

Analyzing Legal and Economic Barriers Faced by Handicraft Enterprises in E-commerce Adoption: Evidence From Uttar Pradesh, India


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RESEARCH ARTICLE

Analyzing Legal and Economic Barriers Faced by Handicraft Enterprises in E-commerce Adoption: Evidence From Uttar Pradesh, India

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Abstract

In recent years, the rise of e-commerce has revolutionized the way businesses operate across various sectors. Handicraft enterprises, too, have experienced tremendous growth through the adoption of e-commerce platforms. Through this study, we tried to achieve research objectives and shed light on the specific barriers/challenges that handicraft enterprises face when it comes to adopting e-commerce and how it has impacted their market access. Barriers such as lack of awareness about IPRs, limited access to technology, data privacy & security, internet infrastructure, and inadequate skills play significant roles in hindering e-commerce adoption. Through the utilization of a framework for understanding barriers/challenges, the study aims to develop a comprehensive understanding of the barriers hindering e-commerce adoption in the handicraft industry. Primary data was collected from 545 samples located in different districts of Uttar-Pradesh during field visits through a structured schedule by using random sampling method. The study employed the statistical software package SPSS version-26 to analyze and summarize the obtained results. The data collection process involved using a 5-point Likert scale, where participants were asked to rate their responses from 1 (strongly disagree) to 5 (strongly agree). This scale allowed for an assessment of the participants' level of agreement or disagreement with certain statements. The analysis of the research findings involved various statistical techniques such as frequency analysis, cross tabulation. The data revealed that, how the several handicraft enterprises left in adopting the e-commerce due to various legal and economic barrier they face and how the number have significantly reduced from adopted to non-adopted handicraft enterprises, and due to these barriers, their market access is also got limited to local level only. 69% of handicraft enterprises respondents had different levels of knowledge about e-commerce, 26.6% of enterprises accepted that they did not possess any kind of knowledge, and 4.4% had some knowledge about it. Further, it can be seen that the numbers have significantly reduced, from 51.9% of those who have adopted e-commerce to 48.1% of those who have not. Overcoming these barriers required education and awareness, infrastructure development, government support, and addressing cost and trust concerns to enable SMEs to fully embrace e-commerce.

Keywords: Legal and economic barrier, E-commerce adoption, Handicraft enterprises (H.E.), Micro, small, and medium enterprises (MSMEs), Uttar Pradesh (U.P.), India

1. Introduction

Since the dawn of time, the charisma and vibrancy of Indian handicrafts have fascinated worldwide. India's traditional handicrafts serve as a window into our country's rich heritage and unique culture (Misra, Srivastava, & Misra, 2006). The Development Commissioner, Handicrafts, Ministry

of Textiles is responsible for defining handicrafts for the Government of India (GoI). According to the ministry's website, "Handicrafts are generally characterized as products manufactured by hand, frequently using rudimentary tools, and are typically creative and/or traditional in nature. They serve as decorative and functional items as well". Additionally, they carry the heritage of homeland,

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history, culture, and beautiful craftsmanship. Up until the beginning of the industrial revolution in the 19th century, artisans were highly valued and compensated. The Indian government has put in place a number of initiatives to safeguard the handicraft industry because modernization has continued to have an impact on artisans. The rise of technology then had a big impact on the demise of handcrafted goods. The Indian handicrafts industry was at risk of extinction because machine-made goods were less expensive than handcrafted goods (Roy, 1998).

Critically, Indian handicrafts have made a significant contribution that cannot be ignored today. The handicraft businesses are mostly connected to the decentralized and unorganized sector of the Indian economy. From generation to generation, the handicraft micro, small, and medium enterprises (MSMEs) have provided employment to a large number of artisans (Basu, 1995; Belk & Groves, 1999; Oakes, 1995). Market size and growth of the Indian handicraft industry are estimated to reach \$5.22 billion by 2024 due to increased e-commerce adoption (IBEF, 2023). Rural artisans' empowerment depends on various e-commerce platforms that have collaborated with rural artisans to promote their products, resulting in an upliftment of over 2.5 million artisans in India (Ministry of Textiles, India). Moreover, handicraft enterprises are not just an important part of the economy but also contribute to preserving the cultural heritage of a nation. In times of crisis and economic downturn, handicraft enterprises provide a lifeline to many individuals and communities. However, handicraft micro, small, and medium enterprises (MSMEs) face numerous obstacles when it comes to selling their products in national and international markets. Financial burdens can prevent these businesses from reaching their full potential, while the unavailability of online selling platforms further limits their consumer base. However, there is a solution to this predicament, and that is the adoption of e-commerce platforms. "E-commerce" can be defined by various scholars as "the successful exchange of information using the electronic network, the internet, mobile, or digital technologies," (Reedy, Schullo, and Zimmerman, 2004). "E-commerce" is the word used to describe the exchange of goods and services through the internet and with the help of computer technology (Greenstein & Feinman, 1999). World Trade Organization's (WTO) definition of e-commerce: "the production, distribution, marketing, sale, or delivery of goods and services via electronic means". By embracing e-commerce, these enterprises can bypass traditional limitations and gain access to a

larger pool of consumers. With the click of a button, they can transcend geographical boundaries and make their products available to customers far and wide. This is particularly crucial during times like the pandemic, where COVID-19 has restricted physical interactions and reduced foot traffic in brick-and-mortar stores. However, despite its potential and several benefits handicraft enterprises realizes, there are several barriers and challenges they face while adopting e-commerce. This study has its own significance in understanding the adoption of e-commerce by these enterprises and can provide valuable insights into their growth and competitiveness in the digital era. The adoption of e-commerce can open up new avenues for handicraft enterprises, allowing them to reach a global audience and expand their markets beyond traditional boundaries. With the rise of digital platforms, the study can shed light on the extent to which these enterprises have embraced online platforms, enabling them to showcase and sell their unique products to a wider customer base. By examining the barriers/challenges faced by enterprises during their e-commerce adoption journey, policymakers and industry experts can develop strategies to overcome these obstacles and provide suitable support mechanisms.

