performance. In individuals and organisations, supply chain practice and economic and technical literacy frequently complement one another. Enhancing supply chain management, financial literacy, and technology integration is crucial to ensure business continuity. They can be combined as essential resources for company capital (Nurjannah et al., 2022).

The literature study indicates that financial literacy is a crucial knowledge base for decision-making. It assists SMEs in managing corporate risk, alleviates their economic limitations, and enhances firms' innovation, opportunity identification, and productivity. Saudi Arabia seems to have more effectively mitigated the impacts of COVID-19 than other nations, as indicated by the GEM Saudi 2019 and 2020 Reports, owing to governmental initiatives and support. Saudi Arabia is ranked among the top 10 in the GEM for government policies and regulatory and administrative support measures. Among 54 nations, its national framework for wealth generation is placed 14th. Investigating the influence of financial literacy, entrepreneurial competencies, and resilience on the sustained performance of SMEs can be effectively conducted in Saudi Arabia, which serves as a suitable environment for such research. According to SMEs in China, India, England, and the United States, technological literacy is essential for the functioning of SMEs today. Digital literacy improves organisational skills in decision-making through effective information management.

Implementation Skills

There are three fundamental types of expert capabilities: technical, managerial, and interpersonal. Research has shown that innovative competencies substantially influence a company's operational capacity, reinforcing that entrepreneurial skills are essential for corporate sustainability. In this regard, SME owners or managers with solid entrepreneurial skills contribute to their company's achievement. Market orientation mediates entrepreneurial inclination and e-commerce adoption, enhancing entrepreneurial education while preparing students for the dynamic business environment. It was mentioned that technical development is a competence that entrepreneurs should acquire. Discipline is one of the traits of successful entrepreneurs. However, they must also ensure that sufficient health and safety precautions are taken in their organisations. Implementing these strategies will enhance employee welfare (Yanto et al., 2022). Figure 15 shows the hurdles of SMEs and Fintech technologies available as technical solutions and challenges prevailing in SMEs.

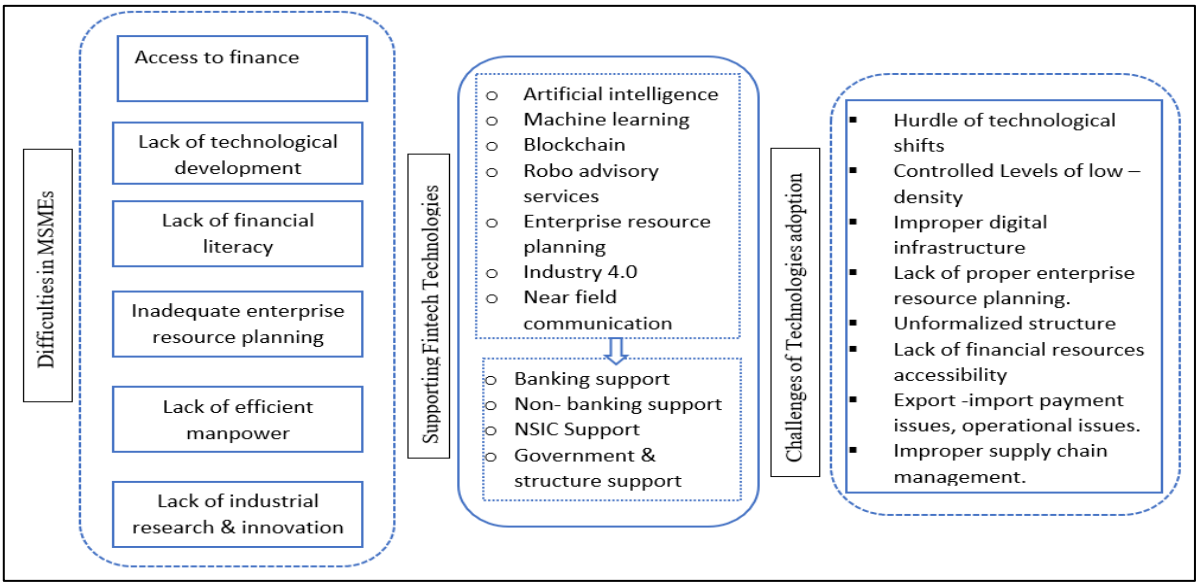


Figure 15: Difficulties, Technological Advancement, and Challenges of SMEs.

