



## Leveraging Digitalization and Servitization to Improve Financial Performance: An Empirical Analysis

Anum Ashfaq<sup>1</sup>, Fatima Nadeem<sup>2</sup>, Ifrah Qasim<sup>3</sup>, Lyba Kamran<sup>4</sup>, Javaria Asim<sup>5\*</sup>

### Abstract

This research investigates the interplay between digitalization, servitization, and Corporate Social Responsibility (CSR) in influencing the financial performance of Pakistani banks. The study addresses a critical gap by examining how these factors combine to impact bank profitability in the contemporary landscape of digital transformation and evolving customer demands. A quantitative approach is employed, utilizing survey data collected from branch managers in Pakistani banks. Standardized scales measure digitalization, servitization, CSR, and bank performance. The findings demonstrate a positive direct effect of digitalization on bank performance. Furthermore, servitization strengthens this positive impact, suggesting that banks offering a comprehensive suite of services alongside traditional products achieve superior financial outcomes. Notably, the study reveals no significant short-term contribution of CSR to a bank's financial performance. Thus, the study sheds light on the crucial role of servitization in amplifying the positive effects of digitalization on bank performance. By strategically integrating services with products, banks can leverage digital technologies to become more data-driven and enhance their financial health.

**Keywords:** Firm Performance, Servitization, Digitalization, CSR (Corporate Social Responsibility), Technology, Services, Banks

### 1. Introduction

Today's society has been significantly influenced by technology. The Internet has created a worldwide community, revolutionizing the banking sector by transitioning from a manual ledger system to systemized procedures and introducing Internet-based facilities (Kohtamaki et al., 2020; Rath, 2024). Over the past few years, the competition among banking businesses has immensely increased. Consequently, banks have started adopting new methods and strategies to improve their performance and increase customer satisfaction and loyalty (Brennen & Kreiss, 2016). The latest trend in modern technology is digitalization. Digitalization is believed to be the most significant driver of the era of "Industry 4.0". Digitalization is a term that is mostly used as an alternative word to describe the process of transforming traditional data streams and channels into digital information. Organizations must undergo significant socio-technical change to move towards digitalized business and this has a major impact on organizational structures, strategies, business models, and methodologies (Legner et al., 2017; Bilal & Tanveer, 2023; Iqbal & Abbas, 2024).

Although it is clear that banking businesses are affected by digitalization-related abilities and the benefits of digitalization are obvious, how exactly it works is still unknown, and major questions about the productivity associated with these IT investments have been brought up over time (Brynjolfsson, 1993; Quader, 2024). The available evidence that is now available does not satisfactorily demonstrate the link between digitalization and corporate financial performance, as well as any possible mediating influences (Toor, Hunain, Hussain, Ali, & Shahid, 2016). Digital servitization has recently emerged with special attention to the relationship between servitization and digitalization. A new idea that emphasizes the interaction between two fundamental business concepts—digitalization and servitization—is called "digital servitization" (Coreynen et al., 2017; Yasir et al., 2021; Aydemir, 2024). Both servitization and digitalization together offer and provide some major opportunities to boost a company's performance and profitability (Schroeder, Galera-Zarco, Baines, & Bigdeli, 2016). Companies may find that digitalization is not enough to provide favorable financial performance effects on its own. As a result, these companies require portfolios of sophisticated services to guarantee that the value of digitalization is captured and that positive performance effects are achieved (Kohtamaki et al., 2020; Asif et al., 2023; Senbeta, 2023).

Thus far, studies on servitization have combined software, services, and products under the idea of servitization, or they have combined digital transition and servitization under the general heading of digital servitization. While studies on servitization have recognized the importance of software, they have not placed enough focus on the impact of digitization (Vendrell-Herrero et al., 2017). The idea of digital servitization—which emphasizes the interaction between digitization and servitization—was very recently developed. Though the term "digital servitization" has been coined and established, there is a lack of empirical information regarding the interactions between its two primary components, digitalization and servitization (Kohtamaki et al., 2019; Idris, 2023; Salleh & Sapengin, 2023). At times, financial investments in digitalization and big data analytics are undertaken without a well-defined plan for leveraging customer-provided big data to enhance organizations' financial performance

<sup>1</sup> Kinnaird College for Women, Lahore, Pakistan

<sup>2</sup> Kinnaird College for Women, Lahore, Pakistan

<sup>3</sup> Kinnaird College for Women, Lahore, Pakistan

<sup>4</sup> Kinnaird College for Women, Lahore, Pakistan

<sup>5\*</sup> Corresponding Author, Kinnaird College for Women, Lahore, Pakistan

and create more prospects for growth (Visnjic, Neely & Jovannovic, 2018; Asim et al., 2021). Advanced services, operational services, and outcome-based services that help businesses reap the rewards of digitalization might contain the secret to unlocking its worth. Eventually, a business model—such as the digital servitization business model—should be able to capture the value of the investments made in digitalization. The relationship between digitization and servitization in the context of banking organizations has received very little research up to this point (Coreynen et al., 2017; Xiong, 2024).

Moreover, using digital technology applications in managing a firm's operations enables the implementation of sustainability initiatives (Zheng et al., 2023). As a result, businesses shouldn't limit their attention to using digital technologies to increase economic performance alone. Instead, they should carefully consider the implications of digital technologies about social and environmental goals (Cardinali & Giovanni, 2022). Such sustainability initiatives are linked with CSR. Corporate social responsibility has become more and more well-known as a crucial element of contemporary business operations where a corporation that practices corporate social responsibility (CSR) makes sure that it operates in a way that fulfills even beyond the legal, ethical, commercial, and public expectations that society has of business (Jamali & Mirshak, 2007; Elahi et al., 2021). According to certain research, companies that participate in corporate social responsibility (CSR) initiatives are more likely to perform better since these initiatives can enhance the image of a business, draw in and keep customers, and foster long-term, sustainable growth (Syrine et al., 2024).

Leveraging technological advances and being socially responsible has become important for businesses aiming to improve operational efficiency, customize consumer experiences, and reinvent their services in the digital age, where data is everywhere and the connection is everything. Simultaneously, the rising realization that value creation goes beyond the sale of items to include the delivery of integrated solutions, outcomes, and experiences is emphasized by the advent of servitization as a strategic imperative (Kohtamaki et al., 2020; Munir et al., 2024). This study's rationale is to clarify the complex interplay among digitalization, servitization, CSR, and banks' financial performance. Due to a lack of data and empirical methodology that can clearly separate the effects of servitization and digitalization, the relationship between digitalization, servitization, and business outcomes like productivity, profitability, and competitiveness remains underexplored in the literature (Kharlamov & Parry, 2021; Khan et al., 2020). This study addresses this gap in the literature. This study intends to investigate the most prevalent structures for banking service quality and to comprehend the variables that affect business performance. This study aims to examine how digital technology is being used and impacting performance by the most productive and influential sector of the economy of Pakistan i.e. banking. Most importantly, the objective is to identify the type and scope of interaction between digitalization, servitization, and CSR. Through an analysis of the mediating functions of servitization and CSR, the study aims to clarify the complex patterns that influence the correlation between digitalization and financial outcomes (Kohtamaki, Parida, Patel & Gebauer, 2020). Thus, this study aim to emphasize the growing importance of digitalized services in Pakistan's banking sector to demonstrate some of the key advantages and competitive impacts.

## 2. Literature Review

In today's ever-evolving business landscape, the adoption of cutting-edge strategies has become paramount for organizational survival and prosperity. The dynamics of this era are characterized by rapid technological advancements, reshaping industries, and necessitating adaptability at every level (Gupta & Dasgupta, 2019). In response to these shifting tides, businesses worldwide are increasingly embracing digitalization and servitization strategies to maintain competitiveness and sustainability (Bouwman, Nikou, & de Reuver, 2019). Furthermore, corporate social responsibility (CSR) has gained prominence as an integral component of modern business operations. It underscores the importance of a company's commitment to ethical and socially responsible practices (Bai, Xuan, & Chang, 2015; Ali et al., 2020). With consumers and stakeholders increasingly valuing ethical conduct, CSR has become more than just a buzzword; it is a defining feature of businesses aiming to make a difference in the world (Forte, 2013).

