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The Road to Digital Adoption: Examining Microentrepreneurs' Engagement with Digital Disruption

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Abstract

Digital transformation is one of the main antecedents of competitiveness, resilience, and value creation in Industry 4.0, and the adoption of digital technology among microentrepreneurs is still uneven and fragmented. This research utilises a descriptive secondary data-based research design to synthesise evidence on sectoral- and policy-level digital engagement. The secondary data reviewed are based on the Ministry of MSME, NITI Aayog, OECD, World Bank, RBI, and industry reports. The results show that the vast majority of microenterprises use only simple digital solutions, such as digital payments, communication applications, and online platforms, and are still at the initial or experimental phases of digital transformation. This paper investigates the level of digital technology adoption (DTA), its main drivers, issues, and performance requirements among the microenterprises with special reference to the Indian context. The barriers include financial constraints, lack of digital skills, poor infrastructure, risk of cyber security, and organisational resistance. Entrepreneurial orientation, perceived usefulness of technology, and external shocks, such as the COVID-19 pandemic, and targeted governmental interventions are also useful enablers. It is also through analysis that the trade-offs of platform dependence, particularly a high commission cost imposed by digital intermediaries that discourages the retention of the value, are revealed. The paper unveils three lines of digital transformation, that is, requisite, experimental, and dedicated, and that divergent sector-sensitive policy frameworks are necessary to facilitate inclusive and sustainable digital transformation among microentrepreneurs.

Keywords: Digital Transformation, Micro-Entrepreneurs, Digital Divide, Digital Transformation Paths, Business Performance

Introduction

The world economy is in the midst of a significant shift with a high level of dynamic technological development, which opens the age of unprecedented innovation and disruption (Paul, 2024). This radical transformation, commonly referred to as the fourth industrial revolution or Industry 4.0 (Jafari-Sadeghi et al., 2023; Strange & Zucchella, 2017; Durana et al., 2023; Gajdosikova et al., 2024; Juracka et al., 2024), is transforming the way organisations operate, compete, and generate value (Kraus et al., 2022; Jafari-Sadeghi et al., 2023). This change requires a radical re-evaluation of the business processes, organisational structures, and value propositions (Elia et al., 2024; Kraus et al., 2022). Digital transformation (DT) is a transformative process that improves an organisation by applying dramatic alterations to its properties with the utilisation of information, computing, communication, and connectivity technologies (Vial, 2019; Paul, 2024; Marolt et al., 2025; Deng et al., 2019). DT involves the use of sophisticated technologies including artificial intelligence (AI), big data analytics, the Internet of Things

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(IoT), and cloud computing (Vaidya et al., 2018) to encourage innovation and efficiency. DT poses both major opportunities and threats to the businesses by altering the framework of competition, the dynamics of the industry, customer interaction, and general business performance (Weill & Woerner, 2015; Lugo et al., 2024). Although this digital transformation is essential to the existence of large corporations, it is also essential to the existence of Micro, Small, and Medium Enterprises (MSMEs), which are crucial to the economy of any country or region across the globe (Li et al., 2018; Sudirman et al., 2025). In such contexts as India, MSMEs play an important role in supporting entrepreneurship and creating valuable employment opportunities at relatively low capital costs compared with large industries (MSME Annual report, 2023–24) A microbusiness is a specialised type of small business (Kushnir, 2010; Hazarika et al., 2016; López-Ortega et al., 2016; OECD Trade by Enterprise Characteristics, 2023), which is usually characterised by the fact that they employ not more than Microenterprises in the European Union (EU) consist of less than 10 employees, with an annual turnover or balance sheet not exceeding EUR2 million (EU, 2003; Buvár & Gáti, 2023; Marolt et al., 2025). Although bigger companies have higher capacity due to their resources and bigger structures, microenterprises usually have structural benefits as they are more flexible and adapt to changes in the market faster (Hatch & Zweig, 2001; Nartisa, 2012; Katila et al., 2012; Faiz et al., 2024). Digital technology adoption (DTA) is vital to microentrepreneurs, and it has provided them with essential advantages that can help them grow and be more efficient (Lugo et al., 2024).