Conclusion and Discussions

SMEs are the base for economic development, and their contribution to GDP is vital. As per the literature review, SMEs are facing many issues in the era of COVID-19 19 the loss of these small businesses impacted adversely, resulting in shutting down many enterprises because of a lack of finance, lack of technology, and lack of staffing because of all these hurdles the small enterprise in developing countries not playing the significant role in industrial development. Using the classification approach, the four dimensions show the definition of Fintech & SMEs, emerging technology in Fintech, challenges in Fintech implementation in SMEs, and government and structural support to SMEs. The evolution of Fintech in SMEs solves many issues like digital payment solutions, real-time data accessibility, proper finding facilities, internationalisation of SMEs, data security, and many others. Technology helps in doing business activities smoothly and protects plenty of international assignments. However, SMEs still face many difficulties because of insufficient infrastructure support for efficiently implementing these technologies. Legal and government policies also have some limitations; however, the government has announced many reliefs and rehabilitation packages for the restructuring process in SMEs. The pandemic strengthens the flow of finance, technological adoption, and formalised structure, increasing the scope of SMEs. In India, the definition of SMES has been revised for expansion and development in this domain so that this sector's contribution can further improve the national economy. Many digital portals, digital payment options, online registration portals, skill development programs, and online digital awareness workshops have been launched by the Indian government to encourage the better participation of SMEs.

Governments have taken numerous significant initiatives to promote businesses' technological initiatives, but further initiatives are required to create digital services and encourage commercial digitisation. This involves enhancing the availability of technological and supplementary abilities, facilitating cooperation in digital marketplaces, and facilitating access to inventive investment. Therefore, adopting tailored cloud-based strategic planning for small businesses is imperative for virtual enhancement and a crucial component of new policies advocating digital transformation, impacting both direct interventions aimed at developing essential digital competencies and the long-term viability and expansion potential of micro-enterprises in the contemporary technological age. Likewise, developing a strategy will motivate SMEs to use more enterprise technology services. Many innovative technologies such as ML and AI, blockchain technology, and robotic advisory systems have changed the working process of small enterprises in terms of better prediction of potential changes, real-time database management, efficient staffing management, and proper decision-making.

While using all these technologies, a secured interface and cyber securities for fraud detection in digital payment are needed, as well as a secure and smooth supply chain management infrastructure. However, many digital payments-related issues are recorded in developing countries lacking these supporting systems. Having the proper knowledge and financial literacy about Fintech technology, its implementation process, and laws related to Fintech technology makes their working process more efficient. Developing countries have a secured technological infrastructure system. Because of this, significantly fewer cyber-attacks in their business. Banking support concerns of start-ups were shallow in the past, and collateral burden minimised the participation of small enterprises in the economy. Still, because of information technology development, many digital technologies such as online trading, online payment systems, online marketing, online export and import facilities, digital fund transfer facilities, tech insurance facilities, extensive data management, and machine learning for better prediction of changes will take place in the taste and preference of the customer and for new product development.

Artificial intelligence helps SMEs with real-time experience of real-time customer insight, innovation, research, business risk reduction, and demand forecasting. Through this helpful information, business activity becomes smoother and more secure. SMEs are cautious about establishing their apps because using them is costly, takes a long time, and frequently has a high failure rate. Instead, SMEs increasingly adopt virtualised AI-as-a-service and rely on it. They concentrate on manufacturing, transportation, and customer relations implementations in this way. This is possibly due to various prominent use cases, especially in industrial and distribution settings, with a heavy emphasis on the operating practices of SMEs. AI's application in HR for SMEs is least likely. Emotional intelligence is significant in the field of human resources. Several potential areas demand the attention of future researchers in the concerned domain; the authors have listed a few of them below:

- In developing countries, the flow of funds is insufficient to tackle the finance problem.
- Due to a lack of technological advancement at all levels, proper implementation is not taking place in small businesses.
- Very few studies have identified tech securities-related issues in the context of Fintech implementation in the Indian SME sector.
- Cyber security norms need to be more secure regarding fraud detection in small enterprises.
- The lack of infrastructure is a big gap in implementing the Industry 4.0 features in the Indian context.
- Very few studies have been found regarding artificial intelligence implementation in SMEs.

As per the research gaps, the direction of future research work in the area of Fintech implementation in SMEs can contribute to advancing infrastructure for technical support, operational support, and skill management. Consistent efforts from researchers, government agencies, and growing industries can help small businesses avail themselves of considerable support from Fintech-based implementations.

This review paper has summarised the evolution of Fintech in SMEs while introducing readers to the core definition of Fintech and SMEs. An in-depth analysis of relevant articles from prominent researchers worldwide explained the technological expectations and advancements at different levels. The authors also provided quick insights into the government's support for Fintech implementation in SMEs while highlighting potential challenges. The upcoming researchers can find this valuable analysis for further studies on technological advancements to support uninterrupted growth in the SME sector.