The article will start from part-I, talking about the importance of handicrafts and e-commerce adoption from Indian perspectives. Part-II gives a brief about barriers to e-commerce adoption faced by enterprises in developing countries and in Uttar Pradesh (U.P.), research questions and objectives, and methodology. Results and analysis will be in part-III. Part-IV is about significance of the study, Part-V is about the limitations of the study, parts VI and VII are about conclusions and recommendations respectively.

2. Literature review

Barriers to e-commerce adoption faced by enterprises in developing countries can be manifold. In today's fast-paced world, the use of smartphones has become incredibly easy and accessible to everyone. This has revolutionized the way businesses operate and market their products, especially through social media platforms. Handicraft enterprises, however, are only beginning to recognize the advantages offered by Internet technologies. Despite this realization, they often face numerous barriers like lack of technical knowledge and unfamiliarity with new media technologies that hinder their adoption of these technologies (Holmes, McLean, & Green, 2012). One of the primary

challenges is the lack of adequate infrastructure, such as a reliable internet connection and a robust logistics network (Alam, Khatibi, Ismail, & Ahmad, 2005; Alyoubi, 2015; Ariansyah, Sirait, Nugroho, & Suryanegara, 2021; Lawrence & Tar, 2010; White et al., 2014). Many parts of developing countries still struggle with limited access to the internet, making it difficult for businesses to effectively engage in e-commerce activities. Another barrier is the limited digital literacy among the population, which hampers the adoption of e-commerce by enterprises (Iddris, 2012; Kapurubandara & Lawson, 2006; Simpson & Docherty, 2004; Zaied, 2012).

2.1. Previous studies on e-commerce adoption barriers

Various sources of literature show that these barriers continued to be a prevalent issue in the early stages of e-commerce adoption by small and medium-sized enterprises. Studies conducted in the late 1990s highlighted the importance of factors such as awareness and education, market size, infrastructure, legal frameworks, and government support in determining the success of e-commerce implementation. The findings of El-Nawawy and Ismail (1999) in Egypt specifically pointed to the significance of these factors in hindering SMEs from embracing online business practices. As technology and digital platforms continue to evolve, addressing these barriers remains a critical aspect of promoting widespread adoption and diffusion of e-commerce among SMEs globally. The study conducted by Cloete et al. (2002) on SME adoption of e-commerce in South Africa revealed various factors that hinder the adoption of e-commerce in MSEs. These factors include the lack of information options, insufficient time to investigate options, limited access to computers, hardware, and software, as well as a limited understanding of e-commerce models and methodologies. These challenges highlight the barriers that SMEs face in embracing digital technologies for business growth and expansion. Addressing these constraints is crucial for SMEs to harness the benefits of e-commerce and stay competitive in the increasingly digital marketplace. In 2004, Chen and Kaynak, Tatoglu, & Kula (2005) conducted a study to investigate the factors contributing to the slow adoption of electronic commerce among Small and Medium Enterprises (SMEs) in Taiwan. The research revealed that financial constraints and apprehension about the availability of IT professionals were the most significant barriers hindering SMEs from embracing e-commerce. Many SMEs in Taiwan struggled with limited resources, making it difficult for them to invest in the necessary

technology and infrastructure required for successful e-commerce implementation. Additionally, concerns about the availability of skilled IT staff further deterred SMEs from fully embracing electronic commerce as a means to enhance their business operations and reach a wider customer base.

2.2. Barriers to e-commerce adoption faced by enterprises in developing countries

In developing countries, there may be a significant portion of the population that lacks the necessary skills and knowledge to navigate online platforms and conduct online transactions. This can pose a significant challenge for businesses wishing to reach a wider customer base through e-commerce.

Additionally, trust and security issues often hinder e-commerce adoption in developing countries (Amornkitvikai & Lee, 2020; Kabanda & Brown, 2015; Kidane & Sharma, 2016). Consumers are often skeptical about online transactions due to concerns about fraud, data privacy, and the reliability of online retailers. The lack of a robust regulatory environment and consumer protection laws can further exacerbate these concerns, leading to a reluctance among enterprises to fully embrace e-commerce (Ahmed & Hasan, 2016; Ariansyah et al., 2021; Lawrence & Tar, 2010; Mohammed, Almsafir, & Alnaser, 2013). Furthermore, financial limitations and difficulties in accessing capital can also act as barriers to e-commerce adoption (Eddy, 2020; Frynas, 2002; Kshetri, 2007; Kumar et al., 2018). Many enterprises in developing countries face challenges in securing the necessary funds to develop and maintain an e-commerce platform. Limited access to financial services, high transaction costs, and stringent banking regulations can all impede the growth of e-commerce in these regions.

Many small business owners were unfamiliar with the concept of e-commerce and its potential benefits (Iddris, 2012; Kapurubandara & Lawson, 2006; Simpson & Docherty, 2004; Zaied, 2012). This lack of knowledge hindered their ability to see the value and potential opportunities that e-commerce could bring to their businesses. Additionally, the limited understanding of how to effectively integrate e-commerce into their existing business models was a significant challenge. Another barrier was the size of the market. SMEs often operate in niche or local markets, and they may not have seen a significant demand for their products or services online. This perceived lack of market potential discouraged SMEs from investing in e-commerce platforms and infrastructure.

Furthermore, inadequate e-commerce infrastructure and telecommunications infrastructure were

significant barriers (Iddris, 2012; James & David, 2014; Lawrence & Tar, 2010; Rakhmanov, 2009). The lack of a robust legal system and government support also impacted e-commerce adoption as SMEs faced uncertainties surrounding legal and regulatory frameworks for online business transactions. Many SMEs had limited financial resources and could not afford the high costs associated with implementing and maintaining e-commerce platforms.

Additionally, the lack of affordable and accessible payment options for online transactions poses challenges for SMEs (Amornkitvikai, Tham, Harvie, & Buachoom, 2022; Eddy, 2020; Frynas, 2002; Kumar et al., 2018). Chitura, Mupemhi, Dube, and Bolongkikit (2008) identified the need for a high degree of human interaction in SME markets as a significant barrier. In 2007, Kshetri categorized e-commerce barriers into three categories: economic barriers, sociopolitical barriers, and cognitive barriers. Their study identified the factors that led to e-commerce adoption, the types of technologies adopted and used, as well as the services provided with these technologies. In another study by Alshehri and Drew (2010), the e-readiness of Saudi citizens was examined to identify the challenges and barriers impacting the adoption of e-government services in Saudi society. These barriers were classified into five categories: technical, organizational, social, management support, and financial.