DTA helps MSMEs innovate disruptively and generate long-term value (Cunningham et al., 2023; Vrontis et al., 2022). Digitalisation assists in streamlining business processes and automating them, as well as applying data analytics to make superior decisions (Bhattacharya & Neogi, 2018). It also democratises access to markets where MSMEs can transcend geographical boundaries and access new customer segments via the online platform and e-commerce (Mishra et al., 2020). The digital tools can be used by entrepreneurs in the emerging economies to address weaknesses in institutions and other physical infrastructures (Grimes & Lyons, 1994; Amankwah-Amoah, 2018; Sohns & Revilla Diez, 2018; Lugo et al., 2024). Extrinsic shocks such as the Covid-19 pandemic have served as facilitators and restrictions and pushed most MSMEs to swiftly implement digital solutions to work remotely and make sales over the internet (Sharma et al., 2021; Yu & Liu, 2022; Zutshi et al., 2021; Dannenberg et al., 2020; Gavrila & Ancillo, 2021). Regardless of this possibility, the transition to digital is challenging, particularly among microentrepreneurs who are lagging behind bigger companies (Faiz et al., 2024; Eller et al., 2020; Marolt et al., 2025; OECD, 2019). The factors that lead to various barriers within MSMEs include poor digital infrastructure and skills gap, cyber-security risks, and lack of funds (European Economic Letters, 2024, 1; Lugo et al., 2024). There are also financial concerns because of the large upfront expenses and unpredictable returns on investments (Natarajan & Balasubramanian, 2018; Eller et al., 2020; Ghobakhloo et al., 2022). The low resources of microenterprises are a direct limitation to investments in digital technologies and skills (Marolt et al., 2025; Parvand & Rasiah, 2022). Also, there is a digital skills gap, and technical skills and knowledge are frequently mentioned by the micro and small business owners as the main obstacles (Meta, March 2022; Loo et al., 2023). This skills gap is an impediment to effective digital technology selection, implementation, and management of MSMEs (Marolt et al., 2025; Maroufkhani, 2020). The lack of access to trustworthy internet and digital payment systems can also pose serious infrastructural obstacles, particularly affecting MSMEs that are located in remote or rural locations (Singh & Srivastava, 2021; Chatterjee & Dey, 2020; Lugo et al., 2024; Faiz, Le & Masli, 2024). The issue of organisational resistance and cultural barriers in MSMEs needs a powerful leadership to make digital transformation successful (Chatterjee & Dey, 2020; Loo et al., 2023). The interpretation of DTA includes the micro-foundations of strategy and organisation, which are the actions and behaviours of individual decision makers (Jafari-Sadeghiet al., 2023; Manfreda & Štemberger, 2018; Tabrizi et al., 2019). This is more so in the case of international SMEs, where the behaviours of top managers or entrepreneurs usually influence the process of digitalisation (Jafari-Sadeghi et al., 2023). The proposed research centres around such entrepreneurial characteristics as entrepreneurial orientation (EO) and entrepreneurial competencies (EC) (Sudirman et al., 2025; Vrontiset al., 2022), and EO factors characterise such attributes as innovation, proactivity, and risk-taking (Lumpkin & Dess, 1996; Covin & Wales, 2012; Sudirman et al., 2025). Adoption of digital entrepreneurship refers to

the adoption of digital technologies in business practices as a replacement of the old methodology with the new digital-oriented approach (Ayuni et al., 2019; Lugo et al., 2024; Arifin et al., 2023). Significantly, the mindsets, skills, and perceptions of risks and rewards help to influence the adoption of the entrepreneur (Cunningham et al., 2023; OECD, 2021).