### 2.1. Firm Performance and Technology

The economic pulse of a nation is intricately tied to the health of its banking sector, making it crucial to assess its financial performance (Haque, Imdadul, & Sharman, 2011). In the modern economy, the landscape of banking and finance has undergone a profound transformation, characterized by an exponential increase in the number of financial institutions and the expansion of their monetary assets and operational reach. (Berger & Humphrey, 1997). Despite the commendable progress made by banking and financial entities, they face innumerable challenges that demand concerted efforts to elevate the quality of their services, foster diversification, and keep pace with the rapid global advancements within this sphere. (Bhole, L.M., & Mahakud, 2010). Banks are increasingly turning to technology for two primary reasons. Firstly, it enables them to compete more effectively (King, 2012; Rafique et al., 2020). Secondly, it allows them to improve how they provide services, making them more efficient and tailored (Herington & Weaven, 2009). The imperative for banks to stay at the forefront of technological advancements cannot be overstated (King, 2012). Adopting modern technology not only allows banks to negotiate the intricacies of today's financial landscape but also positions them as leaders in providing

improved experiences for customers in the face of increasing competitiveness (Shahrokhi, 2008). As a result, banks must continuously examine and incorporate innovative technologies into their operational structures to preserve a competitive advantage and support long-term development and profitability (Scott, Van Reenen, & Zachariadis, 2017).

The Internet has provided banks with invaluable resources such as technology and a variety of financial products (Mukherjee & Nath, 2003; Abid et al., 2021). Technological advancements have intensified competition in financial markets, compelling banks to enhance their operational efficiency. The Internet has expanded the scope of banking services to encompass traditional functions, influencing deposit-taking, payments, and other fundamental banking operations (Riedl, 2013). The widespread adoption of technology is prompting banks to reconsider their established approaches and innovate. The rapid growth of technology over the last decade has dramatically altered the way financial services are delivered (Gomber, Kauffman, Parker, & Weber, 2018; Qaiser et al., 2021). Financial industry advancements are rapidly evolving, transitioning from digital currency to blockchain applications (Lucey, et al., 2018). Digital innovation is reshaping the financial services sector profoundly (Chishti & Barberis, 2016). Digitization has intensified competition among established organizations while simultaneously creating new opportunities for firms with distinctive business models, such as crowdfunding platforms, peer-to-peer lending, and digital-only banks (Rizvi, Naqvi, & Tanveer, 2018).

The banking sector has encountered formidable challenges arising from the forces of globalization, heightened competition, particularly from non-banking financial entities, and the unpredictable dynamics of the market (Casu, Barbara, Girardone, & Molyneux, 2006; Asif et al., 2017). As a result, banks are compelled to innovate and devise strategies to enhance the delivery of their service mechanisms. In recent years, there has been a visible surge in the analysis conducted for the performance evaluation of financial institutions, with a specific focus on commercial banks. This shift in focus has led to a paradigmatic evolution in research, transitioning from a singular emphasis on performance characterization to a more multidimensional systems perspective (Jahangir, Shill, Haque, & M.A.J, 2007). Recognizing the imperative of comprehensively understanding a bank's financial performance entails delving into the intricate interplay among various factors, including assets, revenue streams, profit margins, market valuation, workforce composition, investments, and customer satisfaction (Seiford, L.M., & Zhu, 1999; Zafar et al., 2022). Such implicated appraisal not only provides valuable insights into enhancing bank productivity but also fortifies their competitive positioning in an ever-evolving market landscape (Haque, Imdadul, & Sharman, 2011).

## **2.2. Digitalization and Firm Performance**

Digitalization, the transformation of traditional data streams and channels into digital information, is hailed as the most significant driver of the "Industry 4.0" era (Hsu, 2007). In the realm of business, digitalization promises to enhance efficiency, customer engagement, and operational effectiveness (Martín-Peña, Sánchez-López, & Díaz-Garrido, 2020). In this context, it is not only reasonable but essential to posit that digitalization is a driving force behind enhanced firm performance in the banking sector (Fitzgerald, Kruschwitz, Bonnet, & Welche, 2013).

Banks that provide services via digital platforms like the Internet could be charging customers less. Due to the low cost of electronic channels, banks' costs for using the Internet have decreased, which is reflected in service prices (Danial, 1999). Retail banks have historically relied on physical distribution, but they now need to transition to a stable and tested electronic distribution model. (Skinner, 2014). Now that there is only one channel, and it is a digital channel, banks should give up on their multi-channel plans and become digital banks. Digitalization, characterized by the integration of technology and digital data, has revolutionized the operational landscape of banks and financial institutions (Scholz, 2017).

The digital ecosystem enables banks to leverage external data sources, moving away from traditional resource allocation strategies towards a customer-centric approach aimed at enhancing competitive advantages (Brenner, 2018). A pivotal aspect of digitalization lies in its ability to address information asymmetries, a longstanding challenge in the financial sector. (Diamond, 1984). Retail banks must now migrate to dependable and established electronic distribution from their conventional physical distribution model. We refer to the current young generation of people who have grown up on the Internet as "digital natives." These individuals use digital media instinctively because they spend their entire lives online. Since there is only one channel, and it is a digital channel, banks should immediately give up on their multi-channel plans and transition to becoming digital banks (Skinner, 2014).

In the contemporary digital era, banks can strategically harness data to mitigate information asymmetries and enhance their lending processes. Predictive analytical tools, integral to customer-centric digital strategies, facilitate a deeper understanding of customer relationships and enable informed lending decisions (Davenport & Dyché, 2013). By leveraging digital platforms and advanced analytics, banks can construct proprietary information systems that enable more accurate risk assessment and decision-making, thereby reducing the impact of asymmetric information on lending outcomes (Scholtens, 2009). While acknowledging potential drawbacks such as cyber security threats, for this discussion, we focus on the positive implications of digitalization for addressing information asymmetries. (West, 2019). By leveraging digital technologies, banks can enhance transparency, improve risk management practices, and foster trust between themselves and their customers. As a

result, digitalization not only enhances the efficiency and performance of banks but also contributes to broader economic growth by facilitating smoother capital allocation and fostering a conducive lending environment (Scholtens, 2009). (Pakhnenko, Rubanov, Hacar, Yatsenko, & Vida, 2021) shows that digitalization represents a transformative force in the financial sector, offering banks unprecedented opportunities to overcome traditional challenges associated with information asymmetries. By embracing digital technologies and data-driven strategies, banks can enhance their market competitiveness, improve their economic performance, and contribute to a more efficient and inclusive financial ecosystem.

Digitalization, which is described as "the adoption or increase in use of digital or computer technology by an organization, industry, country, etc." in general, is another contemporary trend that has an impact on product companies. (Paiola & Gebauer, 2020). The progressive and widespread acceptance and integration of digital technology is enabling new avenues for value creation and has a profound impact on society, the economy, and industry. The landscapes of the commercial and consumer markets are changing due to connected products, creating room for whole new data-based, service-oriented business models. (Porter & Heppelmann, 2014). As businesses increasingly rely on digital channels and data-driven decision-making, understanding the extent to which digitalization influences financial outcomes becomes pivotal (Kuusisto, 2017). Research suggests that while the benefits of digitalization are evident, questions persist regarding its impact on productivity and corporate financial performance (Brynjolfsson, 1993). Pakistan's banking landscape, like many others globally, is undergoing a profound digital transformation. As the industry increasingly relies on digital channels, data analytics, and technological innovations, understanding the depth of digitalization's influence on financial outcomes becomes paramount (Kuusisto, 2017). This understanding is vital not only for the banking sector itself but also for policymakers, investors, and stakeholders keen to navigate the evolving financial terrain.