2.3. Barriers to e-commerce adoption faced by enterprises in Uttar Pradesh

Handicraft enterprises in Uttar Pradesh face several legal and economic barriers when it comes to the adoption of e-commerce. One of the primary hurdles is the Lack of proper cyber laws and literacy among artisans (Kapurbandara & Lawson, 2007; Lawrence & Tar, 2010). Many artisans in rural areas are not familiar with cyber laws, the internet, or online platforms, making it challenging for them to embrace e-commerce. Another significant barrier is the limited access to reliable and affordable internet connections in rural areas (Iddris, 2012; James & David, 2014). Due to inadequate internet penetration, handicraft enterprises struggle to effectively connect with potential customers and showcase their products online. This lack of connectivity hampers their ability to compete in a global market and restricts their reach to local customers only. Additionally, the e-commerce environment requires a robust logistics and payment system (Ahmed & Hasan, 2016; Ariansyah et al., 2021; Mohammed et al., 2013). However, many handicraft enterprises lack the necessary logistics and payment

infrastructure to efficiently manage online sales. This includes issues such as secure payment gateways, reliable shipping partners, and packaging solutions that meet international standards. Without these essential components, handicraft enterprises find it challenging to ensure smooth transactions and timely product delivery, making e-commerce adoption a daunting task.

Moreover, a lack of understanding of e-commerce standards and lack of Compliance with labor laws and regulations often pose a significant obstacle for enterprises (Lawrence & Tar, 2010; Rehman & Alam, 2016; Zaied, 2012). Most e-commerce platforms, especially those catering to global customers, primarily have some standards. These standards limit the exposure of handicraft enterprises and restrict their ability to effectively market their products to a wider audience. Furthermore, enterprises often face a lack of awareness about IPRs and the cost and complexity of the registration process for e-commerce adoption (Vajjhala & Thandekkattu, 2017). Many remain skeptical about the security and reliability of online platforms, preferring traditional methods of selling their handicrafts. The absence of proper training and awareness programs prevents them from understanding the lucrative opportunities that e-commerce can offer, hindering their willingness to adapt.

3. Research questions

Based on a detailed survey of the literature on barriers to e-commerce adoption, the following questions are advanced for systematic investigation:

RQ-1: What are the nature and business characteristics of handicraft enterprises in Uttar-Pradesh?

RQ-2: What are the key legal and regulatory barriers/challenges affecting adoption or non-adoption of e-commerce in selected handicraft enterprises in Uttar-Pradesh?

RQ-3: What is the impact of legal and economic barriers on the current status of handicraft enterprises in Uttar-Pradesh?

4. Research objectives

Objective-1: To explain the nature and business characteristics of handicraft enterprises in Uttar-Pradesh.

Objective-2: To identify the key legal, regulatory and economic barriers/challenges affecting the adoption or non-adoption of e-commerce in selected handicrafts Enterprises in Uttar-Pradesh.

Objective-3: To empirically analyze the impact of legal and economic barriers on the current status of handicraft enterprises in Uttar-Pradesh.

5. Data and methodology

The main aim of this article is to address the research objectives. To effectively fulfill these objectives and accomplish the overall goal, a comprehensive approach was taken. Firstly, a framework for understanding the barriers to e-commerce adoption by handicraft enterprises was developed based on existing literature. This framework served as a guideline to systematically identify and analyze the various challenges that impede the adoption of e-commerce in the handicraft industry. Additionally, a detailed research schedule was developed to facilitate the collection of the necessary information from 545 samples for this study to obtain valuable insights. Areas of study cover mainly twelve districts of Uttar Pradesh which are selected from 4 zones, 18 divisions, 18 headquarters, and 75 districts of Uttar Pradesh. Primary data was collected from CEO's, founders, managers, owners, individual proprietors etc., of various handicraft enterprises located in different districts of Uttar-Pradesh during field visits through a structured schedule designed for the purpose. Handicraft enterprises were targeted by using random sampling method whether they have adopted or not adopted the e-commerce or have their own websites. For determining the sample size, secondary data from the Economic Census (2013–2014) was used to get the population size for the study. All the sources of data are acknowledged. The study employed the statistical software package SPSS version 26 to analyze and summarize the obtained results. The data collection process involved using a 5-point Likert scale, where participants were asked to rate their responses from 1 (strongly disagree) to 5 (strongly agree). This scale allowed for an assessment of the participants' level of agreement or disagreement with certain statements. The analysis of the research findings involved various statistical techniques such as frequency analysis, cross-tabulation, and correlation analysis.

6. Significance of the study

Uttar Pradesh is known for its rich and diverse handicraft industry, which contributes significantly to the state's economy. Understanding the adoption of e-commerce by these enterprises can provide valuable insights into their growth and competitiveness in the digital era. The adoption of e-commerce can open up new avenues for handicraft enterprises, allowing them to reach a global audience and expand their markets beyond traditional boundaries. With the rise of digital platforms, the study can shed light on the extent to which these enterprises have embraced

online platforms, enabling them to showcase and sell their unique products to a wider customer base. By examining the barriers/challenges faced by enterprises during their e-commerce adoption journey, policymakers and industry experts can develop strategies to overcome these obstacles and provide suitable support mechanisms.

7. Conceptual framework for E-commerce adoption barriers

The adoption of e-commerce by handicraft enterprises is influenced by various barriers. To identify these barriers, a thorough investigation is necessary. Previous research on the topic has already highlighted significant barriers related to ICT and e-commerce adoption in SMEs. Drawing from the available literature and interviews of the owners and manager of the handicraft enterprises at the time of the pilot survey, a collection of thirteen (13) barriers to e-commerce adoption was compiled. To ensure the accuracy of the findings, interviews were conducted with experts and professionals from the relevant field.

Their valuable insights were used to categorize the barriers into two distinct categories/groups, as depicted in the conceptual framework presented in Fig. 1.