This paper will be used to address a literature gap related to microenterprises, which has frequently been overlooked in the digital transformation process due to individual experiences (Marolt et al., 2025). DTA dynamics, challenges, and opportunities are discussed through the synthesis of the existing literature (Lugo et al., 2024). The analysis recognises the three different paths of digital transformation that MSMEs go through – required, experimental, and committed; these are determined by the extent of their digital engagement and synergy between the inhibitors and accelerators that they encounter (Marolt et al., 2025). Through these trends, this study will be useful in informing managers, entrepreneurs, and policymakers to develop customised support systems, improve technology adoption, and ensure sustainable growth and resiliences among microentrepreneurs in the face of continuous digital disruption (Lugo et al., 2024; Marolt et al., 2025).

Objectives of the Study

- To find out the extent of digital adoption among microentrepreneurs across different sectors.
- To find out drivers that encourage micro-entrepreneurs to engage with digital tools and platforms.
- To analyse the major challenges and barriers faced by micro-entrepreneurs in the digital adoption process.
- To explore how digital disruption impacts business performance, sustainability, and competitiveness of microenterprises.

Methodology

The proposed research follows a descriptive research design where all the data are gathered through secondary sources; more than 60 papers and reports are reviewed such as Ministry of MSME Reports (2022, 2024), MeitY Digital India Progress Reports, RBI Digital Payments Index, NITI Aayog: India Booming Digital Economy, World Bank Global Findex Database (2021), OECD SME Outlook Reports, McKinsey Global Institute studies, GoogleBain Company Report on Micro-Entrepreneurs (2020), and Statista digital use statistics. The analysis summarises the patterns, trends, and findings that have been scratched out of these reliable databases.

Analysis and Discussion

Extent of Digital Adoption Among Micro-Entrepreneurs

Microentrepreneurial digital uptake also differs considerably and generally lags behind bigger companies because of structural issues (Marolt et al., 2025; Pingali et al., 2023, Faiz, et al., 2024). Usually with no more than 10 staff or fewer than 10 employees according to EU standards, a microbusiness has an annual turnover or balance sheet below 2 million (Kushnir, 2010; Hazarika et al., 2016; López-Ortega et al., 2016; EU, 2003; Buvár & Gáti, 2023; Marolt et al., 2025). Even though the micro firms are involved in digital actions, it is difficult to evaluate their overall magnitude when no similar data is provided (Al-Awlaqi et al., 2018; OECD, 2021). About 47% of microenterprises and 53% of SMEs in India use digital sales platforms and half of micro and small enterprises use communication tools such as WhatsApp to carry out their day-to-day activities (Buteau, 2021). Nevertheless, a significant number of MSMEs are still at the initial phases of the digital transformation (Marolt et al., 2025). The studies show that they have wide differences between being passive users and trying to be digital through experiment, to being fully committed; microenterprises tend to be poorly digitalised (Marolt et al., 2025). A good example is the adoption of strategies, as many small businesses cannot do it effectively in digital marketing, as they tend to use an ad hoc approach, with a focus on tools, instead of comprehensive plans (Taiminen and Karjaluoto, 2015; Nikunen et al., 2017, cited in Buvar and Gati, 2023). According to a Hungarian survey, the adoption of online campaign activities among SMEs was fragmented with 41% having been involved in more than one digital channel compared with 32%, and the latter are dependent (Digimeter, 2021; Buvar & Gatii, 2023). This small usage is further complicated by the fact that

microentrepreneurs are not aware or fully understand the advantages of digital marketing (Buvár & Gáti, 2023). However, digital natives, primarily the Millennials and Gen Z, are pushing the concept of microentrepreneurship through low-cost digital tools, peer-to-peer networks, and platform-based economies (Shukla et al., 2024). In developing countries, technologies such as smartphone apps strengthen community and family networks, helping rural microenterprises overcome infrastructural barriers (Soluk et al., 2021; J. Soluk et al., 2021). Importantly, recognising three distinct paths of digital transformation – necessary, experimental, and committed – facilitates understanding of how microenterprises navigate their digitalisation processes (Marolt, Lenart, Kljajić Borštnar & Pucihar, 2025).