References

1. Alt, R., Beck, R., & Smits, M. T. (2018). FinTech and the transformation of the financial industry. Electronic Markets, 28(3), 235–243. https://doi.org/10.1007/s12525-018-0310-9

2. Bach, T., Le, T., & Bui, Y. (2021). Informal Short-term Borrowings and Small and Medium Enterprises' Performance in a Credit Crunch: Evidence from Vietnam. The Journal of Development Studies, 57(8), 1321–1335. https://doi.org/10.1080/00220388.2020.1862798

3. Baci, N., Vukatana, K., & Baci, M. (2022). Machine Learning Approach for Intrusion Detection Systems as a Cyber Security Strategy for Small and Medium Enterprises. WSEAS TRANSACTIONS ON BUSINESS AND ECONOMICS, 19, 474–480. https://doi.org/10.37394/23207.2022.19.43

4. Barroso, M., & Laborda, J. (2022). Digital transformation and the emergence of the Fintech sector: Systematic literature review. Digital Business, 2(2), 100028. https://doi.org/10.1016/j.digbus.2022.100028

5. Battistoni, E., Gitto, S., Murgia, G., & Campisi, D. (2023). Adoption paths of digital transformation in manufacturing SME. International Journal of Production Economics, 255, 108675. https://doi.org/10.1016/j.ijpe.2022.108675

6. Beck, R., Avital, M., Rossi, M., & Thatcher, J. B. (2017). Blockchain Technology in Business and Information Systems Research. Business & Information Systems Engineering, 59(6), 381–384. https://doi.org/10.1007/s12599-017-0505-1

7. Carias, J. F., Arrizabalaga, S., Labaka, L., & Hernantes, J. (2021). Cyber Resilience Self-Assessment Tool (CR-SAT) for SMEs. IEEE Access, 9, 80741–80762. https://doi.org/10.1109/ACCESS.2021.3085530

8. Ding, N., Gu, L., & Peng, Y. (2022). Fintech, financial constraints and innovation: Evidence from China. Journal of Corporate Finance, 73, 102194. https://doi.org/10.1016/j.jcorpfin.2022.102194

9. FICCI-EY, Ministry of Micro Small and Medium Enterprises, & GeM Portal. (2024). Registered SMEs in India in FY24. In FICCI-EY Re-imagining India's M&E Sector https://www.ibef.org

10. Financing SMEs and Entrepreneurs 2022: An OECD Scoreboard | en | OECD. (n.d.). Retrieved November 21, 2022, from https://www.oecd.org/cfe/smes/financing-smes-and-entrepreneurs-23065265.htm

11. FinTech—India | Statista Market Forecast. (n.d.). Statista. Retrieved November 21, 2022, from https://www.statista.com/outlook/dmo/fintech/india

12. Fu, J., & Mishra, M. (2022). Fintech in the time of COVID−19: Technological adoption during crises. Journal of Financial Intermediation, 50, 100945. https://doi.org/10.1016/j.jfi.2021.100945

13. Ilahi, S. (2014). INSTITUTIONAL NON-FINANCIAL SUPPORT TO SMES WITH SPECIAL REFERENCE TO DELHI. 3, 12.

14. Jafari-Sadeghi, V., Amoozad Mahdiraji, H., Alam, G. M., & Mazzoleni, A. (2023). Entrepreneurs as strategic transformation managers: Exploring micro-foundations of digital transformation in small and medium internationalisers. Journal of Business Research, 154, 113287. https://doi.org/10.1016/j.jbusres.2022.08.051

15. Jan, B., Farman, H., Khan, M., Imran, M., Islam, I. U., Ahmad, A., Ali, S., & Jeon, G. (2019). Deep learning in big data Analytics: A comparative study. Computers & Electrical Engineering, 75, 275–287. https://doi.org/10.1016/j.compeleceng.2017.12.009

16. Kant, R., & Agarwal, P. (2022). Consortium of SMES: Cartel or Not? Competition Commission of India Journal on Competition Law and Policy, 141–166. https://doi.org/10.54425/ccijoclp.v2.38

17. Kato, A. I., & Germinah, C.-P. E. (2022). Empirical examination of relationship between venture capital financing and profitability of portfolio companies in Uganda. Journal of Innovation and Entrepreneurship, 11(1), 30. https://doi.org/10.1186/s13731-022-00216-5

18. Key Highlights of Economic Survey 2020-21. Retrieved November 21, 2022, from https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1693231

19. Kim, D., Yeom, S., & Ko, M. C. (2020). The Interactive Effect of Government Financial Support and Firms' Innovative Efforts on Company Growth: A Focus on Climate-Tech SMEs in Korea. Sustainability, 12(22), 9666. https://doi.org/10.3390/su12229666

