

Small and medium-sized enterprises' contribution in digital technology

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Abstract

Researchers have mentioned the importance of digitization in improving efficiency and productivity in Small and Medium Enterprises (SME). Fortunately, there is no proof that Digitization can be used to deal with the outcome of severe incidents like COVID-19. The research paper suggested that the increased rate of SMEs has increased significantly. This was entirely due to the advent of Digital Technology (DT). In this way, both product and the process become more automated in digitalization, resulting in increased quality and demand. Considering the high scope for higher development, India's SME sector still has much space for new digital technologies to be integrated. This paper addresses the main scenario of SMEs in India and their benefit in GDP. Also, the research includes a brief analysis of CRM applications and digital payment options in SMEs.

Keywords SME · COVID-19 · Digitization · Customer relationship management

1 Introduction

A new Coronavirus Infection (COVID-19) erupted unexpectedly at the end of 2019 and began spreading to become such a global epidemic. COVID-19 had sickened, exceeding 129 million people worldwide by early March 2021 and more than about 12.2 million in India. This health concern has raised severe risks to the survival and growth of businesses, particularly Small and Medium-sized Enterprises (SMEs). In many ways, the COVID-19 epidemic has been economically damaging. Global supply chains have been made significantly vulnerable because government agencies restrict both importation and exportation to combat the infection. Second, delays in resuming work have drastically decreased firms' production capability, whereas fixed expenses like wage and rental had also remained consistent, result in severe financial problems. The falling prices due to the pandemic have put extreme stress on service providers such as food service, hospitality,

and tourist industry related to the activities such as cultural identity. Poorer, the COVID-19 epidemic is predicted to affect long-term destruction and a profound impact on global growth. ³

New technologies such as information, communication, and communication technology to facilitate administrative changes refer to digital transformation (Bharadwaj et al., 2013; Sebastian et al., 2017; Vial, 2019). Numerous studies conducted during the COVID-19 epidemic indicate that emerging technology plays a critical role in crisis management. In India, the Government has demonstrated the importance of big data, Artificial Intelligence (AI), Cloud computing, and other emerging technology in pandemic detection, virus tracking, treatment methods, and job reestablishment. For instance, big data technology may significantly aid in the monitoring and search of pandemics in real-time. Workers can operate remotely and flexibly with the implementation of digital software. ³

In recent times, the world economy has become a powerful competitor for the low-cost industry. It is no more sufficient to produce quicker, cheaper, and better quality than challengers defending the competitiveness obtained. To maintain the current profitable opportunities of SMEs in the coming decades, the business sector must implement new systems of creative and "Digital" economic development (Manhart, 2013).

The digitization of SMEs should cover the entire manufacturing and supplier chain and not just the operational manufacturing process of goods and the related process management, as in past industrial revolutions. SME digitalization must help overcome global challenges such as sustainability, resource, and energy conservation and improve productivity (Kagermann et al., 2013). Sharing of data throughout the manufacturing phase promotes efficiency for all people involved. More personalized features for the customer and more versatility, openness, and globalization for the supply chain are obtained (Baum, 2013). In particular, the return to individuality by the fourth industrial revolution should then be accomplished (Hartbrich, 2014).

Consequently, it must be possible to react quickly and efficiently to customer needs and generate the latest version at smaller batch sizes (Spath et al., 2013). Industry 4.0 intends to incorporate increasingly effective and efficient production processes, which are generally recognized from large-scale production, and in an industrial setting, where goods are manufactured by person and customer-specific methods (Modrak et al., 2019). Mass customization means the manufacture of customized goods by the consumer at a cost equivalent to mass products. A production based on the Industry 4.0 concept provides a framework for replacing conventional systems, focused on centralized decision-making processes and strict limitations in specific value-added measures. SME frameworks are replaced with versatile, reconfigurable production and distribution systems that provide responsive and collaboration strategies for making decisions.

SMEs are identified as a vital driver for economic growth in India. SMEs need to deal with these technological advances and reward them for gaining access to markets and discovering new areas of operation. The SMEs contribute directly to national economies and account for 80% of overall economic growth (Jutla et al., 2002; Poon & Swatman, 1999). Even though DT provides a wonderful opportunity for employers to overcome the limitations of DT. Various conditions are also available in availability, connectivity and affordability. Enabling various factors to facilitate the adoption of technologies through the internet, Smartphones, digital skills, and much interactable for agripreneurial.

Even though DT provides a wonderful opportunity for employers to overcome the limitations of DT, various conditions are also available in availability, connectivity and affordability. Enabling various factors to facilitate the adoption of DT through the internet, mobile phones, digital skills, and much interactable for agripreneurial. The

orientation of the doing industry has moved as an outcome of the digital revolution. The entire process from manufactured goods to production to distribution has been transformed; this statement has caused a great deal of excitement and created a severe transformation. The Indian SME/MSME are significant to the nation's economy, approaching heavy competition from multinational companies (Venkatesh & Kumari, 2015).

To put it another way, they feel like small fish in a vast sea when asked about their livelihood in the face of that long-term goal. Market competition is attempting to put SMEs in a challenging position. The business will have to appeal to their customers if they wish to correct these drawbacks. The primary motive of this proposed method is due to the widespread of DT all over the world. More than a million employees have been working in the digital world. This rapidly contributed towards small-large-scale industries to develop products and services required for the individuals and increase the production of business models.

Organizations have begun to start moving towards a particular development because of the advantages such as improved productivity and income, gaining market share, producing brand awareness with low cost, rapid reviews that enhance companies to implement necessary changes by clients, helps in evaluating the situation and to make decisions, higher happy customers. However, several factors pose a significant obstacle in digital transformation. Organizations are unwilling to spend because the initial investment of installation and reengineering is very high, and the outcome is not 100% assessable. In his study, Carlsson (2004) also discovered that digitization on performance and productivity is understood to a certain degree. Still, it isn't easy to quantify the long-term benefit. However, digitization can expand the context and scope of development by altering the supply chain operations and integrated marketing paradigms. More specifically, social media plays a key role in SMEs, more often employing digital marketing and organizational activities that perform much great complete with digital usage throughout the world. This produces a higher opportunity headed for business operation over digital India.

As the DT plans towards data security to avoid crime and terrorism, it sometimes affects privacy concerns, which means anyone can track personal data that belongs to an individual through the Internet. Sometimes loss of social disconnects produces depression among humans and makes them lose real-life contact, creating negative thoughts. The selection of databases depends upon their classification of data sets over social impact. This produces practical implications for the business industry depends on various strategies, which require an in-depth understanding of the knowledge of end-users in the market. The digital transformation (Borges et al., 2021) of SME over DT produces man labour issues towards operational costs to decrease overall expenses, including marketing costs, COVID-19, which influences digitization throughout the world. The maximum number of businesses and employments are moving with DT. This produces a larger effect in SMEs. DT produces a larger impact on SMEs and IT ecosystems by offering new opportunities while participating in the global economy. This made an individual realize technologies like Mobile sensors, big data, AI and Cloud Computing. Overall, SMEs produces more welfares assistants for businesses, security systems over databases and public financing.

This paper addresses SMEs in India and their current situation for implementing DTs, beginning with the types, economic impact, benefits, and challenges of DT adoption. Additionally, the paper explains comparative research on digitalization conducted in Coimbatore in South India. The outcome of this paper is an overview of the investigation conducted on the implementation of Customer Relationship Management (CRM) and electronic payments at different levels of business, with an emphasis on the approaches used,

the variables that may impact, and the nature of the study, so that this study may serve as a guideline for future research.

2 Related works

Another area of research is to align DT with the business plan of the SME to handle the implications of COVID-19. In the United Kingdom, 51% of SMEs consider DT crucial in ensuring their competitiveness, and $\frac{2}{5}$ th consider DT their utmost priority. Organizational Information Technology (IT) alignment for IT management research is a significant subject studied over four decades (King, 1978; Sabherwal et al., 2019; Wu et al., 2015). Fortunately, there is disagreement as to the value of strategic IT organizations. On the other side, experts suggest the positive impact of strategic IT alignment on corporate performance (Gerow et al., 2014), on the positive influence of strategic IT (and in our case, DT) (Tallon & Pinsonneault, 2011). DT alignment should be either a 'Congruence State' that reflects whether the DT method matches the underlying business policy or if a capacity reflects the DT investments of SMEs (Byrd et al., 2006; Preston & Karahanna, 2009). So, does the DT organization value improve? Can SMEs follow DT in the COVID-19 alignment? Is there a real correlation between DT deployment and performance improvement in COVID-19? Or does the alignment of DT exploit the DT investment (capacity)?