Table 1: GVA Estimates for the Digital Economy, 2022-23

Sectors	GVA (Rs. Crore)	Share in the Total Economy	Share in Digital Economy (OECD + Augmented)	GDP (Rs. Crore)
Digitally Enabling Industry (adjusted)	19,30,158	7.83%	66.7%	
Digital intermediary platforms charge a fee	99,951	0.41%	3.5%	
Data and advertising-driven digital platforms	12,479	0.05%	0.4%	
Firms dependent on digital intermediaries	1,70,766	0.69%	5.9%	
E tailers	24,752	0.10%	0.9%	
Digital-only firms providing financial and insurance services	44,313	0.18%	1.5%	
Other producers operating digitally	75,557	0.31%	2.6%	
E - seller	48,665	0.20%	1.7%	
Digital Economy (OECD)	**24,06,642**	**9.76%**	**83.2%**	**26,30,320***
Augmented (excluding firms covered in OECD)				
Trade	1,19,374	0.48%	4.1%	
Banking and Financial Services	2,99,165	1.21%	10.3%	
Education	68,970	0.28%	2.4%	
Digital Economy (OECD + Augmented)	**28,94,150**	**11.74%**	**100%**	**31,63,930***

Source: ICRIER Estimates, https://iced.niti.gov.in/economy-and-demography/key-economic-indicators/gva

The digital economy can be described by the structure and contribution of the sector with the help of Gross Value Added (GVA) estimates in 2022–23 (Table 1). It reveals that digitally enabling industry has the highest contribution of about 66.7% of the digital economy, which implies that the key sources of value creation are digital infrastructure, ICT services, and enabling technologies. The contribution of firms that rely on digital intermediaries also shows a significant proportion considering the increasing interdependence of companies on online platforms as a way to access the market. By comparison, the contribution of digital intermediary platforms, e-tailers, and data-driven platforms to GVA is relatively less, implying that, although these platforms have a visible and enabling effect, the economic value of the digital economy is predominantly created by the wider supporting ecosystem and not by the platforms.

Drivers Encouraging Digital Adoption

Table 2: Average Commission Rates for Digital Intermediaries by Sector

Sector	Average Commission Rate (%)
Food Delivery	16.5
Shared Mobility	30
Travel	22.5
E-Commerce	14.1

Notes: 'Food Delivery' includes Zomato, Swiggy; 'Shared Mobility' includes Uber, Ola; 'E-Commerce' includes Flipkart, Myntra, Snapdeal, Shopclues, Pepperfry, Nykaa, Ajio, Tata Cliq, BigBasket, Tata 1mg.

Source: https://e-tailize.com/blog/top-20-marketplaces-in-india/ and others45,46,47,48

The median commission rates by digital intermediaries in each sector, as demonstrated in Table 2, are important in showing how the dependence on platforms would cost MSMEs. The commission paid by Shared mobility platforms is the greatest, then there is travel and food delivery services followed by a relatively low rate charged by e-commerce platforms. Irrespective of this variation, all sectors are subject to significant commission costs, which have a direct impact on the profit margins, especially the micro and small businesses, which have a low financial buffer. The table highlights one of the first trade-offs of going digital, in that as much as digital platforms increase market access and operational efficiency, high commission rates may limit value retention and increase the economic reliance on any middleman.

Enhanced Competitiveness and Value Creation: DTA provides MSMEs a basis to pursue disruptive innovation and enhance offerings for sustained value creation (Cunningham et al., 2023; Vrontis et al., 2022). DTA increases competitiveness, productivity, and supports digital innovation, which simplifies the value creation process of the firm (Papadopoulos et al., 2020; Faiz, Le, & Masli, 2024). Digital tools can assist SMEs in increasing the quality of the output and the efficiency of the operations (Radicic & Petkovic, 2023; Vrontis et al., 2022).