20. Kukar, K., & Mehta, M. C. (2022). A Review of Selected Government Schemes and Policies for Uplifting Micro Small and Medium Enterprises in India. International Journal of Research in Engineering, Science and Management, 5(4)
21. Kumar, Dr. S., & Kumar, A. (2022). The role of government policy and entrepreneurship development programs in micro, small & medium sized enterprises in India: An overview. International Journal of Financial Management and Economics, 5(1), 69–74. https://doi.org/10.33545/26179210.2022.v5.i1.121
22. Löffler, E., Schneider, B., Zanwar, T., & Asprion, P. M. (2021). CySecEscape 2.0—A Virtual Escape Room To Raise Cybersecurity Awareness. International Journal of Serious Games, 8(1), 59–70. https://doi.org/10.17083/ijsg.v8i1.413
23. Low, M. P., Seah, C. S., Cham, T.-H., & Teoh, S. H. (2022). Digitalisation adoption for digital economy: An examination of Malaysian small medium-sized enterprises through the technology–organisation–environment framework. Business Process Management Journal, 28(7), 1473–1494. https://doi.org/10.1108/BPMJ-06-2022-0282
24. Majeed, M., & Mushtaq, S. O. (2022). Under-Informed Policy Interventions and Long-Run Damage to the SMES Sector in India: An Analysis of the Aatmanirbhar Bharat Abhiyan. SEDME (Small Enterprises Development, Management & Extension Journal): A Worldwide Window on SMES Studies, 49(4), 395–406. https://doi.org/10.1177/09708464221128732
25. Ministry of Micro, Small & Medium Enterprises (2022). Retrieved November 21, 2022, from https://SMEs.gov.in/
26. Moreira-Santos, D., Au-Yong-Oliveira, M., & Palma-Moreira, A. (2022). Fintech Services and the Drivers of Their Implementation in Small and Medium Enterprises. Information, 13(9), 409. https://doi.org/10.3390/info13090409
27. Muthukumaran, K., & Hariharanath, K. (2023). Deep Learning Enabled Financial Crisis Prediction Model for Small-Medium Sized Industries. Intelligent Automation & Soft Computing, 35(1), 521–536. https://doi.org/10.32604/iasc.2023.025968
28. Nagaraj, R., & Vaibhav, V. (2020). Revising the Definition of SMEs: Who is Likely to Benefit From it? The Indian Journal of Labour Economics, 63(S1), 119–126. https://doi.org/10.1007/s41027-020-00266-x
29. Neville, C., & Lucey, B. M. (2022). Financing Irish high-tech SMEs: The analysis of capital structure. International Review of Financial Analysis, 83, 102219. https://doi.org/10.1016/j.irfa.2022.102219
30. Nurjannah, I. D., Dewi, Mohyi, A., Ambarwati, T., Cahyono, Y., Haryoko, A. E., Handoko, A. L., Putra, R. S., Wijoyo, H., Ari-yanto, A., & Jihadi, M. (2022). The effect of digital marketing, digital finance and digital payment on finance performance of Indonesian SMEs. International Journal of Data and Network Science, 6(1), 37–44. https://doi.org/10.5267/j.ijdns.2021.10.006
31. OECD (2024), Financing SMEs and Entrepreneurs 2024: An OECD Scoreboard, OECD Publishing, Paris, https://doi.org/10.1787/fa521246-en
32. Pawar, S., & Palivela, Dr. H. (2022). LCCI: A framework for least cybersecurity controls to be implemented for small and medium enterprises (SMEs). International Journal of Information Management Data Insights, 2(1), 100080. https://doi.org/10.1016/j.jjimei.2022.100080
33. Pilar, P. (2021). OECD SME and Entrepreneurship Outlook 2021. OECD SME AND ENTREPRENEURSHIP OUTLOOK, 147.
34. Press Information Bureau. (n.d.). Retrieved November 21, 2022, from https://www.pib.gov.in/indexd.aspx
35. Ragazou, K., Passas, I., & Sklavos, G. (2022). Investigating the Strategic Role of Digital Transformation Path of SMEs in the Era of COVID-19: A Bibliometric Analysis Using R. Sustainability, 14(18), 11295. https://doi.org/10.3390/su141811295

36. Rawindaran, N., Jayal, A., & Prakash, E. (2021). Machine Learning Cybersecurity Adoption in Small and Medium Enterprises in Developed Countries. Computers, 10(11), 150. https://doi.org/10.3390/computers10110150

37. Rawindaran, N., Jayal, A., Prakash, E., & Hewage, C. (2021). Cost Benefits of Using Machine Learning Features in NIDS for Cyber Security in UK Small Medium Enterprises (SME). Future Internet, 13(8), 186. https://doi.org/10.3390/fi13080186

38. Reserve Bank of India—Press Releases (2022). Retrieved November 21, 2022, from https://rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx