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Digital Transformation of Business in the 21st Century: A Case Study of Pakistan

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Abstract
The digital transformation (DT) has redefined business models globally, but developing economies have extra sets of opportunities and constraints. This article analyses the DT trajectory of Pakistan in the period of 2020-2025 drawing on secondary data, industry reports and examples of specific firms. It analyzes policy frameworks, infrastructure expansion, fintech and e Commerce adoption, small and medium enterprise (SME) adoption and unrelenting structural concerns. The results indicate that the expansions in broadband, mobile money, and platform based services are at a rapid pace with the facilitation of flagship programmes, including Raast and Digital Pakistan. Inclusive scaling is handicapped, however, by energy insecurity and payment friction as well as digital skill gaps. The research also enriches the DT body of knowledge as far as a Global South view operates ahead of multiple conditions under which digital projects may turn into long-term competitive benefit.

Introduction
Digital transformation (DT), as a core element of organizational innovation, economic development, and competitive advantages, has become one of the key factors in the 21 st century. The term digital transformation, in a broad sense, is associated with the incorporation of digital technologies into every area of business life and internal operations resulting in the essential shifts in the ways of providing value to the customers by organizations (Bharadwaj et al., 2013; Verhoef et al., 2021). It is not just a technological change but strategic and cultural as well and companies need reconsider their model of operations, their interactions with their stakeholders and how they are likely to grow. DT has transformed the situation in the market in developed economies making it possible to achieve the emergence of online platforms, decisions based on data, artificial intelligence (AI), and cloud-based systems (Westerman et al., 2014). Yet, in emerging markets, i.e. Pakistan, the journey towards digital transformation is overlaid with unique structural, institutional and socio-economics intricacies. The key goal of the present research is to answer the question of the path, forces, challenges, and consequences of digitalization in the Pakistani business environment, and specifically in the environment of the wider changes to be experienced throughout the 21st century. The resulting impacts of the globalization of businesses, technology convergence and high-pace mobile and internet penetration have caused innovation to decenter. With digitalization, there is an amazing prospect of emerging economies to bypass long-established modes of developmental growth (Kraemer-Mbula & Wunsch-Vincent, 2016). Pakistan

is an interesting example with a population of more than 240 million, with a median age of less than 24 (World Bank, 2023), which is an excellent example of prospects in digital growth. The demographic dividend, the growth of smartphone adoption, the government support, and the proliferation of digital infrastructure have made the country at the right place at the moment of digital transformation. The implementation of the "Digital Pakistan," the extension of the instant payment system Raast by the State Bank of Pakistan, and the establishment of Special Technology Zones (STZs) can be regarded as strategic actions that aim at placing digital capabilities into the economic structure of Pakistan (Ministry of IT & Telecom, 2022; SBP, 2024).

Irrespective of these attempts, the nature of digital transformation in Pakistan is not linear and smooth. There are critical issues to address, such as gaps in digital infrastructure, unreliable sources of electricity, cybersecurity insufficiencies, regulatory uncertainties, low levels of digital literacy, and an overwhelming digital divide on gender and rural-urban basis (GSMA, 2022; Shahzad, 2023). In addition to this, the Pakistani business environment has been marked by the highly informal sector, inadequate access to formal funding of small- and medium-sized businesses (SMEs), and a low rate of digital payment systems adoption, which deter inclusive and scalable digitalization (Soomro et al., 2024). Consequently, although some companies most especially in the domains of fintech, e-commerce, as well as the tech startup industry are using the digital tools to innovate and grow, there are several companies that are still digitally detached or half-assimilated into digital economies. The study of the particulars of digital transformation in Pakistan cannot be studied properly without a multi-level examination that treats the issue contextually. The bulk of the international literature on digital transformation is set in high-income, digitally mature environments (Vial, 2019), which leaves much to be desired in terms of our knowledge of the process of digital change in emerging economies characterized by institutional shakiness and infrastructural limitations. The present study will help in filling this gap by offering a detailed, case-oriented analysis of the process of digital transformation of Pakistan based on government policy architecture, major industry projects, adaption trends at the enterprise level, and technologically driven individual start-up activities. With the spread of the COVID-19 pandemic, Pakistan has experienced an upsurge in its digital journey as it served a worldwide catalyst of the digital transformation of sectors (McKinsey, 2021). The lockdowns, social distancing measures, and supply chain breakdowns caused companies to go digital in order to survive. In Pakistan, it resulted in the increased adoption of mobile wallets, the rise of telemedicine and online learning platforms, as well as the increased amount of e-commerce transactions, in addition to the normalization of remote work (PTA, 2021). These changes triggered the realization as to how essential digital resilience is and how systemic digital reforms should be achieved. On a post-pandemic note, the government has perpetuated the concept of digitalization as a national agenda by portraying it as the driver of employment, financial openness, monetary incorporation, and international funding.