Individuals are observing servitization from the perspective of digital transitions. Digital servitization is defined by (Holmström & Partanen, 2014) as the provision of digital commodities to complement or replace physical goods. The financial services sector is one where digital servitization is particularly prevalent. Customer connections and service exchanges have shifted from being predominantly conducted in brick-and-mortar establishments to using digital service technologies at the customers' convenience thanks to the growth of mobile banking. Thus, digital servitization makes use of information technology to create new revenue streams that provide value and are complementary to the adoption of a servitization plan. Recent studies on digital servitization have shown a special interest in examining how digital technology makes it easier to supply new services that are necessary for competing in the more complex markets of today. The ability to do so is largely dependent on a company's analytical capacity to transform data at the firm and customer levels into workable strategies and tactics for value creation. (Payne, Dahl, & Peltier, 2021).

Scholars have examined Corporate Social Responsibility (CSR), its development, and its impacts on various stakeholders and society in recent years (Carroll, 2021). Companies are now obliged to engage in CSR because many stakeholders are requesting greater transparency and resolute promises in their CSR strategies. In addition, researchers have examined the political, ethical, integrative, and instrumental theories that firms use to justify developing a CSR strategy. As a result, CSR influences and upholds legitimacy and reputation, and it has a favorable effect on the banking sector's reputation. (Pérez, Fernández, & López, 2023). Studies demonstrate that, in the banking sector, where strong standards of ethics, accountability, and openness are ingrained, governance is the most heavily weighted impact component. (Jamali, Safieddine, & Rabbath, 2008). Banks should think of transparency as a way to stay competitive in the digital world. As a result, banks should exercise caution when it comes to managing sensitive data, safeguarding important data, and providing customers with the information they have chosen. In recent years, banks have integrated digital infrastructures including cloud computing, big data analysis, internet banking, artificial intelligence, and machine learning. For banks that have integrated sustainability and corporate social responsibility into their digital strategy, this procedure is essential as it enhances their performance and efficacy, hence enhancing their reputation. (Pérez, Fernández, & López, 2023). Our study will contribute to this ongoing discourse by empirically assessing the relationship between digitalization and firm performance directly and indirectly within the specific context of the Pakistani banking sector. Building on this premise, it is proposed that:

H1: Digitalization has a significant impact on firm performance

### **2.3. Servitization, Digitalization, and Firm Performance**

In the 1980s, Vandermerwe and Rada introduced the concept of servitization. They made the following three explanations for why firms need to servitize: (i) to retain customers (ii) to keep competitors out and (iii) to raise a degree of difference. What matters, however, is that services represent a greater portion of the added value in customer offerings. To engage customers and make them more loyal, banks should extend the range of services they offer to their clients, which can lead to increased customer retention as well as higher lifetime values for each customer.

Servitization appears as a crucial force that leads to the enhancement of corporate value, as emphasized by (Grubic & Jennions, 2018). In the banking industry, Suarez, Cusumano, & Kahl (2013) identify a non-linear relationship between high-level service execution and financial performance, encouraging the need for strategic arrangement.

Moreover, recent experimental evidence states the synergistic effects of servitization and digitalization on profitability (Kharlamov & Parry (2020), highlighting the possibilities of merging digital technologies into servitized business models. Through servitization, banks gain a quicker response to changing market conditions. This is due to its ability to have flexible and expandable services. In an evolving marketplace, this ability may help banks to retain their flexibility and profitability (Oliva & Kallenberg, 2003). The digital transformation of banks can be improved via servitization, which promotes the use of the latest technologies and digital solutions to provide services more effectively and efficiently. Where servitization promotes the delivery of value-added services tailored to certain consumer demands, digitalization helps banks to give unique and consistent services across various mediums. When combined, they can boost consumer satisfaction, trust, and retention while also improving the customer experience. All these benefits can lead to a positive impact on financial performance (Mithas, Krishnan, & Fornell, 2005).

Digitalization combined with servitization holds the potential to automate conventional tasks. They can reduce manual interventions and they are also capable of amplifying banking operations. This might lead to increased profits for financial institutions. Digital platforms aid in banks' capacity to efficiently widen their offers. They facilitate connection with a global audience, thereby collectively simplifying entry into new markets and fostering growth and at the same time, improving financial results (Yoo, Boland, Lyytinen, & Majchrzak, 2012). Banks have specialized services that are centered on the product they create, market their expertise successfully and each has a separate division in place for their current service initiatives. Customers form the main force behind "servitization". Technology is mostly responsible for this development due to which services are now more accessible, and finding data is easier. This data can compare what businesses offer. It can reveal to whom they offer and at what cost (Vandermerve & Rada, 1988). The banking industry now is essentially unrecognizable compared to the industry of older times. Clients are utilizing digital banking services. They are now finishing a large volume of monetary transactions on personal computers or smartphones (Kitsios, Giatsidis, & Kamariotou, 2021). Confined to these services, websites become another way. They allow customers to reach key financial services. Similarity exists with banks' phone centers and branch networks with the exception that clients engage with banks through personal computers. Transactional websites give numerous benefits to banks and customers are not left out. Ease of use makes this access channel attractive.

Digitalization is ruling in every industry and the related features have a significant impact on the banking sector (Kagermann, 2014). However, despite all the advantages of going digital, like being more efficient, giving customers a better experience, and expanding into new markets, the actual effect is still not entirely studied of how much of an impact it has on a company's overall performance. As time passed, the serious concerns about the productiveness of digital investments were questioned (McAfee, Brynjolfsson, Davenport, Patil, & Barton, 2012). The concept of servitization may not have a significant or direct impact on the overall financial performance of banks, but it can potentially create new revenue streams and strengthen customer relationships, which can ultimately lead to improved financial results (Gul, Mughal, Ali, & Ahmed, 2023). However, it is important to note that servitization may not be sufficient on its own to significantly transform the financial situation within the banking industry so adopting a holistic approach that incorporates other strategies (Ziaee Bigdeli, et al., 2018). To ensure that servitization brings value and leads to positive outcomes, banks must incorporate modern digital technologies in the expected transition. Relying solely on servitization may not be sufficient to generate favorable financial performance in the banking industry (Abou-Foul, Ruiz-Alba, & Soares, 2021). A study found that digitalization, especially through e-commerce platforms, makes transactions smoother and faster, which ultimately leads to better performance for companies (Pereshybkina, Conde, & Kalyesubula, 2017). Digitalization has also had significant effects on society as a whole. Different scholars have pointed out how it has reshaped entire industries and influenced various aspects of our lives. (Gimple & Röglinger, 2015).

Over the past few years, servitization and digitalization have been discussed in the literature frequently. Utilizing cutting-edge information and communication technologies (ICTs) is essential to servitization in order to better understand the wants and procedures of customers, gather and share data, and enhance offers. Digital servitization (DS), which refers to the use of digital technologies in servitization-related activities and products, arose as a novel idea (Chen, Ming, Zhou, Chang, & Sun, 2020). Businesses that integrate digitalization and servitization face new difficulties. Product firms, especially those interested in offering innovative services enabled by digital technology, may find themselves under pressure from DS to drastically alter their business models. In fact, the role of technology—digital technologies in particular—in supporting service supply was already noted in early servitization-related studies (Coreynen, Matthyssens, & Bockhaven, 2017). It is evident that digitalization is more intricate than just using digital technologies, and that a new logic is needed to generate value via servitization (Fliess & Lexutt, 2019).