The unanimous agreement among all interviewees regarding the grouping of the barriers adds credibility to the framework. This conceptual framework serves as a guide for understanding the various barriers that handicraft enterprises face. By examining and analyzing these barriers, organizations can develop strategies and solutions to overcome them. Ultimately, this will facilitate the successful integration of e-commerce into the operations of handicraft enterprises, leading to their growth and competitiveness in the digital marketplace.

8. Analysis & findings

Now, we will discuss the findings of the survey schedule, designed to fulfill the objectives. The survey schedule has two sections: the first section covers demographic characteristics, and the second section focuses on the ethical, legal, regulatory, and economic barriers and challenges of e-commerce adoption by handicraft enterprises in selected districts of Uttar Pradesh.

8.1. Demographic characteristics

Table 1 shows the frequency distribution and percentage of Demographic Characteristics of handicraft enterprises in Uttar Pradesh.

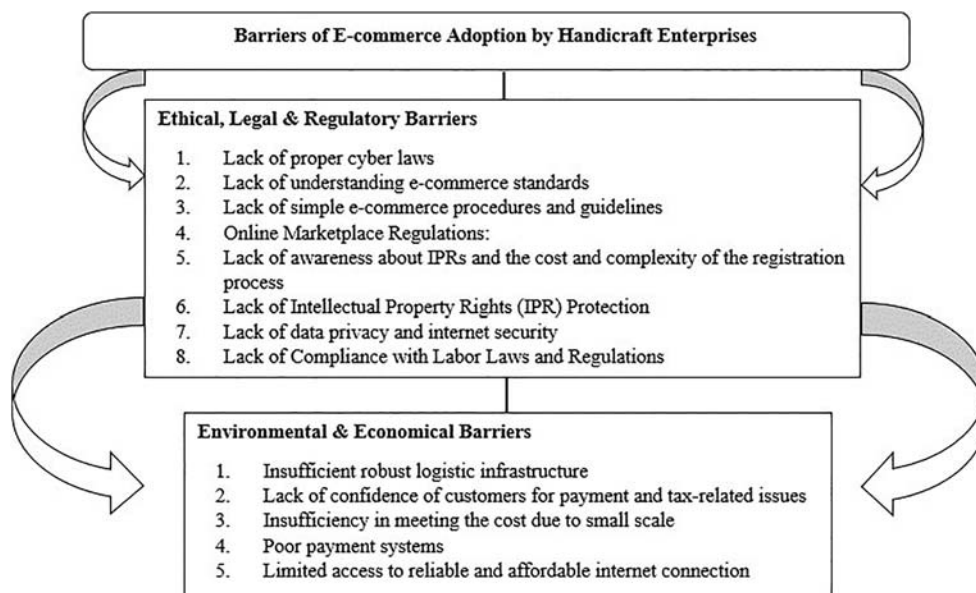


Fig. 1. Conceptual framework for barrier of e-commerce adoption by handicraft enterprises.

Table 1. Demographic characteristics of handicraft enterprises in Uttar Pradesh.

| Demographic characteristics | | Frequency | % |
|-------------------------------------|---------------------------------|-----------|------|
| Gender | Male | 398 | 73.0 |
| | Female | 147 | 27.0 |
| Area | Rural | 95 | 17.4 |
| | Urban | 365 | 67.0 |
| Academic qualifications | Semi-Urban | 85 | 15.6 |
| | Primary (1–5) | 2 | 0.4 |
| | Secondary (6–10) | 23 | 4.2 |
| | Senior Secondary (11–12) | 173 | 31.7 |
| | Diploma | 96 | 17.6 |
| Handicraft enterprise size | UG | 198 | 36.3 |
| | PG | 53 | 9.7 |
| | Less than 10 employees (Micro) | 388 | 71.2 |
| | 10-49 employees (Small) | 110 | 20.2 |
| Job title | 50-249 employees (Medium) | 37 | 6.8 |
| | More than 249 employees (Large) | 10 | 1.8 |
| | Director/CEO/Chairman | 35 | 6.4 |
| | Owner | 198 | 36.3 |
| | Managing Director | 7 | 1.3 |
| | Manager | 66 | 12.1 |
| | Sole Proprietor | 142 | 26.1 |
| Handicraft enterprise/business type | Business Partner | 41 | 7.5 |
| | Founder | 56 | 10.3 |
| | Manufacture/Producer | 407 | 74.7 |
| | Distributor/Channel Partner | 30 | 5.5 |
| | Wholesaler | 166 | 30.5 |
| | Dealer | 60 | 11.0 |
| | Supplier | 51 | 9.4 |
| No. of years in business | Retailer | 137 | 25.1 |
| | Exporter | 87 | 16.0 |
| | Manufacturer/Producer | 407 | 74.7 |
| | 0–5 years | 33 | 6.1 |
| | 6–10 years | 64 | 11.7 |
| | 11–15 years | 106 | 19.4 |
| | 16–20 years | 149 | 27.3 |
| | More than 20 years | 193 | 35.4 |

Source: Author's own calculation from the primary survey, 2023

8.1.1. Gender

The gender of the respondents in the study on e-commerce adoption by handicraft enterprises in Uttar Pradesh varied, but it was predominantly male. There were a few female respondents, approximately 27%, who were actively involved in handicraft enterprises, the majority of participants were men which is 73%. This may be attributed to various socio-cultural factors, such as traditional gender roles and limited opportunities for women to engage in entrepreneurial activities in certain regions.

8.1.2. Area

Handicraft enterprises in Uttar Pradesh are primarily located in both urban and rural areas, with few in semi-urban locations. 67% of handicraft enterprises are found in urban areas. These urban areas provide artisans with better infrastructure, access to markets, and a skilled labor force. Additionally, the presence of tourists and an established retail market in these areas boosts sales and showcases the unique handicrafts of Uttar Pradesh to national and international buyers. In contrast, 17.4% of handicraft enterprises are found in rural areas of Uttar Pradesh and enterprises in these rural areas often work from their homes or in small workshops, employing traditional techniques passed down through generations. On the other hand, 15.6% handicraft enterprises are found in semi-urban areas these areas benefit from their proximity to the urban markets and have a mix of both traditional handicraft and modern art forms.