Expanded Market Reach: The digital technologies boost consumer experience and create a broader market reach across the world (Li et al., 2022; Sudirman et al, 2025; European Economic Letters, 2024). Digital marketing has enabled microentrepreneurs to operate in a global market rather cheaply compared with the conventional approaches (Lugo et al., 2024). Digital marketing assists the SMEs to promote sales strategy and increase sales (Eze et al., 2019; Lugo, et al., 2024).

Entrepreneurial Traits and Capabilities Entrepreneurial Orientation (EO): Entrepreneurial Competencies (EC) have an impact on DTA (Sudirman et al., 2025). Digital technologies can be used strategically to overcome the challenges that entrepreneurs encounter (Vrontis et al., 2022). The entrepreneurial mindset requires opportunity recognition, which is a requirement to adopt (Cunningham et al., 2023). Entrepreneurial strengths lead to stability in disruption (External and Internal Motivations for Digital Innovation during Economic Disruption, 2021).

Perceived Utility and Ease of Use: The adoption will rely on the usefulness and ease of use of the technology (Buvár & Gáti, 2023). Perceived usefulness stimulates the implementation of digital marketing, which has an impact on its utilisation and the development of a strategy (Buvár & Gáti, 2023). Moreover, the credibility of digital marketing specialists has a strong influence on the perception of ease of use and usefulness (Buvár & Gáti, 2023).

External Disruptions and Necessity: The external limiting factors forced entrepreneurs to start online businesses due to the restrictions imposed by the COVID-19 pandemic, like the lack of mobility and lockdown (External and Internal Motivations for Digital Innovation during Economic Disruption, 2021). This need necessitated the use of a number of technologies by the enterprises to survive (Marolt et al., 2025). The factor of economic disruption serves as a facilitator of digital innovation in case infrastructure and readiness are properly tackled (External and Internal Motivations for Digital Innovation during Economic Disruption, 2021).

Governmental Support and Policy: Government policies play an important role in facilitating the adoption of digital (Sharma & Kapoor, 2019). The government policymakers ought to invest in digital infrastructure, capacity-building

plans, and regulatory changes to develop a facilitating environment (Raj & Dwivedi, 2019). DTA is improved by specific interventions that are aimed at addressing particular situations (Faiz et al., 2024).

Challenges and Barriers to Digital Adoption

Despite growing digital awareness, several challenges hinder consistent adoption.

Financial Constraints: Limited access to capital and financial constraints are major barriers to digital transformation for a number of MSMEs (Natarajan & Balasubramanian, 2018). The expensive nature of a digital solution adoption that requires MSMEs to acquire new technologies, such as AI, robotics, or infrastructure, and uncertainties regarding the ROI discourage most of these attempts (Khai et al., 2020; Faiz et al., 2024; Xue et al., 2020; Mahmood & Asghar, 2024). Large initial payments in hardware, software, and training present special difficulties to microentrepreneurs who tend to make small profit margins (Lugo et al., 2024; Marolt et al., 2025; Buteau, 2021).

Skill Gaps and Digital Illiteracy: A large number of MSMEs do not have the required technical and digital literacy to operate digital technologies (Patel & Desai, 2021). This is a skills gap that prevents them from using digital tools and platforms to the fullest. Another challenge that micro firms face, in particular, is the shortage of technical skill and expertise in various fields (Meta Future of Business Survey in March 2022, 2022; OECD, 2021; Marolt et al., 2025). The lack of technical expertise makes small businesses unable to evaluate the possible ROI of digital initiatives and this increases the rate of slower adoption further (Thong, 2001; Bin et al., 2021).

Inadequate Digital Infrastructure: Poor levels of access to reliable internet, digital payment systems, and broadband infrastructure pose a serious problem in digital infrastructure (Chatterjee & Dey, 2020; Singh & Srivastava, 2021). This is a digital divide particularly among the MSMEs in remote or rural locations, which restricts their participation in the digital economy and access to markets (Lugo et al., 2024; Sindakis & Showkat, 2024). Broadband connection is essential in the case of solutions that are based on DLT (OECD, 2020).

