

**DIGITAL MERGERS AND ACQUISITIONS
INNOVATION MODEL FOR INDUSTRIAL FIRMS IN
PAKISTAN**

BY

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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

2026

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PAKISTAN

BY

SHEEBA SHAHID

A thesis submitted in fulfilment of the requirement for the
degree of Doctor of Philosophy in Computer Science and
Information Technology

Kulliyyah of Information and Communication Technology
International Islamic University Malaysia

FEBRUARY 2026

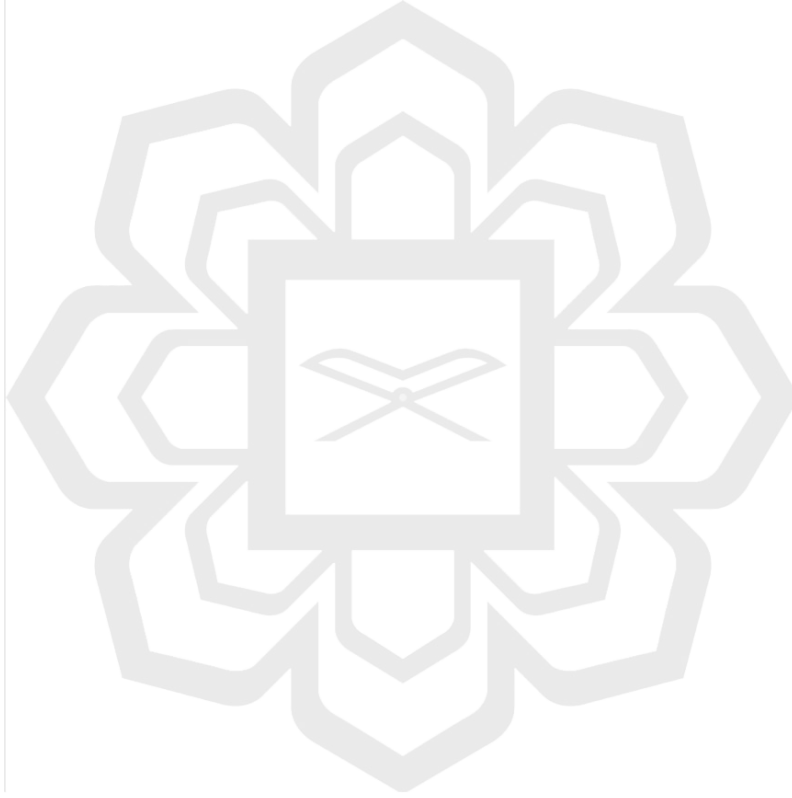
ABSTRACT

Industrial firms across the world increasingly rely on digital mergers and acquisitions (M&A) to strengthen competitiveness, enhance innovation, and improve organizational performance. In developing economies like Pakistan, however, the digital maturity of firms remains limited, making digital integration through M&A particularly challenging. This study investigates digital M&A activities influence digital innovation and organizational performance within Pakistan's industrial sectors, addressing the current lack of empirical evidence and theoretical frameworks in this context. The research identifies major barriers to digital transformation including outdated legacy systems, inadequate digital readiness, weak leadership involvement, cultural resistance to change, and misalignment between the digital visions of acquiring and target firms. These issues hinder the integration of digital assets such as ERP, CRM, and data analytics systems after an acquisition, reducing the potential value creation from M&A. A sequential explanatory mixed-methods design is employed, involving a quantitative survey of 300 managers and executives engaged in M&A activities, followed by qualitative interviews with industry stakeholders. Quantitative analysis using descriptive statistics, correlation (), and regression () explores relationships among pre-M&A preparedness, innovation strategies, and organizational performance. Qualitative thematic analysis deepens understanding of integration challenges, contextual factors, and managerial insights. The findings reveal that strong pre-M&A planning, effective digital innovation strategies, and proactive innovation management significantly improve post-acquisition outcomes. Digital innovation is shown to moderate the relationship between digital M&A and organizational performance, emphasizing its role as a strategic enabler. The results also confirm that organizational context and environmental conditions cause variability in digital M&A success. A Digital M&A Innovation Model is proposed, guiding industrial firms in Pakistan to align digital technologies with strategic goals, foster agile and self-organizing structures, and build cultures supportive of innovation. This framework contributes to advancing theory on digital transformation in emerging markets while offering practical direction for policymakers and practitioners aiming to leverage digital M&A as a catalyst for growth and competitiveness.