8.1.3. Academic qualifications

A notable segment of the respondents possessed higher educational qualifications, including degrees at the undergraduate (approximately 36.3%) and postgraduate (approximately 9.7%) levels. These individuals demonstrated a deep understanding of business concepts and possessed the necessary skills to navigate the digital landscape. Additionally, a considerable number of respondents had completed senior secondary education (approximately 31.7%) or vocational courses/or diplomas (approximately 17.6%) focused on specific crafts or technical skills. While their academic qualifications might not have been as extensive, their practical knowledge and skill sets related to handicraft production were invaluable. A smaller subset of the respondents possessed minimal formal education like Primary (approximately 0.4%) and secondary (approximately 4.2%), without any specific academic qualifications. However, they showcased an acute entrepreneurial spirit and a firm grasp of the potential benefits of e-commerce adoption.

8.1.4. Handicraft enterprise size

Handicraft enterprises can be classified into micro, small, medium, and large categories based on their size and scale of operations. Approximately 71.2% are micro-enterprises, which are the smallest in terms of size, typically having less than 10 employees and low investment capital. These enterprises are often operated by individual craftspeople or small groups, producing handicrafts on a small scale. Due to their limited resources, micro-enterprises face challenges in adopting e-commerce platforms, such as lack of technical expertise and limited access to internet connectivity. On the other hand, approximately 20.2% are small enterprises, exhibit slightly larger operations and can employ 10–49 employees. These enterprises have a higher investment capacity and better access to resources. As a result, they are more likely to consider e-commerce adoption to expand their market reach and increase sales. However, small enterprises may still face challenges in terms of competition with larger players and adapting to digital platforms. Approximately 6.8% are medium enterprises, which fall into a middle-ground category, having 50–249 employees and larger production capacities than small enterprises. These enterprises have the potential to leverage e-commerce platforms effectively, allowing them to penetrate wider markets and reach a larger customer base. Approximately 1.8% are large enterprises, that are the largest in terms of size having more than 249 employees, having significant market presence and substantial investment capabilities. They possess well-established supply chains, large production units, and extensive marketing networks.

8.1.5. Job title

Job designations encompass a diverse array of responsibilities, reflecting the individuals' unique roles and contributions. Firstly, the owner contributes 36.3%, representing the individual who has invested capital and resources into establishing the handicraft enterprise. 26.1% of the handicraft enterprise may operate as a sole proprietorship, where the owner and manager are the same individual. Managers contribute 12.1% as the linchpin between the owner and the remaining workforce. The managers' expertise and leadership skills play a vital role in determining the enterprise's ability to adapt to the evolving e-commerce landscape. While, the chairman contributes 6.4%. They provide strategic guidance, play a supervisory role, and contribute their expertise to the enterprise's decision-making process. Managing director and Managers contributes 1.3% and 12.1% respectively. They possess

the entrepreneurial acumen to identify market gaps, envision unique products, and navigate the challenges of the industry. Lastly, the founder (approximately 10.3%) holds immense significance in the context of e-commerce adoption by handicraft enterprises. Founders are the visionary individuals who conceptualize and establish the enterprise. Founders often drive the enterprise's innovation initiatives, creating a distinctive brand identity that sets them apart from competitors.

8.1.6. Handicraft enterprise/business type

Different types of businesses play crucial roles. 74.7% of Manufacturers/producers form the backbone of this sector, as they produce handmade goods with meticulous attention to detail and craftsmanship. 5.5% of Distributors/channel partners play a vital role in this industry by bridging the gap between manufacturers and end consumers. They procure handicrafts from various manufacturing units and supply them to different channels in the market.

30.5% of Wholesalers are significant players in the supply chain, serving as intermediaries between manufacturers and retailers. 11% of dealers operate on a smaller scale, specializing in specific handicrafts or categories. They purchase products directly from wholesalers or manufacturers and sell them to retailers or end consumers. 9.4% of suppliers in this sector play a crucial role in ensuring the continuous availability of raw materials, equipment, and resources required for handicraft production. 25.1% of retailers play a significant role in connecting consumers with the vast array of handicrafts. They operate physical stores, online platforms, or a combination of both. Retailers showcase and sell handicrafts directly to end consumers. 16% of exporters focus on expanding the reach of Uttar Pradesh's handicrafts beyond national borders. They identify international markets, negotiate with buyers, and coordinate the logistics involved in shipping handicrafts abroad. Exporters play a crucial role in promoting the cultural heritage and artistic expertise of Uttar Pradesh's artisans on a global scale.

8.1.7. Number of years in business

It acts as a crucial determinant of whether or not handicraft enterprises opt for e-commerce as a sales channel. Approximately 35.4% handicraft enterprises with more than 20-years in business, with an extensive history in the handicraft industry often possess traditional business practices and are deeply rooted in conventional methods of sales and distribution. On the other hand, relatively new handicraft enterprises, with fewer years in business,

i.e., 6.1% with 0–5 years in business and 11.7% with 6–10 years in business are often more open to and inclined towards e-commerce adoption. However, the correlation between the number of years in business and e-commerce adoption is not limited to these two extreme ends of the spectrum. The study also recognizes the existence of a middle ground where enterprises with moderate years i.e., 16–20 years in business showcase a varying degree of e-commerce interest. This can be attributed to a multitude of factors, such as the age demographics of the entrepreneur, their degree of exposure to digital platforms, and their willingness to adapt to evolving market trends.

8.2. Barriers of handicraft enterprises in e-commerce adoption

The [Table 2](#) presents the results of a 5-point Likert scale analysis conducted on the barriers/challenges faced by handicraft enterprises. The analysis categorizes the barriers into different categories/groups, including ethical, legal & regulatory barriers, and economic barriers. The table provides a breakdown of these barriers/challenges, along with their corresponding scale percentages. The Likert scale analysis of barriers/challenges faced by handicraft enterprises reveals the varying degrees of agreement or disagreement among respondents. These findings provide valuable insights into the specific challenges that need to be addressed to facilitate greater e-commerce adoption in the handicraft sector in Uttar Pradesh.

8.2.1. Ethical, legal & regulatory barriers

The first head of [Table 2](#) presents the Likert Scale analysis of the Ethical, Legal & Regulatory barriers/challenges faced by handicraft enterprises.