Cyber-Security Risks and Concerns: As a result of growing digitisation of business processes, MSMEs are vulnerable to cyber-security risks and threats (Gupta & Jain, 2020). Breach of data, ransomware, and phishing are a serious problem that jeopardise the financial well-being of MSMEs, their reputation, and trust with their customers (Lugo et al., 2024). Without effective cyber-security tools and awareness, SMEs are left susceptible to cyber criminals and it is important to consider the significance of training and awareness (OECD, 2021; Moore, 2010).

Organisational Resistance to Change: Cultural barriers and organisational resistance to change can be significant barriers to the adoption of digital technologies in MSMES, which requires the commitment of the leadership (Chatterjee & Dey, 2020). The organisational culture, employee issues, or the inability of management to identify the value of digital transformation may become sources of such resistance (Riswandi & Permadi, 2022; Mia et al., 2024; Loo et al., 2023). Particularly, it is more typical in traditional industries or family businesses that are extremely conventional (Lugo et al., 2024).

Complexity and Low Digital Readiness: A perceived complicacy of a high-level DTA, as well as a low level of digital preparedness, is a barrier (Anjum, 2019; Ghimire et al., 2023; Marolt et al., 2025). Digital transformation should not be advanced as it can slow down operations instead of improving them without a sufficient plan (Hamburg, 2021; Mia et al., 2024). In addition, the process of digital transformation of MSMEs is often subordinated to handling various emergency operational challenges, which results in inconsistency in the use of technologies and inconsistency in the approach (Marolt et al., 2025; OECD, 2020).

Impact of Digital Disruption on Microenterprise Performance

Digital disruption has significant positive impacts on the performance, growth, and sustainability of microenterprises.

Increased Productivity and Profitability: The performance, growth, and sustainability of microenterprises are greatly affected positively by the digital disruption. Digitalisation may have a transformational impact on improving the performance of businesses because MSMEs that adopt digital technologies are much more likely to gain increased productivity, profitability, and competitiveness

in the market (Gupta & Jain, 2020). Implementation of effective technologies can assist SMEs in their improved performance (Sudirman et al., 2025). Digital adoption has boosted the efficiency of firms although this figure is low at the moment (Gangwani et al., 2024).

Expanded Market Reach and Competitiveness: Digital disruption supports the microentrepreneur by providing greater access to the market and new avenues to the market expansion around the world, without the need to rely on geographical constraints (Lugo et al., 2024; Marolt et al., 2025). With the help of digital tools, microentrepreneurs can be competitive with bigger companies (European Economic Letters, 2024; Sudirman et al., 2025). The digital infrastructure, which is the Open Network for Digital Commerce (ONDC) platform, has the potential to support and strengthen micro-, small-, and medium-sized businesses by making them access the online market (Digital Paradigm Shift, 2024).

Enhanced Operational Efficiency: Digital transformation entails a complete redesigning of the processes by means of the strategic implementation of digital technologies, which aim at optimising operational efficiency (Lugo et al., 2024). Proper utilisation of digital tools assists the SMEs to improve their efficiency and production (Radicic & Petkovic, 2023; Sudirman et al., 2025; Vrontis et al., 2022; Sudirman et al., 2025). It is through digitalisation that a business can make decisions more effectively, and respond in real time to the evolving competitive markets (Lugo et al., 2024).

Increased Business Resilience and Survival: The digital transformation is a major enabler to achieve resilience and anti-fragility of SMEs, which help them to survive challenges (Sagala & Őri, 2025; Khurana et al., 2022). In the case of the COVID-19 pandemic, a survival of many businesses required the implementation of numerous technologies (Marolt et al., 2025). The digital strategy is also associated with improved performance by companies using digital technologies, both small and large in size (Elia et al., 2021; Sagala & Őri, 2025). The digitalisation is very crucial in the long-term existence and sustainable development of MSMEs (Mahmood & Asghar, 2024; Fund India, 2023).