Among these efforts, the Raast payment system initiated by the State Bank of Pakistan together with Karandaaz and the Bill & Melinda Gates Foundation is one of them. Raast is a low-cost, real-time peer-to-peer application that makes it possible to conduct digital transactions and is also a block that makes up a digital layer of public infrastructure (SBP, 2024). On the same note, the establishment of the Special technology Zones Authority (STZA) is in a bid to boost the foreign direct investment (FDI) and to promote the local technology innovation by providing tax incentives, the regulation easing, and the infrastructure of physical space to the technology firms and startups (STZA, 2023). These efforts represent an additional institutional appreciation of the value of digital transformation in defining the future Pakistani economy. The success of these visions however, is profoundly dependent on the successful achievement of systemic limitations. Digital investments in the form of power outages, broadband failure and policy unpredictability,

remain major confidence killers to business (Financial Times, 2024). There is a greater necessity of digital governance changes as Pakistan has been placed at the 147th position out of 193 in the United Nations E- Government Development Index in 2022 (UN DESA, 2022). In addition, lack of globally connected digital platforms and misconstrued consumer confidence in the digital financial networks restrict the capacity of e-commerce and freelance as markets that can be disproportionately digital. The given study is based on such approach as a case study that can help to better analyze the boundaries, processes, and shortcomings of digital transformation in the business market of Pakistan in 2020-2025. It examines major developments in fintech, platform-based services, digital preparedness of SMEs, engagements between the government and the business, as well as the adoption behavior of users. In the process, it relies on the national policy papers, industry figures, secondary research, and the examples of good case studies of the firms that experienced digital transformation. The purpose of the paper is to create informative knowledge not only to scholars and policy makers but also to the entrepreneurs, investors and technologists willing to venture into the Pakistani digital economy.

This paper is adding to this literature by concentrating on a particularly data-challenged but data-aggressive country like Pakistan, therefore, contributing to more geographical coverage in the digital transformation literature. It also creates noteworthy doubts concerning the requirements of successful digital transitions in primary economies: Of what sort of digital infrastructure is most deciduous to business development? What is the answer to informal businesses adapting in formal digital ecosystems? What are the best governance frameworks to supplement innovation to regulation? What can be done so as to make digital transformation more inclusive between gender, income and regional groups? Overall, there is hope and paradox of digital transformation in Pakistan. It is a mirror of a national attempt at modernizing and becoming a part of the global digital circulation, competing with historical obstacles, socio-political instability, and institutional disunity. As the nation makes the next step to develop its digital future, the changing nature of the digital adoption and innovation environments, technology transition and governance will be crucial to turn vision into reality with universal and sustainable results. The present paper founds exactly this understanding and gives a basis to the further empirical and theoretical research of the digital transformation of business in the Global South. Digital capabilities of the fourth industrial revolution have made them central to the competitiveness of firms (Bharadwaj et al., 2023). Pakistan is a lower middle income country of 240 million with tiger-fast internet penetration and mobile adoption together with positive state policy as a catalyst of economic reform (Ministry of IT & Telecom) more epic national black outs, inconsistent connectivity, and low digital literacy.

Literature Review

Global digital transformation

Researchers present DT as a socio technological process through which companies use digital technologies to remodel value creation, organizational systems and engagement with stakeholders (Verhoef et al, 2023). The productivity, personalized services, and platform economies are the outcomes of DT in mature economies. Nevertheless, the regions of the Global South are equally part of a path dependent limitation- energy shortages, informality, and unequal infrastructure (Osei & Boateng, 2022).

Digital Environment of Pakistan

The three pillars that have guided the shift to Pakistan are: (a) the Digital Pakistan Policy (2021), aiming at universal broadband, made affordable; (b) the Special Technology Zones Authority (STZA) Act (2021) with tax incentives to tech clusters; and (c) the Raast instant payment system (2021 24). According to the Pakistan Telecommunication Authority (PTA), there are 57 %

broadband penetration and more than 138 million broadband subscribers since May 2025 (PTA, 2025). Financial inclusion has been expanded by parallel development in fintech, Easypaisa, JazzCash, and the State Bank expats Roshan Digital Account, among others (State Bank of Pakistan, 2024).

Methodology

An embedded case study design at a country level was established (Yin, 2023). Triangulation of secondary sources, including government reports, press releases, scholarly articles, and news dispatches of 2020 to 2025, was performed. Factors of selection were the recency of the data, methodological rigor and its relevance to DT. The evidences were comprised of 27 documents. The drivers, inhibitors and sector specific patterns were identified using the analytic coding allowing cross source validation.