Regarding the lack of proper cyber laws, 10.98% of the respondents strongly disagree with this barrier, while 4.67% disagree, 5.61% remain neutral, 9.35% agree, and the majority of 69.39% strongly agree that this is a challenge hindering their adoption of e-commerce. This suggests that a significant portion of handicraft enterprises in Uttar Pradesh perceive the absence of solid cyber laws as a major obstacle. This is one such significant barrier that specifically addresses the concerns and challenges of e-commerce. Without specific legislation in place, handicraft enterprises face difficulties in protecting their intellectual property rights, safeguarding customer data, and resolving disputes that arise in online transactions.

The lack of understanding of e-commerce standards also presents a substantial challenge, with

Table 2. Likert scale analysis of barriers/challenges of E-commerce adoption by handicraft enterprises in Uttar Pradesh.

| S. No. | Heads | Barriers/Challenges | Scale of Opinion (in %) | | | | |
|--------|---|--|-------------------------|--------------|-------------|-----------|--------------------|
| | | | Strongly disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly agree (5) |
| 1. | Ethical, legal & regulatory barriers | Lack of proper cyber laws | 10.98 | 4.67 | 5.61 | 9.35 | 69.39 |
| 2. | | Lack of understanding of e-commerce standards | 11.21 | 4.44 | 10.98 | 25.47 | 47.90 |
| 3. | | Lack of simple e-commerce procedures and guidelines | 8.41 | 4.21 | 10.98 | 41.36 | 35.05 |
| 4. | | Online Marketplace Regulations | 1.98 | 7.23 | 6.50 | 43.33 | 40.96 |
| 5. | | Lack of awareness about IPRs and the cost and complexity of the registration process | 2.34 | 4.26 | 9.89 | 55.64 | 27.87 |
| 6. | Economic barriers | Lack of IPR Protection | 29.05 | 16.35 | 6.56 | 37.56 | 10.48 |
| 7. | | Lack of data privacy and Internet security | 3.61 | 6.89 | 5.56 | 46.32 | 37.62 |
| 8. | | Lack of Compliance with Labor Laws and Regulations | 10.89 | 6.56 | 4.32 | 32.96 | 45.27 |
| 9. | | Insufficient robust logistic infrastructure | 4.44 | 2.34 | 16.59 | 37.15 | 39.49 |
| 10. | | Lack of confidence of customers for payment and tax-related issues | 5.61 | 2.10 | 16.12 | 35.51 | 40.65 |
| 11. | | Insufficiency in meeting the cost of e-commerce adoption due to small-scale | 6.54 | 25.70 | 8.88 | 16.12 | 42.76 |
| 12. | | Poor payment systems | 6.54 | 1.64 | 11.45 | 27.80 | 52.57 |
| 13. | | Limited access to reliable and affordable internet connection | 5.61 | 14.49 | 8.64 | 35.75 | 35.51 |

Source: Author's own calculation from the primary survey, 2023

only 11.21% strongly disagreeing, 4.44% disagreeing, 10.98% being neutral, 25.47% agreeing, and 47.90% strongly agreeing with this barrier. These results indicate that a majority of the respondents recognize their lack of familiarity with e-commerce standards as a significant deterrent to their uptake of online selling platforms. Many handicraft businesses do not have the necessary knowledge/resources to ensure compliance with industry standards for online transactions. This lack of understanding leads to issues such as insecure payment gateways, inadequate data protection measures, and poor user experience, all of which can negatively impact the credibility of the enterprise and hinder customer trust and satisfaction.

Moreover, the absence of simple e-commerce procedures and guidelines is identified as another barrier, with 8.41% strongly disagreeing, 41.36% agreeing, and 35.05% strongly agreeing. This data highlights that the respondents perceive the complexity of e-commerce procedures and guidelines as a significant challenge in their adoption efforts. The lack or absence of clear procedural guidelines makes it difficult for these enterprises to navigate the complex process of setting up and managing e-commerce platforms. This lack of guidance can result in inefficient online

operations, delayed order processing, and customer dissatisfaction.

Another legal barrier identified is the Online Marketplace Regulations. Only 1.98% strongly disagreed, while 7.23% disagreed, 43.33% agreed with this statement. This indicates that a substantial proportion of H.E. are concerned about the lack of Online Marketplace Regulations, potentially hindering their adoption of e-commerce. While 6.50% of respondents remained neutral about the barrier, 40.96% strongly agreed with the statement.

The next legal and regulatory barrier identified is Lack of awareness about IPRs and the cost and complexity of the registration process. This barrier received the highest agreement rating, with 55.64% of respondents stating that they agree with this statement. Only 2.34% strongly disagreed, while 4.26% disagreed, 27.87% strongly agreed, and 9.89% remained neutral on it. This suggests that a majority of handicraft enterprises in Uttar Pradesh facing challenges in terms of a lack of awareness about IPRs and the cost and complexity of the registration process, which could potentially hamper their e-commerce adoption efforts.

Lack of Intellectual Property Rights (IPR) Protection is also considered as the next legal and regulatory barrier. The majority of respondents (37.56%)

agreed with this statement, while 16.35% disagreed, 10.48% strongly agreed, and 6.56% remained neutral. This suggests that a significant number of handicraft enterprises in Uttar Pradesh facing limitations in terms of Lack of IPR Protection, which is impacting their ability to adopt e-commerce.

Another technological barrier identified is the lack of data privacy and internet security. Only 3.61% strongly disagreed and 6.89% disagreed, while 46.32% agreed with this statement. This indicates that a substantial proportion of handicraft enterprises are concerned about the lack of privacy and internet security, potentially hindering their adoption of e-commerce. While 5.56% of respondents remained neutral about the barrier, 37.62% strongly agreed with the statement.

Lack of Compliance with Labor Laws and Regulations is another technological barrier identified. Only 6.56% disagreed and 10.89% strongly disagreed with the statement, while 32.96% agreed, and 45.27% strongly agreed with this statement. This indicates that for a considerable proportion of handicraft enterprises, limited access to reliable and affordable internet connections is not a significant obstacle.

8.2.2. Economic barriers

The second head of [Table 2](#) presents the Likert Scale analysis of the Economic barriers and challenges faced by handicraft enterprises in the adoption of e-commerce in Uttar Pradesh.