Researchers from Srinivasan et al. (2016) stated that social media had played a significant role in establishing the brand and generating awareness. It also helped retain and build strong customer relationships to create innovative markets and increase their market share. Researchers have shown a strong connection between social media use and customer growth, acquisition, and brand recognition. In his study, Zamora, (2010) observed that there is still public pressure to establish a suitable atmosphere for efficient DT management amongst all organizations, mostly MSMEs. But from the other side, the critical challenge academia is to implement curriculum changes to satisfy the needs of DT management in the Philippines. Mochoge (2014) researchers explored planned behaviour theory and innovation diffusion. These studies show that understanding plays a significant role in the organization's development of new technologies. SME, in particular, discusses that perceived ease usability and perceived utility positively influence how web-based marketing resources are adopted. If negatively perceived based on price, it becomes hard to incorporate them.

Fosso and Carter (2017) perform research to evaluate SMEs' use of the Facebook Events Page of the organizational, management, and environmental aspects. The outcomes of a logistic hierarchy suggest that few critical factors, such as the innovation, the company's size, the age of the manager, and business, had played a vital role in social networking growth. Pradhan, (2018) observed the continuous development of digital advertising in the industry, and we are witnessing slight progress in SME. The literature paper must be enhanced to benefit other beneficiaries of the study. Problems affecting SME policies were addressed in a rapidly changing scenario.

In Herhausena et al., (2020), the author classified four different items through 129 articles to map their growth more than two decades like social media, channels, DT and relationships. A survey has been done by 169 managers of the various area about future marketing how it extends the usage of digital marketing in research. They demonstrated various digital marketing strategies and transformations to show the knowledge gap and practice gap. This highly motivates us to contribute towards DT. The central persistence of DT is for

designing corporate business by introducing digital transformation (Warokka et al., 2020) through the internet and reducing the budget deficiencies, making people understand internet facilities, by sending information about digital standards that increase the utilization of the internet through smartphones. Thus, the Government introduced various applications for processing and e-Commerce agencies to solve digitization related issues. Understanding of marketers and the marketing researchers of the digital world fulfilled the lack of understanding humans (RamonSaura, 2021) and improved much towards DT businesses, reduces time-consuming process by analysing various reviews of the customer through relevant indicators. For this, we need to measure the usage of databases, whichever created by data scientists and measure the effectiveness of data-driven strategies.

Increasing DT utilization can spur productivity (Polanco-Diges & Debasa, 2020) of the digital process, transforming all paper documents into e-Documents using various e-Services available throughout the country. This also supports mitigating the challenges and reduces the lengthy administrative procedures. DT produces a larger impact on SMEs and IT ecosystems by offering new opportunities while participating in the global economy. This made an individual realize technologies like Mobile sensors, big data, AI and Cloud Computing (Borges et al., 2021).

3 Materials and methods

3.1 SME in India

In India's social and economic growth, SMEs play a vital role. SMEs generate nearly 8% of GDP to the MSME sector as per the Ministry of Micro. Its economic contribution varies from industrial production, jobs and export revenue generation. MSMEs are divided into groups under the MSMEs Development Act of 2006, namely Manufacturing Enterprises (Maximum Investment up to ₹10 Crores) and Service Enterprise (Total Investment up to ₹5 Crores) (Table 1).

The SME sector is significant in providing large-scale jobs at relatively low capital costs compared with large companies. It also contributes to the industrialization of urban and backward regions, reducing regional imbalances and ensuring a fairer allocation of national incomes and resources. As per the Ministry's Website, the SME sector employs approximately 80 million people. It also generates 45% output and 40% of its exports. The rural areas increase in the utilization of the internet over 150 million subscribers by increasing numbers for greater utilization of smartphones and PC, and it is about 14.9% of rural utilization of the Internet. These firms also act as support units for large enterprises and contribute significantly to the nation's socio-economic growth. These accomplishments

Table 1 Categorization of SMEs

Terms	Manufacturing	Services
Profile	Investment in Plant and Manufacturing	Investment in Equipment
Micro	Under ₹26 lakhs	Under ₹12 Lakhs
Small	₹26 Lakhs to 6 Crores	₹12 Lakhs to ₹3 Crores
Medium	₹6 Crores to ₹12 crores	₹2 Crores to ₹6 Crores

have numerous developments because the development of the Internet was increased as SMEs realize market opportunities by accessing end customers directly.

3.2 Demand for SME digitization in India

SMEs significantly contribute to India's Gross Domestic Product (GDP). While the pillar of the Indian economy, these companies face challenges arising from outdated practices and the absence of digital influence. Furthermore, a competitive environment, demanding consumers, and tight financial support also create more problems. SME digitization will also go a big step towards overcoming these problems and helping small companies to attract more consumers and make higher profits than before. If SMEs want to succeed, they should implement the latest technologies and methods to encourage workforce productivity, reduce human faults, and calculate growth parameters in a very concise form. Other studies also highlighted this theory and pointed out that SMEs can go digital immediately. A digital start making can also enable SMEs to expand quickly internationally, despite huge investment.

3.3 Current SME landscape

SMEs are seen to be drivers of economic growth. They also contributed to the development of entrepreneurial efforts through creative business strategies. Using new technologies, SMEs expand their scope across the market, manufacturing various products and services that meet domestic and international demands. As per the MSME at 2019–2020 report, 63.38 million registered companies belong to MSMs; 99.57% to Micro, 0.14% to Small and 0.29% to Medium Enterprises. Their aggregate contribution to the economy is 580 billion dollars (28.91% of total GDP) and hires 110.98 million people. Figure 1 emphasizes their strategic significance for the country's economy. The ratio appears to be

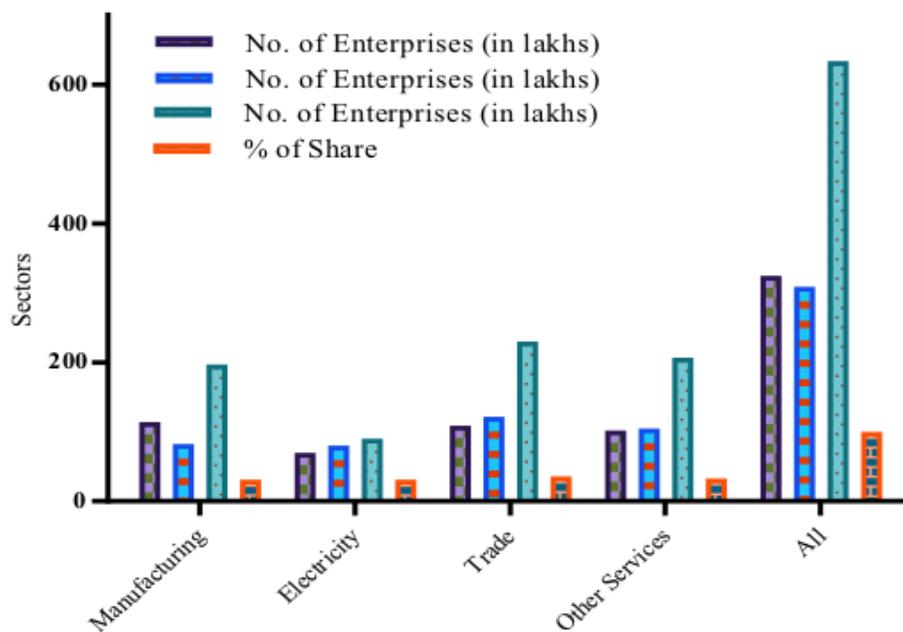


Fig. 1 Distribution of Estimated SMEs

Table 2 Estimated number of MSME

SME Category	No. of Enterprises (in Lakhs)			% of Share
	Rural	Urban	Total	
Manufacturing	₹114.14	₹82.5	₹196.65	49.16%
Electricity	₹0.03	₹0.01	₹0.03	0.015%
Trade	₹108.71	₹121.64	₹230.35	57.58%
Other Services	₹102.00	₹104.85	₹206.85	51.71%
All	₹324.88	₹309.00	₹633.88	78.23%

Table 3 SME Distribution in India's Rural and Urban Areas

Sector	Micro	Small	Medium	Total	% of Share
Rural	324.09	0.78	0.01	324.88	51%
Urban	306.43	2.53	0.04	309.00	49%
All	630.52	3.31	0.05	633.88	100%

very weak in terms of micro-companies. We believe that the concept of robust digital strategies, which we will be discussed below, will allow a considerable proportion of micro-enterprises to boost operational performance, expand the market, enhance customers, grow top and bottom line and create SME for the next few years.

3.4 Estimated number of MSMEs in India

MSMEs in India play a significant role by creating major employment opportunities at relatively lower costs than important industries and industrializing urban and backward regions, among other things, by reducing regional imbalances, ensuring a fairer allocation of regional income and health. According to the National Sample Survey (NSS) of Round 73, conducted by the National Sample Survey Office, Ministry of Statistics and Progress Monitoring, ₹633.88 Lakh non-farming MSMEs were involved in various economic activities in the country in the 2015–16 period (₹196.65 Lakhs in manufacture, ₹0.03 Lakhs in non-captive EB power generation ₹1,230.35 Lakhs in manufacture). The MSMEs distribution operation is highlighted in Table 2 and displayed in Fig. 1.

The ₹630.52 lakh micro-market accounted for over 99% of the estimated total MSME amount. The minor sector with ₹3.31 lakh and moderate industry with an approximate ₹0.05 Lakh of MSMEs represented 0.52% and 0.01% of the total estimated MSMEs. Of the 633,88-member micro-enterprises, 324.87 micro-enterprises (51.25%) are rural, and 309 micro-enterprises (48.75%) are urban. The distribution of businesses in rural and urban areas is indicated in Table 3 and presented in Fig. 2.

4 Role of MSMEs in the Indian economy

MSMEs have significantly contributed to the development of management of businesses through corporate innovations. The MSMEs broaden their domain around economic sectors and produce a wide range of goods and services to meet domestic and international

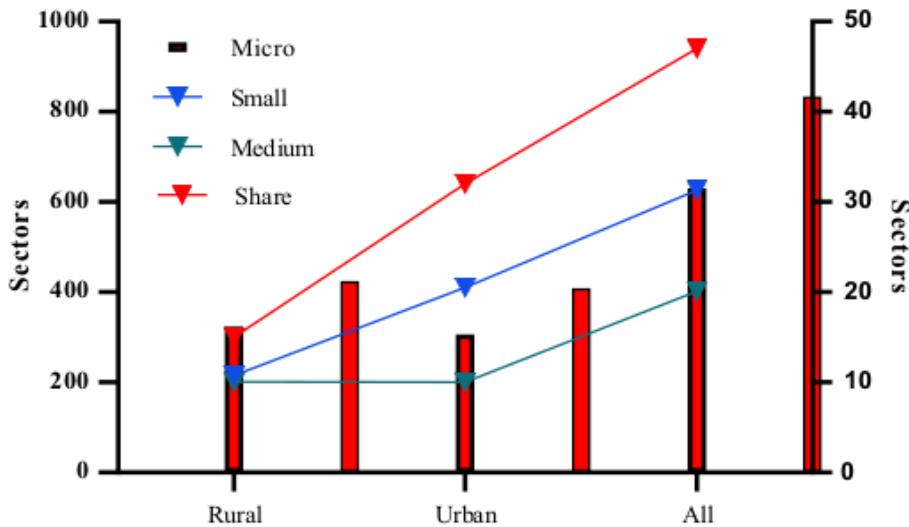


Fig. 2 Share of rural and urban SMEs in India

market requirements. According to a [table](#) data from the Central Statistics Office, the MSME sector's contributions to the Country's Gross Value Added (GVA) and GDP at today's costs from 2014–2015 to 2019–2020 is viewed in [Table 4](#) and projected in [Fig. 3](#) as follows:

According to the 2019–2020 Digital India Report, [India is one of the world's top three digital market economies](#). India was the 2nd largest online service market globally, with 560 million internet subscriptions in 2020. India has the 2nd fastest digital adoption rate of growth. For example, India's average mobile data usage per device is over 54 times higher in mid-2016 than its 8.3 *Gigabytes* per month, compared with more populous countries like China. India can generate up to 1 trillion \$ in financial value from the digital economy by 2025, with half the chance of modern digital ecosystems emerging in different industrial sectors.

By 2025 India might build a digital economy of \$800 billion to \$1 trillion (or 18% to 23% of its nominal GDP). SMEs will catch a part of this destructive pie by flowing towards the water current. The current digital ecosystem will potentially contribute \$1 trillion to unleash effectiveness and competitiveness among SMEs through digitalization ([Fig. 4](#)). The potential five times economic value growth will build an increasingly increasing demand for a host of digital services, channels, apps, content, and solutions.

Table 4 SME-GVA Share in India GDP

Financial Year	Total SME GVA	Growth (%)	Total GVA	Share of SME in GVA (%)	All India GDP	SME Contribution in All India GDP in %
2014–2015	3,658,196	9.18	11,504,279	31.80	12,467,959	29.34
2015–2016	4,059,660	10.97	12,574,499	32.28	13,771,874	29.48
2016–2017	4,502,129	10.90	13,965,200	32.24	15,391,669	29.25
2017–2018	5,086,493	12.98	15,513,122	32.79	17,098,304	29.75
2018–2019	5,741,765	12.88	17,139,962	33.50	18,971,237	30.27
2019–2020	5,816,177	13.25	18,728,289	34.19	19,828,228	32.11

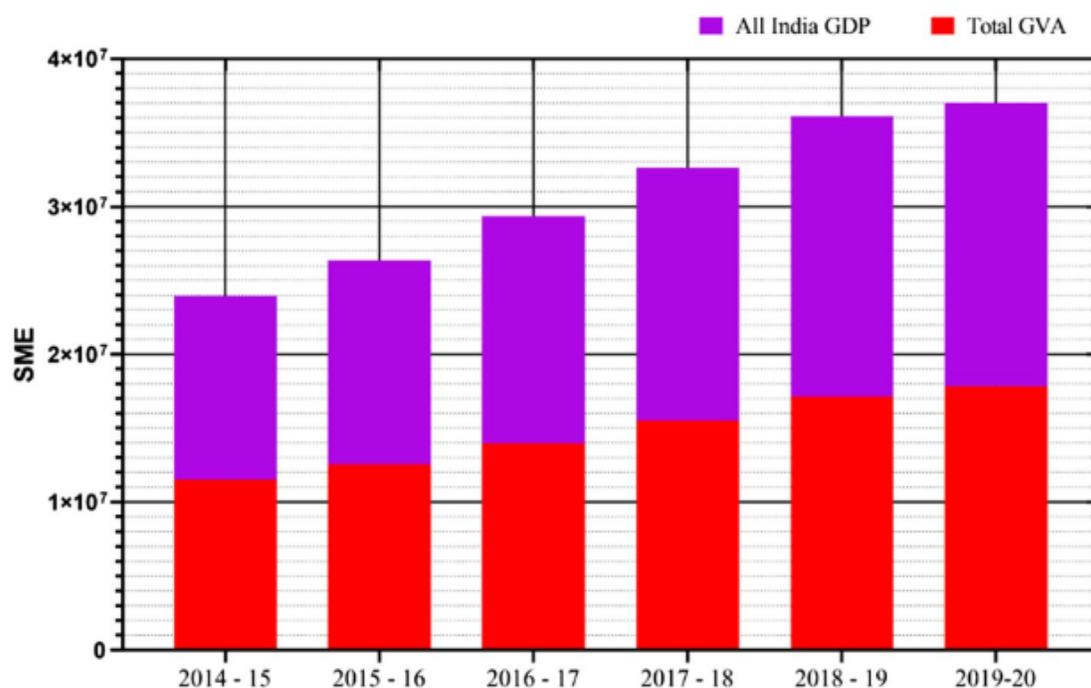


Fig. 3 GDP Growth of SME



Fig. 4 Overview of SME in India

This offers SMEs an attractive chance to invest in innovative technology to accommodate their requirements and try new cross-border markets. Although SMEs are considered less wealthy than big companies and multinational companies, they contribute to many economic aspects. SMEs are the avant-garde of the current economy. Some SMEs do have a positive attitude to creativity, product, market growth, and a pool of talent for new technologies. With better funding sources comparable to start-ups and improved emerging capacity than multinational corporations with established inventory, it is hard to understand why SMEs seem to be on the counter-attack regarding DT.

The Government is taking significant initiatives and efforts to improve jobs, skills growth, and entrepreneurs to promote the increasing necessity of emerging technologies. Initiatives like ASPIRE (A Scheme for Innovation Promotion, Rural Industry & Entrepreneurship) were established to encourage skill growth, create a digitally capable workforce and support SMEs by establishing Livelihood Business Incubators (LBI). Future emerging digital valuation might benefit 60–65 million new jobs by 2025.

4.1 Traditional SMEs in India

At the moment, Indian Traditional SMEs find it challenging to adapt, including the following:

- a. *Infrastructure Problems*: These sometimes necessitate Government/Private involvement and are often overlooked due to a lack of adequate funds. Most SMEs are unaware of the numerous funding alternatives open to them through (NBFCs) and banks and lack in digital literacy necessary to collect data online.
- b. *Low Productivity*: Without a doubt, digitization has improved productivity in innovative businesses by automating all manual work. However, conventional SMEs operate slower, and their staff often lacks basic programming skills. This harms the performance.
- c. *Inadequate Funding*: In addition to enhancing or improving facilities, funds are needed to promote and advertise the goods provided by conventional SMEs. Additionally, a lack of digitalization means that the income stream is not strictly monitored, and SMEs cannot conduct a cost–benefit analysis. Further, digitalization is far less expensive than conventional advertising, which traditional SMEs can't afford.
- d. *Inability to Innovate*: Without digital literacy, traditional SMEs cannot find novel ways to find customers. Although most customers nowadays order online or via Smartphone or tablet, typical SMEs cannot attain them. They are unable to acknowledge online payments or submit electronic invoices.
- e. *Increased Risk*: Since conventional SMEs rely on manual processing to sell their products, there is a high probability of human mistakes in terms of quantity sold, transaction made, net income, and total cost, among other things, results with less accuracy and increased risk.
- f. *High Cost*: The operating expenses, promotional costs, and growth costs of a conventional SME are often more significant than those of a digitalized SME. By going digital, you can make revenue in any city or country without opening a new plant or store. Additionally, more and more digitization occurs, less investment in human resources would be needed.
- g. *Inadequate Training and Skills*: A lack of information about system use, online marketing, blogs, social networks, and web services impedes the effectiveness of traditional SMEs. Nobody can track *day-to-day* revenue, benefit, and profitability this way.

4.2 The advantages of going digital

- a. *Customer Acquisition*—Going digital banking ensures that you can meet consumers in any country for increased exposure and interact with your potential customers. Customer relations can be more easily handled, and the various resources provide you with customer knowledge. This allows us to sell your goods better and develop advertising strategies.
- b. *Technical Performance*—As a digitalized SME, technology can automate the core functions, thus increasing your performance. This will enable you to utilize resources and provide us with more influence over logistics.
- c. *Workforce Enablement*—Using digital resources, you can recognize areas that need professional development and workforce gaps. It would be simple to monitor employee performance, train them, and educate them about the new DT concepts.

- d. *Managing Risk*—By digital transformation, you will safeguard the company’s confidential data and financial records with the help of security tools. Additionally, you can keep a keen eye on property resources and strengthen logistics by using automated monitoring.
- e. *Increase Efficiency*—The use of DT enables workers to work more quickly and effectively. They can also operate remotely and at any time to respond promptly to a business emergency.
- f. *Innovation*—By implementing digital tools, clients can enhance the business’s metric analysis. Metrics such as internet traffic, operation metrics such as sales and acquisitions, information metrics such as customer insights, and people metrics such as employee job satisfaction can all be used to enhance various facets of the organization quickly.
- g. *Cost Savings*—Digitization enables cost savings by computerizing core processes and streamlining operations. Additionally, you can conduct business in any country in the region without incurring any advertisement costs.
- h. *Reduces Human Resources Requirements*—As digital platforms automate most business operations; the use of workers will decrease. There will be less opportunities for user mistakes, and surveillance will be reduced.

As more companies and the Indian Government recognize the critical nature and advantages of connecting the digital skills gap for SMEs, digital training programmers, training, and free resources are emerging to meet the challenge. Companies are holding special sessions to develop workers’ digital skills, and in the future, traditional SMEs are required to embrace DT with great enthusiasm.

4.3 The Indian SME sector’s digitalization

India is undergoing a digital transformation. For the next few years, increasing internet connectivity, increasing mobile use, and increasing digital media usage would significantly affect the Industry in India (Fig. 5). Affordable computers and low-cost network connectivity have been supported. The Internet has transformed how the Indian economy works, from how the urban population receives knowledge to how farmers produce and sell their crops. The conventional processing, managing, storage, and transporting of objects have undergone a tremendous change due to digitalization.

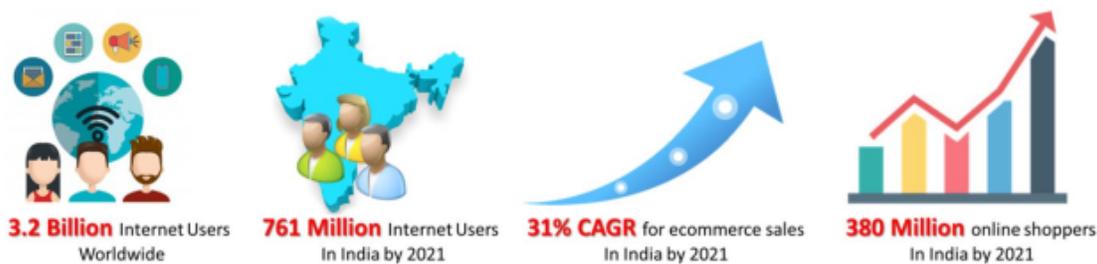


Fig. 5 Overview of E-Commerce in India

4.4 Market size of the Indian E-commerce industry from 2014 to 2027

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India's internet growth has exceeded that of China and the United States, as per Kleiner Perkins Caufield and Byers (KPCB), a venture capital firm, with each rising at about 55%, 21%, and 28% in 2014. According to the survey, mobile devices account for 65% of internet traffic. The retailer sector in India is estimated at \$600 billion, as per the Confederation of Indian Industries' "E-Commerce in India," with online shopping contributing just \$16 billion in 2015.

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23 These are projected to be comparable to brick-and-mortar sales in the next 5 years. This market is projected to grow from \$55 billion in FY2018 to \$220 billion by 2025 (Fig. 6). As per KPCB, Smartphone's account for 41% of overall online purchases. The introduction of the Internet has resulted in the movement of companies online and the development of assets and resources at a faster and broader scale.

4.5 Challenges on the road to transformation

Enterprises may use the latest technology to reduce the expense and time required to develop and provide innovative goods/services. This allows SMEs to stand out from their competitors, reduce costs, and compete globally with multinational corporations. SMEs in India face significant challenges in gaining access to and implementing new DT advancements. Although lack of expertise and funding continue to impede technology adoption, the lack of an environment that allows DT transfer and engagement with specialists is significant. If the company fails to develop a clear digitalization strategy and vision, the company's demoralized owners may abandon the transition before seeing any results.

a. Lack of Knowledge about Tech-Enabled Services

Numerous SMEs continue to be unaware of the advantages of technology-enabled services such as E-Commerce and social media sites. A lack of awareness about emerging technology and scepticism keeps businesses from pursuing digital strategies.

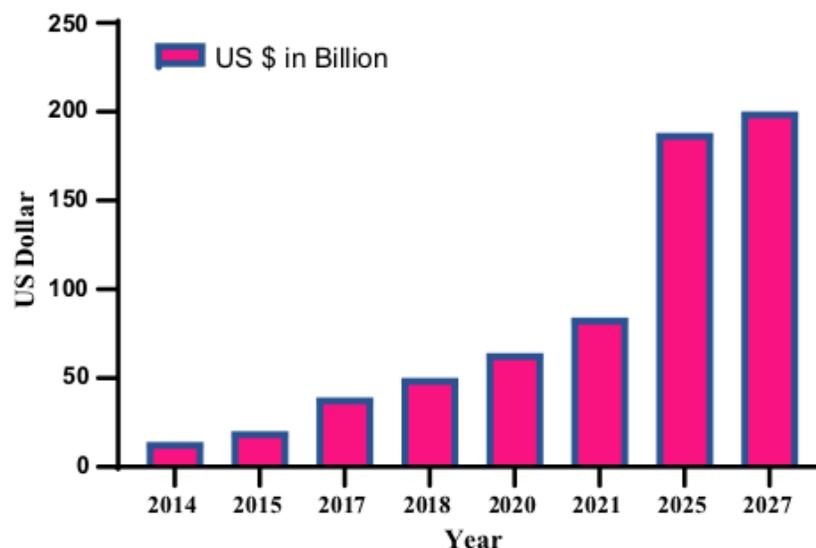


Fig. 6 Growth in Indian E-Commerce Industries

b. *Lack of Awareness of “Digital Transformation Impact.”*

Several small businesses are unaware of digital transformation on enterprise facilitation and growth and client engagement and loyalty. As a result, the decision to embark on a Digital Transformation journey is often postponed or avoided entirely.

c. *Lack of Inherent Technology Expertise*

Since SMEs always lack intrinsic technology skills, developing a Digital Transformation Roadmap independently will be challenging. Additionally, the inertia to hire an external auditor or even consider it necessary may be high.

d. *Poor Infrastructure and Insufficient Funds*

According to the International Finance Corporation (IFC) study, India’s SME sector faced a considerable financing demand deficit of 2.93 trillion in 2016. In India, SMEs face significant challenges due to insufficient infrastructure and financing.

e. *Inefficient Regulatory Framework*

Inadequate technology increases concerns about data protection. Data security is characterized as the process of safeguarding data against unauthorized access, alteration, damage, or release to third parties without their consent. Malware and cyber-attacks are the primary sources of security concerns. In India, a lack of strict cybercrime laws and cybercrime regulations has made SMEs wary of adopting emerging DT.

f. *Governance Challenges*

All companies strive to improve their efficiency and responsiveness by better managing their budgets, gaining access to reliable data, and expanding the customer base. These improvements occur due to good governance, increased communication, effective teamwork, and the organization’s comprehensive goal.

g. *Dynamic Nature of DT*

Digitalization continues to evolve, enabling consumers to run a business in fresh, quicker, and more efficient ways. SMEs frequently fear such a rapid pace of progress, which explains their aversion to implementing DT to enhance their businesses. Additionally, it places a significant burden on their capital by purchasing intelligent devices, using the best Cloud-based Service Providers, and recruiting professional workers to handle this transition.

4.6 Digital technologies for SMEs

The new digital era in which we all live has resulted in an abundance of discoveries, developments, and technical advancements. Not only can these advancements make our relationships simpler and more comfortable, but they also make our professional lives run incredibly smoothly. These continue to transform our environment slowly and steadily as each person and company adopts and adapts to them as the times change. Each day, hundreds of new inventions occur, but only a few genuinely significant one’s stick. Every organization needs to recognize these DT developments in smaller companies. It is a reality that company owners who refuse to embrace new DT often lag behind those who do. The following are the main innovations that have evolved into a requirement for every small business in the modern era.

a. *Customer relationship management*

Since enterprises are built on relations, the strength of those relationship issues can dictate how one advances and develops. A CRM is essentially Cloud-based technology that can support companies by increasing sales, retaining customers, CRM usage

development, leads conversion, and lowering marketing expenses, among other things. As a small company, ensure that you test a few different CRM software options and then choose the one that appears to become the most appropriate and economical.

The best CRM software includes Zoho and Salesforce, which provide both standard and premium features. Reliable and easy to use: Insightly is yet another option for small businesses, mainly because it is easy to use. It costs pennies in comparison to other CRM apps. CRM provides comprehensive project management and powerful integration with e-Mail, Google Products, and Office 365.

b. *Digitizing of payments*

If you visit a shop online or in-person and cannot locate your payment method, you will experience annoyance. This casts a poor image of the brand product. Due to the lack of appropriate payment choices, turning away customers is often a negative experience for a company owner. Nowadays, all consumers prefer the payment options that are most comfortable for them, and as a business owner, you must allow them to do so. Assure that you provide them with options such as a Credit Card terminal and an online payment portal. Most people stop carrying excessive amounts of cash or credit cards; online payment is often regarded as safer and more reliable. PayPal and Securepay.com are two electronic payment portals that you can use.

c. *Social-media and website*

Although social media initially served as a forum for friends and relatives to interact and stay connected, it has gradually evolved into one of the largest and most influential corporate communication methods. Not only can social media be used for market research by large and small companies, but it can also be used to establish communication with consumers and solicit feedback. It's an excellent medium for attracting new clients, connecting with existing ones, and converting them to leads. It's worth noting that 63% of smaller companies assume social media helps them attract and retain more loyal customers. Social networking is a powerful tool for attracting customers, and a promised customer has a stronger emotional connection to a company. Thus, the device could be used for explicit and implicit marketing, thereby promoting the company.

Although it can seem elementary, a website is critical for any company, regardless of its size. It's interesting to learn that so many small companies lack a website. An absence of a website essentially destroys the company's visibility, but it also generates an appearance that the business might not be technologically advanced and, therefore, not reliable. A website is one of the most successful marketing resources available because it reaches out to people outside the immediate city, thus covering a much more comprehensive marketing and advertising area. In today's world, every new customer will first visit the website or web page of the company to which they will be connected, and it is from the site that they will decide whether to try the business.

4.7 Location-based tools

A location-based tool is another technical breakthrough that any company requires in today's world. Nowadays, consumers rely on location-based tools to locate businesses and facilities in their immediate vicinity. As a result, it is necessary to localize the online presence for optimal accessibility. Several helpful location resources are available, including social networking sites, the Yellow Pages, city search, and Yelp. To use these platforms, you must enter your business's exact type, address, and contact information. Additionally,

don't fail to include the goods and services you sell, as well as directions to your place. This will assist you in receiving inquiries and will thus benefit your company.

If you wish to expand your company, you must utilize all of the technologies listed previously or as many as possible. Without these resources, you risk being left behind by smaller and larger-sized companies keeping pace with technical advancements. Numerous businesses provide technology-related goods and services—for example, stores such as Staples may offer solutions to companies of all sizes.

5 Research methodology

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The analysis technique for this research is a multiple case study. The primary objective is not to make broad strokes but to understand a particular phenomenon (Johnston et al. 1999). A small-scale survey on digital technology among SMEs following COVID-19 was conducted in Coimbatore, South India. The experimental data were gathered in two stages: first, via semi-structured theme interviews, and then via a survey. The interviews were conducted to collect data about the companies' adaptation of new tools and technology, their use of digital channels, and the challenges associated with their service. The study investigated digital tool use in a broader sense and contextualized the interview findings. The interview statistics were combined with prior research to form the basis for developing the online survey. The items covered budgetary allocations, goals for DT in SMEs, and the primary drivers of adoption. We performed 40 semi-structured theme discussions with 40 individuals in charge of SMEs. These individuals held various names, but all were accountable for their firm's digitization efforts. The sample companies were chosen subjectively. The aim was to audit businesses that expressed an interest in digitization but had not yet wholly integrated digital tools into their daily operations.

Table 5 explains the comparative approaches overwhelm with proposed and existing approaches in present India. This produces various entrepreneurs and how they are conducting interviews for the improvement of SMEs. Data science and ML produce various prospects for creating more business values to increase digitization in SMEs. The transcript resources were read many times, and data were collected to aid in the data parsing process. Because the same themes were explored in each interview, all content was categorized according to the articles. After organizing the results, a lengthy summary was written to interpret the research with quotes from the interviewees. Qualitative research was also conducted to illustrate the use of various marketing platforms and the advantages and risks associated with their service.

The second phase of data analysis included conducting a survey of the existing state of digitalization in SMEs between September and December 2020. A research study was used to collect data. 428 firms were contacted, and the questionnaire survey yielded 42%, i.e., 180 SMEs received responses. The survey's objective was to ascertain the effect of digitization on SMEs, the factors that influence SMEs' decision to adopt digitization, the reasons why digitization has not yet adopted the results of companies, and to identify relevant guidelines (Fig. 7).

5.1 Use of the CRM system in SMEs in India

CRM is a critical component of sustainability in the twenty-first century. All businesses must prioritize service quality and customer satisfaction irrespective of size or focus. It

Table 5 Details of Discussion

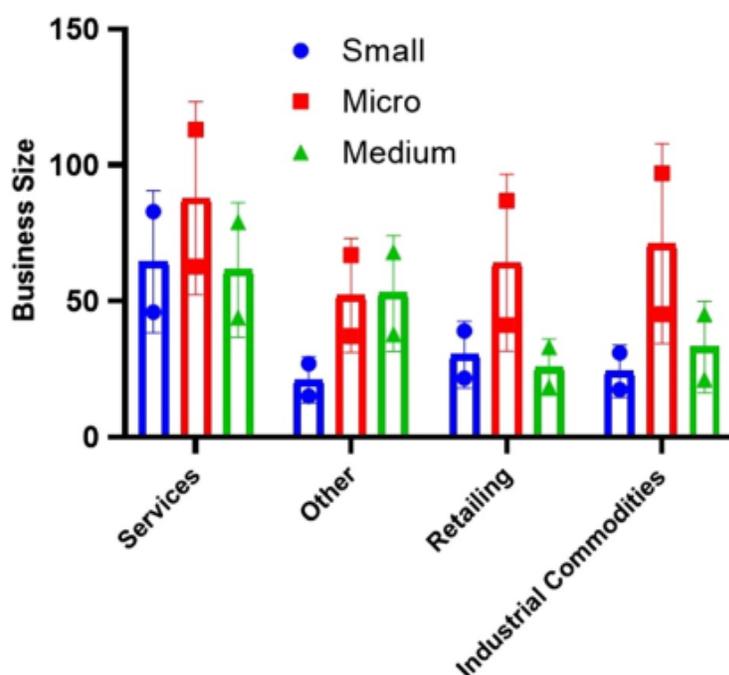
Interviews in SME companies

Company TAG	Industry	Cross-Examined (Age)	Interview Time (in Minutes)
A	Food (Hotels and Restaurants)	Proprietor (35)	118
		The owner (53)	66
		Manager (41)	109
		Managing Partner (39)	96
B	Textile	The owner (37)	145
		Manager (41)	76
		Partner(57)	120
C	Paper Products (Press & Printing)	Proprietor (56)	111
		The owner (36)	67
D	Plastic	Sales Manager (30)	92
		The owner (26)	74
		Manager(43)	113
E	Packaging	Manager (30)	62
		The owner (33)	58
		Managing Director (49)	71
F	Chemical	The owner (41)	61
		The owner (38)	55
		Manager (52)	67
		The owner (43)	94
G	Metal	The owner (32)	97
		Proprietor (37)	56
H	Automobile	Manager (30)	133
		Managing Director (34)	78
		Partner (43)	86
I	Small	The owner (39)	113
		The owner (45)	56
J	Jewellery	Proprietor (45)	84
		The Owner (37)	78
		Manager (41)	66
		Partner(57)	79
K	Medical	The Owner (59)	118
		The Owner (41)	107
		The Owner (38)	78
		Manager (52)	96
		The Owner (43)	117
L	Wood and Furniture	The Owner (35)	92
		Manager (41)	67
		Managing Partner (39)	89
M	Electronic and Electrical	Manager (44)	59
		Sales Manager (56)	72

Table 5 (continued)

Sample Characteristics								
Industry	N	%	Customers	N	%	Size	N	%
Services	83	46.0	Consumers (B2C)	113	62.8	Micro	79	43.9
Other	27	15.0	Businesses (B2B)	67	37.2	Small	68	37.8
Retailing	39	21.6	Businesses (B2B)	87	41.19	Medium	33	18.3
Industrial Commodities	31	17.4	Businesses (B2B)	97	45.17	Small	45	21.10
Total	180	100	Total	180	100	Total	180	100

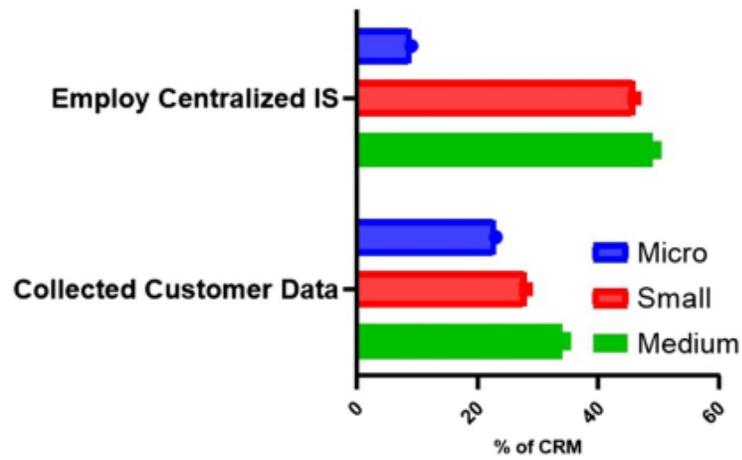
Fig. 7 Sample data analysis of SME



is essential to establish standards to introduce CRM in small businesses. For SMEs, the important CRM decision-making metrics are whether economic output objectives are achieved. Business organizations expect to collaborate more effectively with their clients, manage their relationships, and improve their performance. A secondary consideration, quantifiable research indicates, is that they plan to improve their product. The primary goal of CRM implementation in an organization is to improve sales, customer loyalty, and customer acquisition.

It was discovered that only 38% of the 40 organizations surveyed used a centralized information system. Although 72% of participants acquire information about clients, this does not necessarily imply that a CRM is introduced in the organization. A CRM philosophy is required for an organization to develop and operate with customer information. Businesses may use licensed components such as Microsoft Office applications, and paper documents have been kept for small businesses. Figure 8 represents the present nature of industries willingness to employ centralized processing information systems. This produces a high impact over CRM that validates the contribution of centralized systems. The first chart illustrates the use of a centralized information system and consumer data

Fig. 8 Industries willingness to employ CRM in India



processing in the analyzed companies based on their scale. It was evident that medium-sized businesses depend on the centralized structure more than micro-businesses. Based on data collection and the use of centralized information systems in SMEs, it is reasonable to conclude that the readiness to adopt a CRM system is low.

The primary issue is to validate CRM implementation in the surveyed companies. Of the 40 respondents, 28% of medium-sized, 14% of small-sized and 4% by micro-size businesses have a CRM framework in place; 6% of micro, 26% of small-sized companies, and 39% of medium-sized enterprises are in the implementation stage; 32% are considered deployment; and 29% of respondents, especially micro-sized firms, are not taking into consideration of CRM implementation. CRM has been implemented in 76% of medium-sized companies surveyed. In the majority of instances, these organizations implemented within a year. The research findings are depicted in Fig. 9.

According to surveys, most SMEs in India have yet to adopt CRMs due to a lack of knowledge. SMEs have unique characteristics that must be considered when deciding the best approach. These characteristics include minimal specialization, limited funds availability, a flat management structure, and customer service interaction. Even then,

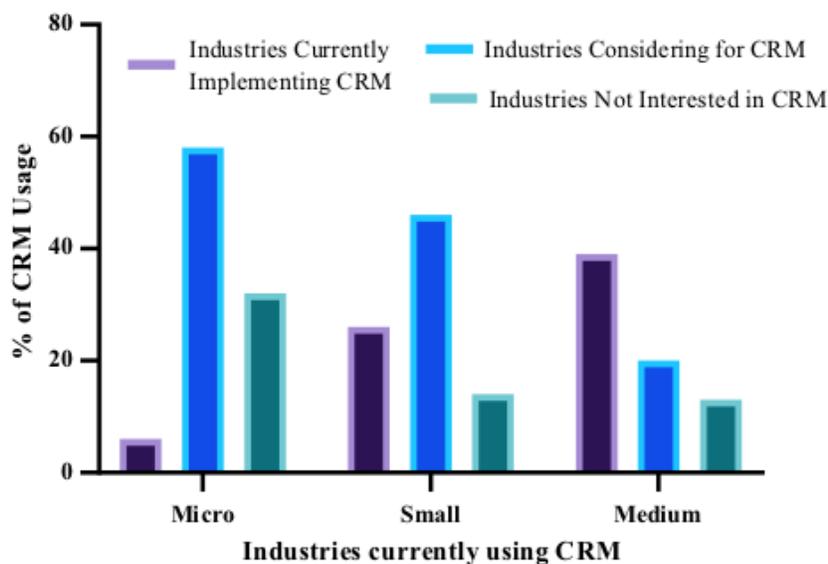


Fig. 9 Industries status in employing CRM in India

each SME must define its requirements for CRM deployment, taking into account its scale, financial backing, and business. It is considered to accomplish market objectives and profit maximization to all companies, regardless of size. To be effective, the primary requirement is the customer, including customer happiness and loyalty. As a consequence, it's reasonable that the direct gain that businesses expect from CRM is also a summary of their customers, encouraging their work with knowledge about them, with the vision of attaining anticipated business performance more effectively, leads to increased revenue, consumer loyalty, customer sales growth, and increased turnover.

5.2 Payments systems in SMEs in India

India's economy is too reliant on money transfers. In India, currency in circulation accounts for up to 18% of GDP, compared to 3.5–8.0% in countries like the USA and the UK. India falls short behind established countries in the West and emerging countries like Brazil and China. In 2015, cash accounted for between 20 and 25% of total cash transactions in developed countries such as the USA, the UK, France, and Germany, compared to 78% in India. In this case, the demonetization policy has necessitated the establishment of valid savings accounts and the use of non-cash digital payments. This is strengthened even more by India's digital revolution. With approximately 1 billion smartphone users, India is the world's 2nd largest mobile subscriber nation. By 2020, India's web users are projected to cross about 650 million. India has also surpassed China as the world's 2nd largest smartphone industry, with 240 million smartphones. Thus, having a mobile-first/mobile-ready platform makes sense economically for companies. Payment network providers also provide Smartphone app developers ready-to-integrate developer kits to deliver a native payment system. The selection of databases depends upon their classification of data sets over social impact. This produces practical implications for the business industry depends on various strategies, which require an in-depth understanding of the knowledge of end-users in the market.

With covid-19 bringing ever more Indian customers online, the country's e-commerce industry is forecasted to jump 84% to hit \$111 billion by 2024, as per the FIS survey. Worldwide, FIS provides innovative solutions to retailers, banks, and financial market firms. According to the 2021 Global Payments Report by World pay from FIS, global developments in digital commerce intensified during the epidemic. Like India, consumer behavior in several countries has shifted due to COVID-19, and new payment patterns are expected to emerge.

According to the study, mobile shopping will boost India's E-Commerce sector innovation, which is expected to expand by 21% yearly within the next four years. It stated that digital wallets (40%), credit cards (15%), and debit cards (15%) were the most common method of payment online in 2020, the year of the pandemic, which began in March with India experiencing one of the toughest lockdowns. According to the study, digital wallet transactions are estimated to expand online transactions to 47% by 2024.

In India, there are essentially two forms of payment systems:

- Paper-based money, checks, drafts; and
- Electronic transfers, such as Electronic Clearing Systems (ECS), National Electronic Funds Transfer (NEFT), and Real-Time Gross Settlement (RTGS); and widely used

payment services, including such Pre-Paid Instruments (PPI), mobile banking, and ATM/POS.

India's journey with digital payments began in early 2000, and it has been just short of excellent! Digital payment modes have grown from 3% of all cash and non-cash payments in 2005 to a projected 58% by 2025 (Fig. 10). This remarkable growth is significant.

Simultaneously, Smartphone ownership in India has increased from 2% in 2005 to 26% in 2015, 32% in 2020, and is forecast to reach 36% by 2022. This is a vital phenomenon that has improved online transactions in India, with UPI growing by 143%. UPI YoY and QR-based payments, AePS payments, and other payments apps are increasing similarly. UPI has been expected to rise at nearly 100% CAGR over the coming years.

Semi-urban and rural areas have seen the most growth, with rural internet active users surpassing urban users by a margin of 227 to 205 million for the first time! Around 550 million Indians use mobile phones, presenting enormous potential for monetization. Together, these changes will build a 1\$ trillion digital payment market by 2025, up from the expected 500\$ billion in 2020 (COVID-19 may influence some businesses adversely, but many other sectors may provide protection, and the market size is likely to continue).

According to survey findings shown in Fig. 11, most of India's SMEs have no incentive to move to contactless payments. Since most Micro and small business payments are non-account and credit-based, many people prefer financial transactions to internet banking. Additionally, they prefer physical cash in their hands to digital currency in banks. These industries generate a larger volume of transactions for individuals that may not even have a savings account. At this stage of the industry, the practical application of cashless transactions is impossible. SMEs rely heavily on digital payments rather than money transfers. Additionally, cheque-based transactions are more prevalent at these levels of the industry.

Almost 70% of micro-industry transactions continue to be directed on paper, with 68% being cash transactions and 2% being cheque transactions. Entrepreneurs have no

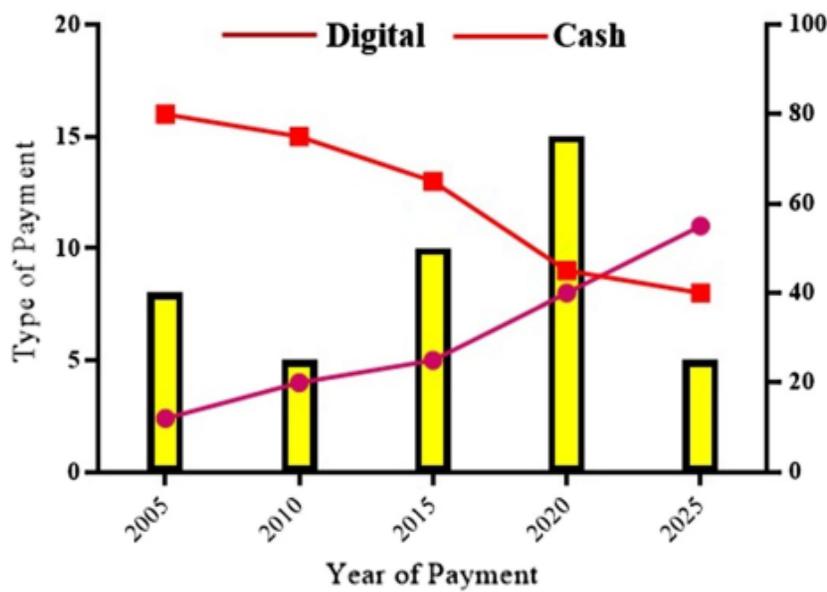


Fig. 10 E-Payment Status in India

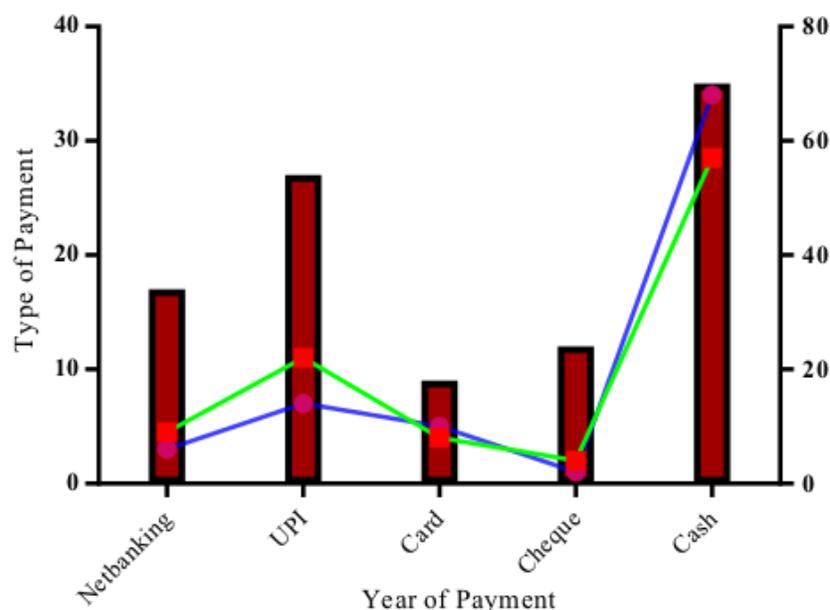


Fig. 11 Survey results on E-payment status among SMEs in India

interest in migrating their significant transactions to online banking. However, UPI-based payments have significantly increased in recent years, accounting for 14% of all trades, compared to 16% for online banking and card-based payments. The situation is similar in small-scale businesses, where 57% of transactions are still money, while 4% are cheque-based. Digital payments account for the remaining 39%, which is still far less than in other developed countries.

In comparison, medium-sized businesses have moved to a cashless transaction, with about 54% using online transactions and the remainder using paper statements. The findings indicate that both societal pressure and competitor pressure impact the adoption of an online payment system. The increasing trend of online shopping, e-Commerce, and relocation from one area to another puts pressure on SMEs to adopt a digital payment system.

6 Conclusion

We set out in this paper to explain the consequences of using digital tools to ensure business continuity in the face of severe uncertainties and global society shocks such as covid-19. We argued for SMEs to take a socio-technical strategy to their DT approaches to address problems associated with their work organization based on DTs regarding COVID-19 while retaining their operations. Additionally, we demonstrated the consequences of DT usage in practice by executing a small-scale survey across a group of SMEs in Coimbatore, South India. The study concludes that large companies are more receptive to digitalization than small businesses. This may be because of the heavy value of digitalization or because smaller companies lack money to invest in digitalization. We encourage organizations that have not yet embraced digitalization to consider doing so since there are many benefits associated with it, so they should recognize the long-term strategy, rather than the short-term, regarding digitalization costs. In a long time, the advantages of digitalization will outweigh the costs. We expect that our observations will inspire researchers and practitioners to conduct additional research on DT use in SMEs to achieve business goals during COVID-19. In

future, we are planning to incorporate the decision process for managing large digitization by creating extensive opportunities towards DT of new generation over marketing. This will be achieved by managing and practising demand models through organizational culture and creating awareness. We are scheduling for sub-urban and rural also to be motivated over digitization. This highly supports making a high tangible contribution towards economic growth and creating job opportunities for sub-urban business individuals.

5

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References

- Baum, G. (2013). Innovation also Basis der nächsten Industrie revolution. In U. Sendler (Ed.), *Industries 4.0* (pp. 37–53). Berlin and Heidelberg: Springer Vieweg.
- Bharadwaj, A., Sawy, O. A. E., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, *37*(2), 471–482.
- Borges, A. F. S., Laurindo, F. J. B., Spínola, M. M., Gonçalves, R. F., & Mattos, C. A. (2021). The strategic use of artificial intelligence in the digital era: Systematic literature review and future research directions. *International Journal of Information Management*, *57*, 1–16.
- Byrd, T. A., Lewis, B. R., & Bryan, R. W. (2006). The leveraging influence of strategic alignment on IT investment: An empirical examination. *Information & Management*, *43*(3), 308–321.
- Carlsson, B. (2004). The Digital Economy: What is new and what is not. *Structural Change and Economic Dynamics*, *15*(3), 245–264. <https://doi.org/10.1016/j.strueco.2004.02.001>
- Fosso Wamba, S., & Carter, L. (2017). Social media tools adoption and use by SMEs: An empirical study. *Journal of End User and Organizational Computing*, *26*(2), 1–17.
- Gerow, J. E., Grover, V., Thatcher, J., & Roth, P. L. (2014). Looking toward the future of IT-Business strategic alignment through the past: A meta-analysis. *MIS Quarterly*, *38*(4), 1059–1085.
- Hartbrich, I. (2014). Industrie 4.0-in der Zukunftsfabrik. *Die Zeit* *5*(1): 1–3.
- Herhausen, D., Miocevic, D., Morgan, R. E., & Kleijnen, M. H. P. (2020). The digital marketing capabilities gap. *Industrial Marketing Management*, *90*, 276–290.
- Jutla, D., Bodorik, P., & Dhaliqal, J. (2002). Supporting the e-business readiness of small and medium-sized enterprises: Approaches and metrics. *Internet Research: Electronic Networking Applications and Policy*, *12*(2), 139–164.
- Kagermann, H., J. Helbig, A. Hellinger, & W. Wahlster. (2013). Recommendations for Implementing the Strategic Initiative Industrie 4.0: Securing the Future of German Manufacturing Industry. Final report of the Industrie 4.0 Working Group. Forschungs union
- King, W. R. (1978). Strategic planning for management information systems. *MIS Quarterly*, *2*(1), 27–37.
- Manhart, K. (2013). Industrie 4.0 könnte schon bald Realität sein. <https://computerwelt.at/knowhow/industrie-4-0-konnte-schon-bald-realitat-sein/>.
- Mochoge, O.C. (2014). SMES' Adoption of Web-based Marketing: Empirical Evidence from Kenya. *International Journal of Computer Science. Issues (Chicago, Ill.)*, *11*(1), 227–236.
- Modrak, V., Soltysova, Z., & Poklemba, R. (2019) Mapping requirements and roadmap definition for introducing I 4.0 in SME Environment. In *Advances in Manufacturing Engineering and Materials*, (pp. 183–194). Cham: Springer.
- Polanco-Diges, L., & Debasa, F. (2020). The use of digital marketing strategies in the sharing economy: A literature review. *Journal of Spatial and Organizational Dynamics*, *8*(3), 217–229.
- Poon, S., & Swatman, P. (1999). An exploratory study of small business Internet commerce issues. *Information & Management*, *35*(1), 9–18. [https://doi.org/10.1016/S0378-7206\(98\)00079-2](https://doi.org/10.1016/S0378-7206(98)00079-2)

- Pradhan, P. (2018). Digital marketing and SMEs: An Identification of research gap via Archives of past research. *Journal of Internet Banking and Commerce*, 23(1), 1–14.
- Preston, D. S., & Karahanna, E. (2009). Antecedents of IS strategic alignment: A nomological network. *Information Systems Research*, 20(2), 159–179.
- RamonSaura, J. (2021). Using data sciences in digital marketing: Framework, methods, and performance metrics. *Journal of Innovation & Knowledge*, 6(2), 92–102.
- Sabherwal, R., Sabherwal, S., Havakhor, T., & Steelman, Z. (2019). How does strategic alignment affect firm performance? The roles of information technology investment and environmental uncertainty. *MIS Quarterly*, 43(2), 453–474.
- Sebastian, I., Ross, J., Beath, C., Mocker, M., Moloney, K., & Fonstad, N. (2017). How big old companies navigate digital transformation. *MIS Quarterly*, 16(3), 197–213.
- Spath, D., Ganschar, O., Gerlach, S., Hämmerle, T. K., & Schlund, S. (2013). *Produktionsarbeit der Zukunft – Industrie 4.0*. Stuttgart: Fraunhofer Verlag.
- Srinivasan, R., Bajaj, R., & Bhanot, S. (2016). Impact of social media marketing strategies used by micro small and medium enterprises (MSMEs) on Customer acquisition and retention. *IOSR Journal of Business and Management*, 18(1), 91–101.
- Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly*, 35(2), 463–484.
- Venkatesh, J., & Kumari, R. L. (2015). Role of marketing strategies in the context of MSME sector. *International Journal of Research in Finance and Marketing*, 5(8), 1–6.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144.
- Warokka, A., Sjahrudin, H., Sriyanto, S., Noerhartati, E., & Saddhono, K. (2020). Digital marketing support and business development using online marketing tools: An experimental analysis. *International Journal of Psychosocial Rehabilitation*, 24(01), 1181–1188.
- Wu, S. P., Straub, D. W., & Liang, T. (2015). How information technology governance mechanisms and strategic alignment influence organizational performance: Insights from a matched survey of business and IT managers. *MIS Quarterly*, 39(2), 497–518.
- Zamora, A. E. (2010). A management of technology framework for MSME success and sustainability. *Philippine Management Review*, 17, 21–51.

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