Case Context: Digital Transformation of Pakistan

Policy and Infrastructure

In Pakistan, Vision 2025 prioritizes application of DT as a tool of socio economic prosperity with the key to focus on affordable, secure, reliable and available ICT services (Ministry of IT & Telecom, 2025). According to the PTA statistics, mobile and fixed teledensity is 80.5 % and 25.141 petabytes of data consumption in FY 2024, which increases by 24 % by the year (PTA, 2025). Although the coverage of 4G covers 91 % of the population, the average mobile speed is ranked 97-th globally, which identifies a quality difference in the level of connectivity (Business Recorder, 2025). The unpredictability of energy also acts as a barrier to the maintenance of digital services, as the recent January 2023 blackout nationwide already had considerable costs to the economy, at PKR 100 billion (Reuters, 2023).

Fintech and digital payments

Raast, developed by the State Bank, allows real time and free fund transfers; it will settle billions of rupees worth of peer-to-peer transactions every quarter as of the first quarter of FY 2025, compared to minimal volumes in the previous year (SBP, 2025). The first digital bank in Pakistan, Easypaisa, has 40 million consumers using its wallet, and Visa expects to increase merchant acceptance tenfold by 2027 (Reuters, 2024). However, a majority 75 % of e commerce orders continue to depend on cash on delivery, a situation that indicates the belief and gateway constraints (Business Recorder, 2025).

SME online computation

A May 2024 Sustainability study of 512 Pakistani SMEs made the important discovery that the use of digital technology in such businesses is also a strong predictor of value creation and sustainability performance (Soomro, 2024). However, poor internet connectivity, expensive transactions and payments bottleneck discourage scale (Business Recorder, 2025). Inclusive avenues are alluding to rural programs like Digital Dera, where connectivity is accessible free of charge to farmers.

Business models that are platform based

E commerce giant Daraz has grown gross merchandise value by 50 percent in the period between 2021 and 2024 and fashion retailer Beechtree has turned to Google Ads and Smart Shopping to optimize client paths, indicating consumer technological sophistication (Google, 2024). Another instance of mobile first entrepreneurship was seen in the ride hailing and parcel delivery unicorn Bykea, which expanded its operations to four cities (Pakistan Today, 2024). The Mastercard tie-

up services by JazzCash expands virtual cards to micro entrepreneurs, and increases the level of financial inclusion (GSMA, 2023).

Drivers and Motives:

Transformation drivers

Investment and policy agreement. Tax holidays made possible by the STZA Act stimulate the growth of tech zones, and a World Bank lending package of $20✯ billion includes digital infrastructure as funding priority (Reuters, 2025). Demographic dividend. Sixty four per cent of Pakistani population is below 30; the rise is driven by the youth and by demand (GSMA, 2024). Mobile wallets and secure methods of instant payments reduce barriers to entry into informal markets, but there must be a limit to the transaction flood by Raast, and JazzCash already has 42 million users. Accelerating factors of COVID 19. Teleworking, e commerce and digital government services caused by lockdowns redefined DT as necessitous rather than voluntary.

Constraints

Infrastructure reliability. Digital continuity is hampered by grid instability and lack of connectivity in the rural areas (Financial Times, 2024). Payment friction. Lack of Pay Pay and low card penetration reinforces the culture of cash, which increases the cost of logistics and return rate (Business Recorder, 2025). Lack of skills and sex barriers. Popular smartphone ownership is restricted to only 14 % of the total female population to that of 36 % of males inhibiting extended digital labour. Regulatory volatility. There is some uncertainty in the policy in terms of proposed taxes in solar hardware and crypto mining power allocations (Reuters, 2025)

Economic aspect

The total contribution that the mobile sector makes to the economy is US$ 20 billion in 2023 (6 % of GDP) (GSMA, 2024). In FY 2024, the ICT exports reached US$ 2.5 billion. NADRA ID, Raast, and cloud first e government form the basis of digitalized public infrastructure that reduces the processes of delivering services and enhances fiscal transparency (World Economic Forum, 2024). Pakistan DT trajectory matches the models deployed by the world with the focus on broadband, platforms, and fintech, however, it lacks in infrastructure stability and reliance on cash. Raast, compared with UPI in India or bKash in Bangladesh, is still young, which also means that it is a learning place concerning orchestration of ecosystems. The case supports DT theory stating that technology dividends are mediated by complementary assets such as skills, trust and stable power (Teece, 2018). Successful firms, such as Bykea and Easypaisa, have mixed local context, the motor bike logistic or the USSD interface, into the digital model. The policymakers should thus combine tech roll outs with energy reform, cyber security, and digital skills pipelines.

Conclusion

The example of Pakistan shows how both promising and precarious the digital transformation of the developing world may be. The development of new pools of value has been realized through the proliferation of broadband, instant payments and young entrepreneurship. However, impact is thwarted by systemic limitations, including poorly available energy, bottlenecks in making payment, political churn. In the future, these studies ought to rely on longitudinal, mixed methods, research design, to inculcate how DT results in productivity, inequality, and environmental sustainability. Digital strategies require practitioners to integrate resilience in its form of distributed energy, cyber secure payment rails, and user centric design. Considering these imperatives can drive Pakistan closer to its desire of being a regional digital hub.

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