The financial system may be significantly impacted by the mediation of servitization while digitalizing the products, (Abou-Foul, Ruiz-Alba, & Soares, 2021). These effects are extensive and have changed the way the world financial system functions. This results in improved service, the development of recently created financial products, and a more integrated global financial market (Barrett & Walsham, 1999). In the banking sector, simply implementing servitization strategies, i.e., expanding product and service offerings, may not guarantee an

immediate and direct boost in profitability (Pistoni & Songini, 2017). Research indicates that there exists a missing link – this is where digitalization emerges, connecting servitization with improved financial performance. Digital technologies offer a powerful toolkit for banks to effectively deliver and manage their expanded service offerings (Pazarbasioğlu et al., 2020). Digital tools allow banks to gather and analyze vast amounts of customer data regarding spending habits, investment choices, and financial goals (Hoehle, Scornavacca, & Huff, 2012). However, the success of digitalization hinges on a holistic approach. Banks must carefully consider how their chosen digital tools complement and enhance their servitization strategies (Paiola, Schiavone, Khvatova, & Grandinetti, 2021). So, in our study, we will see how implementing digitalization alongside servitization, banks can bridge the gap between simply adding services and achieving a significant and sustainable improvement in their financial performance. Given the relation above, we hypothesize that:

H2: Servitization significantly mediates between digitalization and firm performance

#### 2.4. Digitalization, CSR, and Firm Performance

In the contemporary landscape of the banking sector, the intersection of digitalization and Corporate Social Responsibility (CSR) holds immense potential for reshaping the industry's ethical and operational dimensions (Autio, 2016). Digitalization, characterized by the conversion of traditional data streams into digital information, is not only a driver of efficiency but also a catalyst for heightened transparency and accountability, which are hallmarks of CSR (Saoutra, Eliyana, Hamidah, Sariwulan, & Buchdadi, 2020). Recognizing the profound changes these two dimensions can instigate, it is plausible to hypothesize that digitalization influences the adoption and impact of CSR initiatives within the banking sector.

Banks can utilize CSR digitalization as a technique to incorporate digital technology into their CSR initiatives (Parente, 2020). This is a fantastic chance for the nation to become more competitive. According to McKinsey analysis, the transition of the trading sector to the digital market is expected to boost economic development by up to USD 150 billion by 2025 (Ibn-Mohammed et al., 2021). Since starting this process more than 30 years ago, the banking industry has excelled in terms of digital transformation. However, it experienced a downturn with the 2008 financial crisis (PINTEA, 2020) and the ongoing COVID-19 epidemic (Rangel-Pérez, Fernández, & López, 2023). The industry's success has been its unwavering dedication to digitalization over the past ten years, with investment three times higher than in other industries (Giatsidis, Kitsios, & Kamariotou, 2019).

Corporate social responsibility (CSR) is a concept that has been studied across various fields such as public relations (Ji, Tao, & Rim, 2020), communication, management (Carroll, 1979), marketing (Du, Bhattacharya, & Sen, 2010), and social sciences (Goss & Roberts, 2010). In the context of banking, CSR plays a vital role in shaping the reputation and performance of institutions. Banks have recognized the value of incorporating CSR initiatives into their operations, as these initiatives offer tangible benefits not only to the institutions themselves but also to their customers, employees, and the broader community. By supporting social and environmental causes, banks can build stronger relationships with their stakeholders and foster a positive brand image (Singh, Misra, & Yadav, 2021). CSR positively impacts employee behavior, leading to increased engagement, creativity, job satisfaction, and trust.

Factors like gender, education, and demographics can influence attitudes toward CSR, affecting employee attitudes. (Whitehead, Kuntz, & Kedia, 1980). Corporate social responsibility (CSR) and firm performance are interconnected, influencing a company's success and sustainability (Leal-Millán, Leal-Rodríguez, & Albort-Mora, 2017). Corporate social responsibility (CSR) and firm performance are two interdependent dimensions that wield significant influence over the success and sustainability of businesses in the contemporary world (Leal-Millán, Leal-Rodríguez, & Albort-Mora, 2017). Companies now have to comply with CSR because many stakeholders are requesting increased transparency and firm obligations.

First, digitization and the Fourth Industrial Revolution are broad terms that involve the application of several instruments. Service companies have not yet fully adopted these interconnected technology systems, even though they ought to be researched and supported in this process. Different companies are at different stages of development (Chen & Jiang, 2024). We examine the performance consequences of rather simple digital tools that are part of digitalization and available to any firm in order to shed light on this subject. Second, there hasn't been any prior research on how digitalization has affected KIBS's financial performance (Nguyen & Pervan, 2024). This is despite the fact that KIBS is said to have higher levels of productivity and profitability. Nevertheless, it is still unclear what factor or factors combined—led to this improved performance. There have been claims that CSR reduces the expenses of debt and equity for a company. Environmentally conscious initiatives may reduce operating costs (Ahmad, Ulla, & Arshad, 2021), which could improve the financial performance of the company. In other words, by participating in CSR initiatives, businesses can more skillfully manage their relationships with stakeholders, who can establish, grow, and preserve linkages with productive resources. (Wood & Jones, 1995). The relations between CSR and FP are mostly inconclusive, but relations between the two have been reported in most of the studies, suggesting an instrumental orientation of CSR initiatives (Margolis & Walsh, 2003). Management theorists argue that by improving CSR towards stakeholders, firm performance is augmented (Turban & Greening, 2017).

Given the relationship above, we hypothesize that:

H3: Corporate Social Responsibility (CSR) significantly mediates between Digitalization and Firm Performance.

### 2.5. Framework

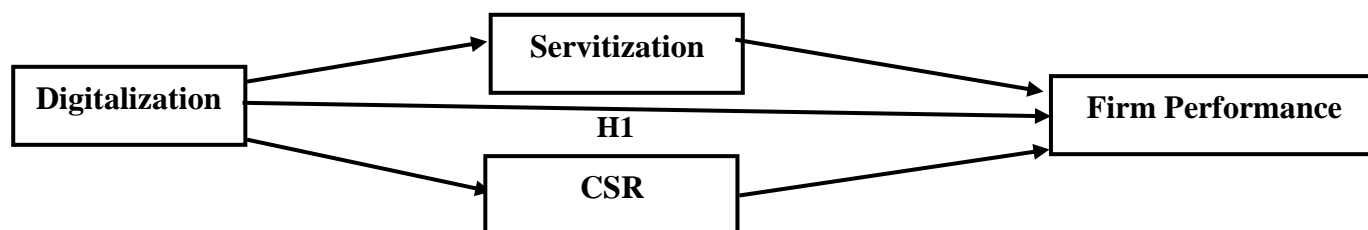


Figure 1: Conceptual Framework

## 3. Methodology

### 3.1. Sample and Data Collection

The study employed a six-point Likert scale to measure digitalization, CSR, and servitization, with firm performance; data sourced from secondary data of Pakistani banks. The Likert scale, ranging from strongly disagree to strongly agree, provided reliable and straightforward data reflecting respondents' true opinions. Data was gathered using a quantitative approach, primarily through questionnaires. Survey items were adapted from established studies, ensuring robustness and reliability. Questionnaires were distributed to operations managers, branch managers, and regional managers in their usual work environments. This approach provided realistic and high-quality data, reflecting a naturalistic perspective. To ensure genuine responses, the researcher's influence was minimized. A non-probability convenience sampling method was used, selecting 10 major banks in Pakistan. A total of 300 surveys were distributed, with a 90.6% response rate, yielding 272 completed surveys. The financial performance data of the banks was collected from their online financial statements. The data was collected from the following renowned banks of Pakistan.

Table 1: List of banks

Habib Bank Limited	Standard Chartered Limited	Meezan Bank Limited	MCB Bank Limited
Allied Bank Limited	Bank Alfalah Limited	Bank Islami Limited	Askari Bank Limited
Faysal Bank Limited	State Bank of Pakistan	Dubai Islamic Bank	JS Bank Limited
Al Baraka Bank	National Bank of Pakistan	Habib Metropolitan	Silk Bank Limited
Soneri Bank Limited	Summit Bank Limited	The Bank of Punjab	Bank Al Habib

## 4. Findings

The demographics show that out of the sample size of  $N=273$ , 96.3% of respondents hold a Masters qualification, while the remaining 3.3% possess a PhD degree. The results indicate that 51.6 % (almost half of the respondents) occupy the position of Branch Manager, while 37.7% serve as operational Managers/COO. The remaining 10.3% were provided by the Regional Officers. Moreover, in the overall analysis for reliability check, variables have shown good reliability. As the reliability of all the variables is above the threshold value, it means the data is reliable for further analysis and items have high internal consistency.

The proposed research model was tested using model 4 of Process v4.2 by Andrew Hayes. The model was analyzed against the ROA growth variable for 2011-2023. The analysis begins firstly by presenting a correlation matrix. Then, the results of the Process Hayes analysis are presented.

### 4.1. Correlation Analysis

Table 3 shows the correlation between the variables. Correlation analysis is a tool used in research to validate the proposed correlation. The correlation results reveal strong positive relationships among the examined variables. Notably, there is a very strong and statistically significant positive correlation ( $r = 0.583$ ,  $\rho < 0.01$ ) between Digitalization and Servitization. A 1% change in servitization will cause a 58.3% change in digitalization. Moreover, a positive correlation, with statistical significance, is found between Digitalization and Financial Performance (ROA) ( $r = 0.199$ ,  $\rho = 0.01$ ). Furthermore, servitization and digitalization both have a strong and significant correlation with firm performance (ROA) ( $r=0.198$ ,  $\rho = 0.01$ ) and ( $r=0.199$ ,  $\rho = 0.01$ ) respectively. Digitalization and servitization also have a positive and significant relationship with CSR. However, CSR and firm performance are not positively correlated with  $p>0.05$ . The correlation analysis suggests a nuanced interplay between the variables, emphasizing the importance of considering both strength and statistical significance in interpreting these associations.

**Table 2: Variables and Measuring Items**

Sr.#	Variables	Type of Variable	Dimensions	Items	Reference
1	Servitization	Mediator	1. Digitalization of Sales Support 2. Digitalization of service support 3. Data analysis support 4. Data integration and access support	4+4+5+3=16	(Kohtamaki, Parida, Patel & Gebauer, 2020)
2	Digitalization	Independent	1. Operational services 2. Consulting services and access support	6+3= 9	(Kohtamaki, Parida, Patel & Gebauer, 2020)
3	CSR	Mediator		5	(Tian, 2015) (Turker, 2009)
3	Firm Performance	Dependent			(Samira, Begum, & Hassan, 2018)

**Table 3: Correlations**

		Digitalization	servitization	CSR	ROA
Digitalization	Pearson Correlation	1	.583**	.552**	.199**
	Sig. (2-tailed)		.000	.000	.001
	N	272	272	272	272
servitization	Pearson Correlation	.583**	1	.239**	.198**
	Sig. (2-tailed)	.000		.000	.001
	N	272	272	272	272
CSR	Pearson Correlation	.552**	.239**	1	.099
	Sig. (2-tailed)	.000	.000		.104
	N	272	272	272	272
ROA	Pearson Correlation	.199**	.198**	.099	1
	Sig. (2-tailed)	.001	.001	.104	
	N	272	272	272	272

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.2. Regression Analysis

In table 4, Process Hayes was first used to test the direct connection between digitalization and firm performance and the indirect connection of digitalization and firm performance with the mediating role of Servitization. The direct effect of X on Y shows the connection between digitalization and firm performance with no mediations. The significance level falls below the threshold value of 10% since we tested the result at 90-confidence interval. Meaning there is a significant positive relationship between digitalization and firm performance. Hence, we support hypothesis 1.



The indirect effect of X on Y shows the connection between digitalization and firm performance with the mediating role of Servitization. The significance falls below the threshold value of 10% at 90-confidence interval and upper-level and lower-level confidence interval both have the same signs meaning Servitization is positively mediating the relationship of digitalization and firm performance. Hence, we support hypothesis 2.

In table 5, model 4 of Process Hayes was used to test the indirect connection between digitalization and firm performance with the mediating role of CSR. Direct effect of X on Y is significant as discussed above; however, the indirect effect shows the mediating role of CSR in the relationship of digitalization and firm performance. The significance is above the threshold value of 0.05 and both the upper-level and lower-level confidence intervals have different signs. Indicating that the connection is not significant. Hence, we do not support hypothesis 3; CSR mediates the relationship of digitalization and firm performance.

**Table 4: Process Hayes**

---

Model: 4							
Y: ROA							
X: Digitalization							
M: Servitization							
Sample							
Size: 272							
OUTCOME VARIABLE:							
SERVITIZATION							
Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.5826	.3394	.1056	138.777	1.0000	270.0000	.0000
Model							
		coeff	se	t	p	LLCI	ULCI
constant		-.5182	.1887	-2.7462	.0064	-.8297	-.2067
Digitalization		.9533	.0809	11.7803	.0000	.8197	1.0868
OUTCOME VARIABLE:							
ROA							
Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2232	.0498	169.7807	7.0527	2.0000	269.0000	.0010
Model							
		coeff	se	t	p	LLCI	ULCI
constant		-18.9526	7.6717	-2.4704	.0141	-31.6151	-6.2900
Digitalization		6.8918	3.9922	1.7262	.0854	.3024	13.4812
servitization		4.1602	2.4400	1.7049	.0893	.1327	8.1876
DIRECT AND INDIRECT EFFECTS OF X ON Y							
Direct effect of X on Y							
	Effect	se	t	p	LLCI	ULCI	
	6.8918	3.9922	1.7262	.0854	.3024	13.4812	
Indirect effect(s) of X on Y:							
	Effect	BootSE	BootLLCI	BootULCI			
	servitization	3.9659	1.7902	1.3174	7.2502		

---

## 5. Discussions

The study examines the relationship between digitalization and firm performance, considering the mediating roles of Servitization and Corporate Social Responsibility (CSR). Data was collected from multiple banks including Dubai Islamic Bank, JS Bank, Silk Bank, Habib Metropolitan Bank, and others.

The analysis reveals a significant and positive direct impact of digitalization on firm performance (ROA), supported by a favorable correlation and positive confidence intervals. This suggests that increased digitalization leads to better financial outcomes, corroborating prior studies (Ribeiro-Navarrete et al., 2021). Servitization significantly mediates this relationship, with positive confidence intervals indicating a good model fit. The indirect effect through servitization amplifies the benefits of digitalization on firm performance, enhancing customer satisfaction and competitive advantage (Mohamad, Ruiz-Alba, & Soares, 2021). CSR does not significantly mediate this relationship. The confidence intervals, including both negative and positive values, suggest an insignificant impact. This implies that CSR, while beneficial for reputation and customer relations, does not

directly contribute to financial performance when combined with digitalization strategies. The long-term and indirect nature of CSR's impact might not align with short-term financial metrics like ROA. The study concludes that digitalization directly enhances firm performance, and Servitization strengthens this effect, but CSR does not significantly mediate the relationship between digitalization and firm performance.