Innovation and Sustained Value Creation: DTA provides the background under which microenterprises can become involved in disruptive innovation and improve their offerings that will result in sustained value creation (Cunningham et al., 2023; Vrontis et al., 2022; Sudirman et al., 2025). Online platforms enable companies to enhance the value that consumers get and create new business concepts (Radicic et al., 2023; Sudirmanet al., et al., 2025; Vrontis et al., 2022; Sudirmanet al., et al., 2025). The application of digital technologies contributes to the enhancement of the value-creation process in a firm, making it more competitive, and promotion of digital innovation (Papadopoulos et al., 2020; Faiz et al., 2024).

Enhanced Agility and Adaptability: Digitisation promotes the ability to be more agile and adaptive to external change (Sagala & Őri, 2025; Lugo et al., 2024). Innovation and digital technology are vital drivers of SMEs' agility, facilitating flexibility and accelerating decision making needed in the current competitive environment (Jafari-Sadeghi et al., 2023; Sagala & Őri, 2025). Digital technology assists SMEs in transforming outdated business processes and developing adaptive capabilities against environmental volatility (Ates & Acur, 2022; Sagala & Őri, 2025).

Table 3: Policy Recommendations to Accelerate the Pace of Digitalisation in India

Lever	Policy →	Digital Literacy and Skilling	Regulatory Certainty	Cyber Security & Trust	Ease of Doing Business	Digital Infrastructure
Digitally Enabling Industry		✓			✓	
Digital Platforms and Intermediaries		✓	✓	✓		✓
Traditionally non-digital sectors		✓		✓	✓	✓

A layered policy framework is provided in Table 3 with an aim of speeding up digitalisation in India by matching certain policy interventions with the various sectors of the economy. In the case of the digitally enabling industry, attention is paid majorly on digital literacy and skilling and ease of doing business, whereby a skilled workforce and simplified regulations are the keys to enhancing core digital infrastructure and services. A wider policy mix is needed in the situation of digital platforms and intermediaries, which incorporates digital literacy, regulatory predictability, cyber security and trust, and platform governance, as they form the core of data management, intermediation of markets, and platform management. In the meantime, traditionally non-digital areas need to focus on digital literacy and skilling, cyber security and trust, ease of doing business and digital infrastructure to facilitate the shift to the digital ecosystem. On the whole, the table highlights that the digitalisation process should not be imposed with the help of a uniform policy framework but rather variousiated and industry-sensitive policies are needed to make the digital growth inclusive, safe, and sustainable.

Conclusion

The transformation prompted by the Fourth Industrial Revolution and Digital Transformation (DT) is crucial for microentrepreneurs, who are key players in the global economy. Although the introduction of the digital technology (DTA) positively enhances efficiency, creates long-term value, and enters broader markets, the adoption of it by microenterprises is rather haphazard and typically lagging behind larger companies with basic tools such as payments and social media. The adoption of digital is determined by such factors as entrepreneurial orientation, perceived usefulness and ease of use, customer demand, and external pressure such as the COVID-19 pandemic. However, there are still major obstacles, most prominently the digital divide, which remain an issue; these are financial barriers (large start-up costs, unpredictable returns), skills issues and digital illiteracy, inappropriate infrastructure (in remote or rural regions), and cyber-security threats. It is necessary to overcome these barriers because digital disruption has the potential to greatly enhance the business performance by increasing productivity, profitability, operational efficiency, competitiveness, and resilience. Ultimately, the insights into how microenterprises are guided through the three-pronged digital transformation patterns, i.e., necessary, experimental, and committed, are essential to managers and policymakers in their efforts to develop the customised support frameworks that contribute to technology adoption and long-term growth under the influence of the ongoing digital transformation.

Recommendation for Future Studies

The research in the future must be empirical in exploring the effects of customised support mechanisms on the development of microentrepreneurs across the three distinct digital transformation paths. It is also suggested that future studies should be done on how the continued digital divide can be mitigated.

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