Economic barriers can hinder the growth and success of e-commerce, which encompasses multiple challenges. One such challenge is the insufficient robust logistic infrastructure, with 4.44% of respondents strongly disagreeing and 39.49% strongly agreeing that this is a barrier. This means that there may be challenges in efficiently transporting goods from sellers to buyers, resulting in delays and higher costs. This is acting as a hindrance to the overall efficiency of e-commerce operations.

Another barrier is the lack of confidence of customers in payment and tax-related issues, with 5.61% strongly disagreeing and 40.65% strongly agreeing with this statement. This can make customers hesitant to make online purchases, as they may be worried about the security of their payments or the transparency of taxes. This lack of confidence hinders the growth of e-commerce as customers may choose to stick with traditional brick-and-mortar stores.

The next challenge is the insufficiency in meeting the cost of e-commerce adoption due to its small scale. Here, 6.54% strongly disagree, 42.76% strongly agree, and the rest fall in between. This

indicates that a significant portion of the respondents recognize the financial constraints faced by handicraft enterprises. Small businesses that want to adopt e-commerce are struggling to meet the initial costs associated with setting up an online platform and implementing the necessary technological infrastructure. This prevents them from fully embracing e-commerce and benefiting from the opportunities it offers.

Lastly, poor payment systems are identified as a barrier, with 6.54% strongly disagreeing and 52.57% strongly agreeing. This suggests that a majority of the respondents perceive the existing payment systems as a hindrance to e-commerce adoption. If the payment systems available are unreliable or inefficient, it leads to frustration for both buyers and sellers. This discourages customers from making online purchases and hinders the growth of e-commerce. Limited access to reliable and affordable internet connections is the final economic barrier identified. While 35.75% of respondents agreed with this statement, 14.49% strongly disagreed. This indicates that for a considerable proportion of handicraft enterprises, limited access to reliable and affordable internet connections is not a significant obstacle.

8.3. Impact of barriers on e-commerce adoption by handicraft enterprises

In this section, [Table 3](#) provides a comprehensive overview of the impact of barriers on e-commerce adoption by handicraft enterprises across four key areas: having knowledge about e-commerce, e-commerce adoption, present status, and market access. The data presented in this table sheds light on the challenges faced by handicraft enterprises in adopting e-commerce as a business strategy, and the barriers that hinder their ability to fully utilize online platforms for selling their products. By analyzing the results on these four heads, policymakers and industry stakeholders can gain valuable

Table 3. Impact of barriers on e-commerce adoption by handicraft enterprises in Uttar Pradesh.

| Impact of Barriers | | Frequency | % |
|-----------------------------------|------------------|-----------|------|
| Having knowledge about e-commerce | Yes | 376 | 69.0 |
| | No | 145 | 26.6 |
| | Somewhat | 24 | 4.4 |
| E-commerce adopted | Yes | 283 | 51.9 |
| | No | 262 | 48.1 |
| Present status | Yes, Still using | 208 | 38.2 |
| | No, Left | 337 | 61.8 |
| Market access | Local | 538 | 98.7 |
| | National | 272 | 49.9 |
| | International | 61 | 11.2 |

Source: Author's own calculation from the primary survey, 2023

insights into the factors that are influencing the adoption of e-commerce by handicraft enterprises and develop targeted interventions to support their transition to online marketplaces.

8.3.1. *Having knowledge about e-commerce*

The study examines how varying levels of knowledge influence the efficiency and effectiveness of these enterprises in adopting and utilizing e-commerce platforms. Approximately, 69% said Yes, having knowledge about e-commerce is highly beneficial in today's digital age. Those who possess knowledge about e-commerce are well aware of the various platforms and technologies available, such as online marketplaces, payment gateways, and digital marketing strategies. They understand the significance of customer engagement, effective product listings, and seamless transactions within the online realm. On the other hand, 26.6% of respondents who lack knowledge about e-commerce are finding themselves at a disadvantage. Without understanding the basics of e-commerce, they are struggling to grasp the potential opportunities it offers. They are unfamiliar with the numerous online platforms and methods available, hindering their ability to expand their business beyond physical limitations. However, there is a category of individuals who fall in between these two extremes. 4.4% of respondents have some knowledge about e-commerce, albeit limited. They have a basic understanding of online selling platforms and the importance of establishing an online presence. These enterprises are not maximizing the full potential of e-commerce, but they have the capacity to continuously learn and adapt to new concepts and technologies. With some effort, they can gradually enhance their understanding and leverage e-commerce to optimize their business operations.

8.3.2. *Enterprises ever adopted E-commerce*

The study on e-commerce adoption by handicraft enterprises in Uttar Pradesh reveals that a significant number of enterprises (approximately 51.9%) have indeed embraced the concept of e-commerce. The research conducted indicates that the majority of handicraft enterprises in Uttar Pradesh have recognized the potential benefits that e-commerce can offer, leading them to incorporate this technology into their business operations. 48.1% of enterprises have never adopted e-commerce as a tool or channel for selling their handmade products.

8.3.3. *Present status*

Of those handicraft enterprises that have embraced the concept of e-commerce, out of them

approximately 38.2% are still using e-commerce for their business and 61.8% of them have left to embrace e-commerce. Behind this, several reasons were uncovered as to why businesses decided to leave or depart from the e-commerce industry. One of the primary reasons contributing to this decision was the legal and regulatory barriers that put pressure on businesses and are imposed by the e-commerce platforms themselves. These platforms often set stringent rules, regulations, and performance metrics that handicraft enterprises are struggling to meet. This puts immense pressure on businesses to continuously improve their operations, maintain high-quality standards, and constantly innovate their products. Many smaller enterprises, unable to cope with these demands, made the choice to exit the e-commerce industry. Another pivotal reason for leaving the e-commerce business was the economic barrier, which decides enterprises' inability to fulfill the supply of products on time. Handicraft enterprises faced challenges in managing inventory, production, and shipping processes effectively, leading to delays in product delivery. This not only tarnished their reputation but also resulted in customer dissatisfaction and increased refund requests. Frustrated by these issues, many businesses decided to withdraw from the e-commerce sector. Furthermore, the ethical barrier treats as a significant fear among handicraft enterprises was the potential for their designs to get copied. E-commerce platforms often expose businesses to a global market, making it easier for competitors or unauthorized third parties to replicate unique designs. This threat to intellectual property rights instilled fear in many enterprises, as they were concerned about losing their competitive edge and seeing their designs proliferate without due credit or compensation.