**Table 5: Process Hayes (2)**

---

Model: 4							
Y: ROA							
X: Digitalization							
M: CSR							
Sample							
Size: 272							
OUTCOME VARIABLE:							
CSR							
Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.5523	.3050	.0916	118.5347	1.0000	270.0000	.0000	
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	-.3018	.1757	-1.7173	.0870	-.5920	-.0117	
Digitalization	.8206	.0753	10.8873	.0000	.6962	.9450	
OUTCOME VARIABLE:							
ROA							
Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.1993	.0397	171.5841	5.5649	2.0000	269.0000	.0042	
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	-21.2847	7.6483	-2.7829	.0057	-33.9086	-8.6609	
Digitalization	11.3362	3.9127	2.8972	.0040	4.8780	17.7944	
CSR	-.5831	2.6336	-.2214	.8249	-4.9299	3.7637	
DIRECT AND INDIRECT EFFECTS OF X ON Y							
<b>Direct effect of X on Y</b>							
Effect	se	t	p	LLCI	ULCI		
11.33627	3.91278	2.89724	.00407	4.87808	17.79446		
<b>Indirect effect(s) of X on Y:</b>							
Effect	BootSE	BootLLCI	BootULCI				
CSR	-.47852	1.65675	-3.33713	2.06480			

---

## 6. Conclusion

This research underlines the positive impact of digitization on bank performance, further amplified by servitization. The findings demonstrate a positive and reinforcing effect: digitalization directly benefits bank performance, and this effect is further amplified by servitization. These insights inform strategies for Pakistani banks seeking to improve financial results through digital transformation and service integration. However, the study highlights the inconclusive impact of CSR on firm performance, prompting the need for further research in this area. Despite extensive exploration, several limitations create opportunities for future research. Examining banks with Servitization and Digitization in Lahore limits generalizability but paves the way for studies in other cities. Data from branch managers restricts our view to individual bank performance due to challenges in accessing higher officials. Inattentive survey responses can distort data, compromising reliability and credibility. Different branch regulations create data inconsistencies and bias, reducing accuracy. Coordinating surveys is time-consuming, delaying research and weakening reliability. Logistical costs of paper surveys limit the sample size and geographic scope, impacting generalizability. Some recommendations for future research demonstrate depth both practically and academically: Future studies should include data from more cities to enhance generalizability and explore regional variations. Collecting data from regional or national bank officials would provide a more holistic understanding of bank performance. To increase data reliability, online survey platforms should be used. Standardized reporting procedures across bank branches would minimize inconsistencies. Alternative data collection methods, such as accessing internal bank data or public financial reports, could reduce logistical costs. Expanding the sample size and considering additional outcome variables, like market demand and sales growth,

would provide a broader view of financial performance. In-depth qualitative studies should focus on competencies, procedures, and micro-foundations essential for successful Digitalization and Servitization.

## References

- Abid, G., Shaikh, S., Asif, M. F., Elah, N. S., Anwar, A., & Butt, G. T. H. (2021). Influence of perceived organizational support on job satisfaction: Role of proactive personality and thriving. *Int. J. Entrep*, 25, 1-11.
- Abou-Foul, M., Ruiz-Alba, J. L., & Soares, A. (2021). The impact of digitalization and servitization on the financial performance of a firm: an empirical analysis. *Production Planning & Control*, 32(12), 975-989.
- Ahmad, N., Ullah, Z., Arshad, M. Z., waqas Kamran, H., Scholz, M., & Han, H. (2021). Relationship between corporate social responsibility at the micro-level and environmental performance: The mediating role of employee pro-environmental behavior and the moderating role of gender. *Sustainable Production and Consumption*, 27, 1138-1148.
- Ali, S., Asif, M. F., Khan, M. K., Fatima, N., Safdar, H., & Lassi, Z. S. (2020). Moderating role of husband's education and their employment on female labor force participation in Pakistan. *Ilkogretim Online*, 19(4), 5265-5276.
- Asif, M. F., Afridi, J. R., Rafique, T., Mehmood, K., & Muhammad, L. (2023). Moderated Mediation Mechanism Of Family Motivation On Work Engagement. *Sarhad Journal of Management Sciences*, 9(1).
- Asif, M. F., Mirza, U. K., Khan, A. H., Asif, M. Z., Riaz, S., & Ahmed, S. (2017). Job satisfaction: Antecedent and consequences. *Bulletin of Business and Economics (BBE)*, 6(4), 185-194.
- Asim, J., Ahmed, A., Asif, M. F., & Afridi, J. R. (2021). Sports Sentiments And Financial Markets: Shadenfreude In Rivalry Of India And Pakistan. *Sarhad Journal of Management Sciences*, 7(1).
- Autio, E., Thomas, L. D., & Gann, D. (2016). Ecosystem value co-creation. *Innovation & Entrepreneurship Department Working Papers*, 28.
- Aydemir, R. (2024). Examining the Cluster Life Cycle in the Process of Economic Development. *Journal of Policy Options*, 7(1), 18-26.
- Bai, Xuan, & Chang, J. (2015). Corporate Social Responsibility and Firm Performance: The Mediating Role of Marketing Competence and The Moderating Role Of Market Environment. *Asia Pacific Journal of Management*, 505-530.
- Barrett, M., & Walsham, G. (1999). Electronic trading and work transformation in the London insurance market. *Information Systems Research*, 10(1), 1-22.
- Berger, & Humphrey. (1997). Efficiency of financial institutions: international survey and directions for future research. *European Journal of Operational Research*, 175-212.
- Bhole, L.M., & Mahakud, J. (2010). *Financial Institutions and Markets: Structure, Growth and Innovations*. New Delhi (India): Tata McGraw Hill.
- Bilal, K., & Tanveer, R. (2023). Optimal Capital Structure and Firm Performance in the Textile Sector of Pakistan. *Journal of Policy Options*, 6(4), 1-11.
- Bouwman, H., Nikou, S., & de Reuver, M. (2019). Digitalization, business models, and SMEs: how do business model innovation practices improve performance of digitalizing SMEs? *Telecommunications Policy*, 43
- Brennen, J. S., & Kreiss, D. (2016). Digitalization. *The international encyclopedia of communication theory and philosophy*, 1-11.
- Brenner, B. (2018). Transformative sustainable business models in the light of the digital imperative—A global business economics perspective. *Sustainability*, 10(12), 4428.
- Brynjolfsson, E. (1993). The productivity paradox of information technology. *Communications of the ACM*, 36(12), 66-77.
- Cai, Y., Pan, C. H., & Statman, M. (2016). Why do countries matter so much in corporate social performance?. *Journal of Corporate Finance*, 41, 591-609.
- Carayannis, E. G. (Ed.). (2020). *Encyclopedia of creativity, invention, innovation and entrepreneurship*. Cham: Springer International Publishing.
- Cardinali, P. G., & De Giovanni, P. (2022). Responsible digitalization through digital technologies and green practices. *Corporate Social Responsibility and Environmental Management*, 29(4), 984-995.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of management review*, 4(4), 497-505.
- Carroll, A. B. (2021). Corporate social responsibility: Perspectives on the CSR construct's development and future. *Business & Society*, 60(6), 1258-1278.
- Casu, Barbara, Girardone, C., & Molyneux, P. (2006). Introduction to Banking. *Pearson Education Ltd*.
- Chen, Z., Ming, X., Zhou, T., Chang, Y., & Sun, Z. (2020). A hybrid framework integrating rough-fuzzy best-worst method to identify and evaluate user activity-oriented service requirement for smart product service system. *Journal of cleaner production*, 253, 119954.

- Chishti, S., & Barberis, J. (2016). *The fintech book: The financial technology handbook for investors, entrepreneurs and visionaries*. John Wiley & Sons.
- Choi, J. S., Kwak, Y. M., & Choe, C. (2010). Corporate social responsibility and corporate financial performance: Evidence from Korea. *Australian journal of management*, 35(3), 291-311.
- Coreynen, W., Matthyssens, P., & Van Bockhaven, W. (2017). Boosting servitization through digitization: Pathways and dynamic resource configurations for manufacturers. *Industrial marketing management*, 60, 42-53.
- Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of bank marketing*, 17(2), 72-83.
- Davenport, T. H., & Dyché, J. (2013). Big data in big companies. *International Institute for Analytics*, 3(1-31).
- Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The review of economic studies*, 51(3), 393-414.
- Du, S., Bhattacharya, C. B., & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International journal of management reviews*, 12(1), 8-19.
- Elahi, A. R., Ahmed, A., Majid, S., & Asif, M. F. (2021). Critical factors associated with the access to bank credit: An exploratory study. *Humanities and Social Sciences Reviews*, 9(3), 135-144.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT sloan management review*, 55(2), 1.
- Fliess, S., & Lexutt, E. (2019). How to be successful with servitization—Guidelines for research and management. *Industrial Marketing Management*, 78, 58-75.
- Forte, A. (2013). Corporate social responsibility in the United States and Europe: How important is it? The future of corporate social responsibility. *The International Business & Economics Research Journal (Online)*, 12(7), 815.
- Giatsidis, I., Kitsios, F., & Kamariotou, M. (2019, May). Digital transformation and user acceptance of information technology in the banking industry. In *Proceedings of the 8th International Symposium & 30th National Conference on Operational Research, Patras, Greece* (pp. 6-10).
- Gimpel, H., & Röglinger, M. (2015). Digital transformation: changes and chances—insights based on an empirical study.
- Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of management information systems*, 35(1), 220-265.
- Goss, A., & Roberts, G. S. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of banking & finance*, 35(7), 1794-1810.
- Grubic, T., & Jennions, I. (2018). Remote monitoring technology and servitised strategies—factors characterising the organisational application. *International Journal of Production Research*, 56(6), 2133-2149.
- Gul, H., Mughal, R., Ali, A., & Ahmed, A. (2023). Impact Of Digitization On Financial Performance: Mediating Role Of Servitization.
- Gupta, B., & Dasgupta, S. (2019). Espoused organizational culture values as antecedents of internet technology adoption in an emerging economy. *Information Management*, 56.
- Haque, Imdadul, M., & Sharman, R. (2011). Benchmarking Financial Performance of Saudi Banks Using Regression. *IBEMR*, 78-84.
- Herington, C., & Weaven, S. (2009). E-retailing by banks: e-service quality and its importance to customer satisfaction. *European journal of marketing*, 43(9/10), 1220-1231.
- Hoehle, H., Scornavacca, E., & Huff, S. (2012). Three decades of research on consumer adoption and utilization of electronic banking channels: A literature analysis. *Decision Support Systems*, 54(1), 122-132.
- Holmström, J., & Partanen, J. (2014). Digital manufacturing-driven transformations of service supply chains for complex products. *Supply Chain Management: An International Journal*, 19(4), 421-430.
- Hsu, C. (2007, October). Scaling with digital connection: Services innovation. In *2007 IEEE International Conference on Systems, Man and Cybernetics* (pp. 4057-4061). IEEE.
- Ibn-Mohammed, T., Mustapha, K. B., Godsell, J., Adamu, Z., Babatunde, K. A., Akintade, D. D., ... & Koh, S. C. L. (2021). A critical analysis of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies. *Resources, Conservation and Recycling*, 164, 105169.
- Ibrahim, M., & Rasheed, A. (2024). Exploring the Link Between Customer Relationship Management and Hotel Performance. *Journal of Policy Options*, 7(1), 1-10.
- Idris, O. (2023). Discussion on the Role of Emotional Intelligence in Financial Decision-Making. *Journal of Policy Options*, 6(4), 20-29.
- Iqbal, M., & Abbas, W. (2024). Determinants of Expected Service Quality: A Comparative Study in Pakistani Banking Sector. *Journal of Policy Options*, 7(1), 27-35.
- Jahangir, Shill, Haque, & M.A.J. (2007). Examination of Profitability in the Context of Bangladesh Banking Industry. *ABAC Journal*, 2.

- Jamali, D., & Mirshak, R. (2007). Corporate social responsibility (CSR): Theory and practice in a developing country context. *Journal of business ethics*, 72, 243-262.
- Jamali, D., Safieddine, A. M., & Rabbath, M. (2008). Corporate governance and corporate social responsibility synergies and interrelationships. *Corporate governance: an international review*, 16(5), 443-459.
- Ji, Y. G., Tao, W., & Rim, H. (2020). Mapping corporate social responsibility research in communication: A network and bibliometric analysis. *Public Relations Review*, 46(5), 101963.
- Kagermann, H. (2014). Change through digitization—Value creation in the age of Industry 4.0. In *Management of permanent change* (pp. 23-45). Wiesbaden: Springer Fachmedien Wiesbaden.
- Khan, R. S., Jan, S. A., Afridi, J. R., & Asif, M. F. (2020). Impact of " Food for Education Program" on Child Labour incidence in Tribal Districts of Khyber Pakhtunkhwa, Pakistan. *Ilkogretim Online*, 19(3), 3307-3320.
- Kharlamov, A. A., & Parry, G. (2021). The impact of servitization and digitization on productivity and profitability of the firm: a systematic approach. *Production Planning & Control*, 32(3), 185-197.
- Kitsios, F., Giatsidis, I., & Kamariotou, M. (2021). Digital transformation and strategy in the banking sector: Evaluating the acceptance rate of e-services. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3), 204.
- Kohtamäki, M., Parida, V., Oghazi, P., Gebauer, H., & Baines, T. (2019). Digital servitization business models in ecosystems: A theory of the firm. *Journal of Business Research*, 104, 380-392.
- Kohtamäki, M., Parida, V., Patel, P. C., & Gebauer, H. (2020). The relationship between digitalization and servitization: The role of servitization in capturing the financial potential of digitalization. *Technological Forecasting and Social Change*, 151, 119804.
- Kuusisto, M. (2017). Organizational effects of digitalization: A literature review. *International journal of organization theory and behavior*, 20(03), 341-362.
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmman, T., Drews, P., & Ahlemann, F. (2017). Digitalization: opportunity and challenge for the business and information systems engineering community. *Business & information systems engineering*, 59, 301-308.
- Lucey, B. M., Vigne, S. A., Ballester, L., Barbopoulos, L., Brzeszczynski, J., Carchano, O., ... & Zaghini, A. (2018). Future directions in international financial integration research-A crowdsourced perspective. *International Review of Financial Analysis*, 55, 35-49.
- Manser Payne, E. H., Dahl, A. J., & Peltier, J. (2021). Digital servitization value co-creation framework for AI services: a research agenda for digital transformation in financial service ecosystems. *Journal of Research in Interactive Marketing*, 15(2), 200-222.
- Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative science quarterly*, 48(2), 268-305.
- Martín-Peña, M. L., Sánchez-López, J. M., & Díaz-Garrido, E. (2019). Servitization and digitalization in manufacturing: the influence on firm performance. *Journal of Business & Industrial Marketing*, 35(3), 564-574.
- McAfee, A., Brynjolfsson, E., Davenport, T. H., Patil, D. J., & Barton, D. (2012). Big data: the management revolution. *Harvard business review*, 90(10), 60-68.
- Mithas, S., Krishnan, M. S., & Fornell, C. (2005). Why do customer relationship management applications affect customer satisfaction? *Journal of marketing*, 69(4), 201-209.
- Mukherjee, A., & Nath, P. (2003). A model of trust in online relationship banking. *International journal of bank marketing*, 21(1), 5-15.
- Munir, Q., Akram, B., & Abbas, S. A. (2024). Understanding Stock Price Dynamics with Dividend-Related Metrics and Financial Indicators in Pakistan's Non-Financial Sectors. *Journal of Business and Economic Options*, 7(1), 1-9.
- Neely, A. (2008). Exploring the financial consequences of the servitization of manufacturing. *Operations management research*, 1, 103-118.
- Nguyen, N., Dang-Van, T., Vo-Thanh, T., Do, H. N., & Pervan, S. (2024). Digitalization strategy adoption: The roles of key stakeholders, big data organizational culture, and leader commitment. *International Journal of Hospitality Management*, 117, 103643.
- Oliva, R., & Kallenberg, R. (2003). Managing the transition from products to services. *International journal of service industry management*, 14(2), 160-172.
- Paiola, M., & Gebauer, H. (2020). Internet of things technologies, digital servitization and business model innovation in BtoB manufacturing firms. *Industrial Marketing Management*, 89, 245-264.
- Paiola, M., Schiavone, F., Khvatova, T., & Grandinetti, R. (2021). Prior knowledge, industry 4.0 and digital servitization. An inductive framework. *Technological Forecasting and Social Change*, 171, 120963.
- Pakhnenko, O., Rubanov, P., Hacar, D., Yatsenko, V., & Vida, I. (2021). Digitalization of financial services in European countries: Evaluation and comparative analysis. *Journal of International Studies*, 14(2).