8.3.4. *Market access*

The market access of handicraft enterprises at the local, national, and international levels is a critical aspect of studying the impact of barriers on e-commerce adoption. Handicraft enterprises play a significant role in the cultural and economic development of the region, and their market access is crucial for their sustainability and growth. At the local level, 98.7% of handicraft enterprises primarily rely on traditional channels such as local markets and word-of-mouth to sell their products. This limited market access restricts their reach to a national customer base, compromising their potential for higher sales and profitability. On a national level, 49.9% of handicraft enterprises face the challenge of competing with larger enterprises and established brands. The adoption of e-commerce

can help bridge this gap by enabling these smaller enterprises to showcase their unique products to a national audience. Through online platforms, customers from different parts of the country can explore and purchase these handicrafts, providing enterprises with wider market access. Furthermore, international market access is crucial for the growth and expansion of handicraft enterprises (approximately 11.2%). It allows them to tap into a global customer base, showcasing their traditional craftsmanship to the world. However, international market access comes with various challenges such as language barriers, shipping logistics, and cultural differences. E-commerce provides a solution to these challenges by offering a platform connects the handicraft enterprises directly with international customers, eliminating the need for intermediaries.

Overall, we can interpret from [Table 3](#) that 69% of handicraft enterprises respondents had different levels of knowledge about e-commerce, 26.6% of enterprises accepted that they did not possess any kind of knowledge, and 4.4% had some knowledge about it. Further, it can be seen that the numbers have significantly reduced, from 51.9% of those who have adopted e-commerce to 48.1% of those who have not. Interestingly, if we notice the present status of enterprises still using e-commerce as an online business option, then it has significantly reduced to 38.2%, and the number of non-adopters that have left it has significantly increased from 48.1% to 61.8%. This impacts handicraft enterprises in their market access, which shows that 98.7% of enterprises have local access to market their products, while 49.9% of enterprises have national-level access, and only 11.2% have international market access due to the non-adoption of e-commerce because of several legal and economic barriers enterprises face when it comes to the adoption process.

9. Conclusion, discussion and recommendation

The barriers to e-commerce adoption in SMEs highlight the complex challenges they faced in transitioning to online business models. We can interpret from the analyzed data that 69% of handicraft enterprises respondents had different levels of knowledge about e-commerce, 26.6% of enterprises accepted that they did not possess any kind of knowledge, and 4.4% had some knowledge about it. Further, it can be seen that the numbers have significantly reduced, from 51.9% of those who have adopted e-commerce to 48.1% of those who have not. Interestingly, if we notice the present status of enterprises still using e-commerce as an online

business option, then it has significantly reduced to 38.2%, and the number of non-adopters that have left it has significantly increased from 48.1% to 61.8%. This impacts handicraft enterprises in their market access, which shows that 98.7% of enterprises have local access to market their products, while 49.9% of enterprises have national-level access, and only 11.2% have international market access due to the non-adoption of e-commerce because of several legal and economic barriers enterprises face when it comes to the adoption process.

Earlier studies have focused on the factors that affect enterprises in the adoption of e-commerce and the barriers and challenges they face in the adoption process. Previous studies have shown that the lack of proper cyber laws and literacy among artisans is a major obstacle for SMEs looking to succeed in the digital economy. Trust and security issues further complicate matters, making it difficult for these businesses to fully embrace e-commerce. Research from the late 1990s emphasized the importance of factors such as awareness, education, market size, infrastructure, legal frameworks, and government support in determining the success of e-commerce implementation. Challenges such as limited access to information, lack of time to explore options, and a limited understanding of e-commerce models and methodologies highlight the barriers that SMEs face in leveraging digital technologies for business growth and expansion. It is crucial for governments and organizations to address these challenges and provide the necessary support for SMEs to thrive in the digital age.

However, this study is more concerned with the reasons handicraft enterprises left the online marketplace after they adopted it. The data revealed that how the several handicraft enterprises left adopting e-commerce due to various legal and economic barriers they face and how the number has significantly reduced from adopted to non-adopted handicraft enterprises, due to these barriers, their market access is also limited to local level only. Overcoming these barriers required education and awareness, infrastructure development, government support, and addressing cost and trust concerns to enable SMEs to fully embrace e-commerce. Overall, while e-commerce holds tremendous potential for enterprises in developing countries, numerous barriers need to be addressed to facilitate its widespread adoption. Governments, organizations, and other stakeholders must work together to bridge the digital divide, increase digital literacy, enhance trust and security measures, improve financial inclusivity, and encourage a cultural shift towards embracing e-commerce. By

supporting these enterprises with different programs and policies at both the state and central levels, the government not only helps generate more employment opportunities but also ensures the survival of ancient crafts and skills. It can do so by creating a favorable business environment through policies and regulations that are conducive to its growth. Financial support, tax incentives, and subsidies can help alleviate the financial burden on these small-scale enterprises. Moreover, the government can provide training programs and workshops to enhance the skills ensuring the quality and competitiveness of their products.

10. Limitations of the study

The current research has primarily focused on the during-adoption barriers and post-adoption benefits faced by handicraft enterprises in Uttar Pradesh, without thoroughly examining the potential risks associated with it. The study has not delved deeper into issues such as cybersecurity threats, online payment frauds, or counterfeit products. These risks can significantly impact the trust and reputation of handicraft enterprises, ultimately affecting their e-commerce adoption decisions. Lastly, the study has lacked a comparative analysis with non-handicraft enterprises or other industries/enterprises. By comparing e-commerce adoption patterns across various sectors, a better understanding of the unique challenges faced by handicraft enterprises could have been acquired.

Ethics information

This research paper meticulously follows all the guidelines and principles to ensure the integrity and transparency of the publication process. It is committed to upholding the confidentiality of the respondents of the survey and strictly adheres to all ethical guidelines in order to maintain the trust of the readers. By following these ethical standards, the research paper demonstrates a deep commitment to conducting research in a responsible and trustworthy manner. This ensures that the results presented are reliable and credible, ultimately contributing to the advancement of knowledge in the field.

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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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