- Parente, R. (2020). Digitalization, consumer social responsibility, and humane entrepreneurship: good news from the future?. *Journal of the International Council for Small Business*, 1(1), 56-63.
- Pazarbasioglu, C., Mora, A. G., Uttamchandani, M., Natarajan, H., Feyen, E., & Saal, M. (2020). Digital financial services. *World Bank*, 54.
- Pereshybkina, A., Conde, M. E. C., & Kalyesubula, T. (2017). How will the industry 4.0 transformations affect SMEs in Germany by 2030. *Hochschule Furtwangen University*.
- Pintea, M. O. (2020). The challenges of finance digitalization. *Managerial Challenges of the Contemporary Society. Proceedings*, 13(1), 58-63
- Pistoni, A., & Songini, L. (Eds.). (2017). *Servitization strategy and managerial control*. Emerald Publishing Limited.
- Porter, M. E., & Heppelmann, J. E. (2015). How smart, connected products are transforming companies. *Harvard business review*, 93(10), 96-114.
- Qaiser, N., Sattar, N., Arshi, S., Asif, M. F., & Afridi, J. R. (2021). Impact of thriving on job performance, positive health and turnover intention: Consequences of thriving at workplace. *International Journal of Information, Business and Management*, 13(2), 97-107.
- Quader, M. (2024). Exploring Human Resource Management Practices and Employee Satisfaction in Bangladesh's Private Banking Sector. *Journal of Policy Options*, 7(1), 36-45.
- Rafique, T., Asif, M. F., Afridi, J. R., Rehman, N. U., & Mahmood, K. (2020). Credibility of social networking sites: Impact on organizational attraction in recruitment filed. *Sarhad Journal of Management Sciences*, 6(2), 279-294.
- Rangel-Pérez, C., Fernández, M., & López, B. (2023). Study on the strategic influence of corporate social responsibility in the world's most digitised banks. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(1), 100029.
- Rath, N. (2024). Perceived Advantages and Challenges of Internet Marketing: A Study of Small Entrepreneurs in Punjab, India. *Journal of Policy Options*, 7(1), 11-17.
- Resmi, S. I., Begum, N. N., & Hassan, M. M. (2018). Impact of CSR on firm's financial performance: a study on some selected agribusiness industries of Bangladesh. *American Journal of Economics, Finance and Management*, 4(3), 74-85.
- Ribeiro-Navarrete, S., Botella-Carrubi, D., Palacios-Marqués, D., & Orero-Blat, M. (2021). The effect of digitalization on business performance: An applied study of KIBS. *Journal of business research*, 126, 319-326.
- Riedl, J. (2013). Crowdfunding technology innovation. *Computer*, 46(03), 100-103.
- Rizvi, S. K. A., Naqvi, B., & Tanveer, F. (2018). Is pakistan ready to embrace fintech innovation? *The Lahore Journal of Economics*, 23(2), 151-182.
- Salleh, I., & Sapengin, F. (2023). Exploring the Impact of Technological Capability on Inter-Firm Relationships in Malaysian Manufacturing Supply Chains. *Journal of Policy Options*, 6(4), 40-48.
- Saputra, D. E. E., Eliyana, A., Sariwulan, T., & Buchdadi, A. D. (2020). The Use of Information Technology in Correctional Services to Improve Service Quality and Service Satisfaction: A Theory Approach. *Systematic Reviews in Pharmacy*, 11(8).
- Scholtens, B. (2009). Corporate social responsibility in the international banking industry. *Journal of business ethics*, 86(2), 159-175.
- Scholz, R. W. (2017). Digital threat and vulnerability management: The SVIDT method. *Sustainability*, 9(4), 554.
- Schroeder, A., Galera Zarco, C., Baines, T., & Ziaee Bigdeli, A. (2016). Barriers to capturing the value of advanced services and digitisation in the road transport industry. In *Spring Servitization Conference SSC2016*.
- Scott, S. V., Van Reenen, J., & Zachariadis, M. (2017). The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services. *Research Policy*, 46(5), 984-1004.
- Seiford, L.M., & Zhu, L. (1999). Profitability and Marketability of the Top 55 US Commercial Banks. *Management Science*, 1270-1288.
- Senbeta, R. (2023). Assessing the Impact of Small-Scale Irrigation on Food Security in Gorogutu District, Ethiopia. *Journal of Policy Options*, 6(4), 12-19.
- Shahrokhi, M. (2008). E-finance: status, innovations, resources and future challenges. *Managerial Finance*, 34(6), 365-398.
- Singh, K., Misra, M., & Yadav, J. (2021). Corporate social responsibility and financial inclusion: Evaluating the moderating effect of income. *Managerial and Decision Economics*, 42(5), 1263-1274.
- Skinner, C. (2014). Dijital bankacılık. *Istanbul: BKM bankalararası kart merkezi*, 653.
- Suarez, F. F., Cusumano, M. A., & Kahl, S. J. (2013). Services and the business models of product firms: An empirical analysis of the software industry. *Management Science*, 59(2), 420-435.

- Syrine, B. R., Khadija, M., Tahar-Lazhar, A., & Tarek, M. (2024). The mediating role of innovation performance and CSR in the relationship digitalization-performance: case of French companies. *The Journal of High Technology Management Research*, 35(1), 100494.
- Tian, Q., Liu, Y., & Fan, J. (2015). The effects of external stakeholder pressure and ethical leadership on corporate social responsibility in China. *Journal of Management & Organization*, 21(4), 388-410.
- Turban, D. B., & Greening, D. W. (1997). Corporate social performance and organizational attractiveness to prospective employees. *Academy of management journal*, 40(3), 658-672.
- Turker, D. (2009). How corporate social responsibility influences organizational commitment. *Journal of Business ethics*, 89, 189-204.
- Vandermerwe, S., & Rada, J. (1988). Servitization of business: adding value by adding services. *European management journal*, 6(4), 314-324.
- West, S. M. (2019). Data capitalism: Redefining the logics of surveillance and privacy. *Business & society*, 58(1), 20-41.
- Wood, D. J., & Jones, R. E. (1995). Stakeholder mismatching: A theoretical problem in empirical research on corporate social performance. *The International Journal of Organizational Analysis*, 3(3), 229-267.
- Xiong, L. (2024). Driving Growth for SMEs in Laos' Commercial Sector Challenges and Opportunities. *Journal of Business and Economic Options*, 7(1), 10-18.
- Yasir, A., Abid, G., Afridi, J. H., Elahi, N. S., & Asif, M. F. (2021). Social media communication and behavioral intention of customers in hospitality industry: The mediating role of customer satisfaction. *Int. J. Entrep*, 25, 1-14.
- Yoo, Y., Boland Jr, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization science*, 23(5), 1398-1408.
- Zafar, R., Abid, G., Rehmat, M., Ali, M., Hassan, Q., & Asif, M. F. (2022). So hard to say goodbye: Impact of punitive supervision on turnover intention. *Total Quality Management & Business Excellence*, 33(5-6), 614-636.
- Ziaee Bigdeli, A., Baines, T., Schroeder, A., Brown, S., Musson, E., Guang Shi, V., & Calabrese, A. (2018). Measuring servitization progress and outcome: the case of 'advanced services. *Production Planning & Control*, 29(4), 315-332.