خلاصة البحث

تعتمد المؤسسات الصناعية عالميًا بشكل متزايد على عمليات الاندماج والاستحواذ الرقمية بوصفها آلية استراتيجية لتعزيز القدرة التنافسية، ودعم الابتكار، وتحسين الأداء التنظيمي. غير أنّ محدودية النضج الرقمي في الاقتصادات النامية، مثل باكستان، تجعل عملية التكامل الرقمي الناتجة عن الاندماج والاستحواذ أكثر تعقيدًا. تهدف هذه الدراسة إلى تحليل تأثير أنشطة الاندماج والاستحواذ الرقمية على الابتكار الرقمي والأداء التنظيمي في القطاعات الصناعية الباكستانية، ومعالجة النقص الملحوظ في الأدبيات التجريبية والنظرية المتعلقة بهذا المجال. تكشف الدراسة عن مجموعة من العوائق الأساسية التي تحدّ من فعالية التحول الرقمي، من أبرزها الأنظمة التقنية المتقادمة، وضعف الجاهزية الرقمية، وقصور التفاعل القيادي، والمقاومة الثقافية للتغيير، إضافة إلى عدم الاتساق بين الرؤى الرقمية للشركات المستحوذة وتلك المستهدفة. وتنعكس هذه التحديات سلبيًا على عملية دمج الأصول الرقمية—مثل أنظمة تخطيط موارد المؤسسات (ERP) وإدارة علاقات العملاء (CRM) وتحليلات البيانات—بعد الاستحواذ، مما يقلل من القيمة المحتملة المتولّدة عن عمليات الاندماج والاستحواذ. تعتمد الدراسة منهجية مختلطة تفسيرية متسلسلة، تبدأ بمسح كمي شمل ٣٠٠ من المديرين والتنفيذيين العاملين في أنشطة الاندماج والاستحواذ، تليه مقابلات نوعية مع مجموعة من أصحاب المصلحة في القطاع الصناعي. وقد استخدمت التحليلات الكمية الإحصاءات الوصفية وتحليل الارتباط والانحدار لفحص العلاقات بين الجاهزية المسبقة للاندماج والاستحواذ، واستراتيجيات الابتكار، والأداء التنظيمي، بينما أسهم التحليل النوعي في تعميق فهم تحديات التكامل وظروفه السياقية ورؤى الفاعلين التنظيميين. أظهرت النتائج أن التخطيط الممنهج قبل الاندماج والاستحواذ، وفاعلية استراتيجيات الابتكار الرقمي، والإدارة الاستباقية للابتكار، جميعها عوامل تسهم بقدر كبير في تحسين نتائج ما بعد الاستحواذ. كما تبين أن الابتكار الرقمي يؤدي دورًا تعديليًا في العلاقة بين الاندماج والاستحواذ الرقمية والأداء التنظيمي، مما يعزز أهميته كعامل تمكين استراتيجي. كذلك تؤكد النتائج أنّ السياق التنظيمي والبيئة المحيطة يولّدان تباينًا ملحوظًا في نجاح عمليات الاندماج والاستحواذ الرقمية. وتطرح الدراسة نموذجًا مقترحًا بعنوان "نموذج الابتكار في الاندماج

والاستحواذ الرقمي"، يرشد المؤسسات الصناعية في باكستان إلى مواءمة التقنيات الرقمية مع الأهداف الاستراتيجية، وتعزيز الهياكل التنظيمية المرنة ذاتية التنظيم، وبناء ثقافة مؤسسية داعمة للابتكار. وتسهم هذه الإضافة النظرية في تطوير فهم التحول الرقمي في الأسواق الناشئة، كما تقدّم إطارًا عمليًا لصانعي السياسات والممارسين الساعين إلى توظيف الاندماج والاستحواذ الرقمية كقوة دافعة للنمو وتعزيز القدرة التنافسية.



APPROVAL PAGE

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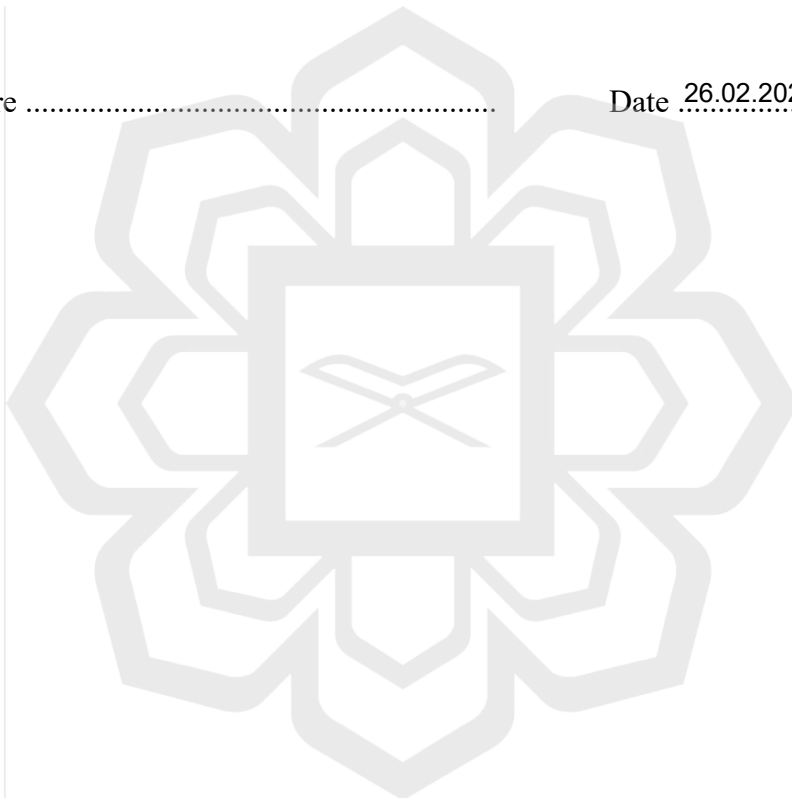
DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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ACKNOWLEDGEMENTS

First and foremost, I would like to express my deepest gratitude to my supervisors Dr. Najhan M.Ibrahim and Dr Asadullah Shah for their continuous support, invaluable guidance, and patience throughout my PhD journey. Their insights, encouragement, and constructive feedback have played a crucial role in shaping this research and my growth as a researcher.

I extend my heartfelt appreciation to my parents, whose unconditional love, sacrifices, and unwavering belief in me have been my greatest source of strength. Their support has been the foundation of my perseverance and dedication. Without their encouragement, this journey would not have been possible.

I am also deeply grateful to my friends, who have been my pillars of support, offering motivation, companionship, and moments of respite during challenging times. Their encouragement and belief in me kept me going, even in the most difficult moments.

Additionally, I sincerely appreciate the financial and institutional support provided by IIIT and CPS which made this research possible.

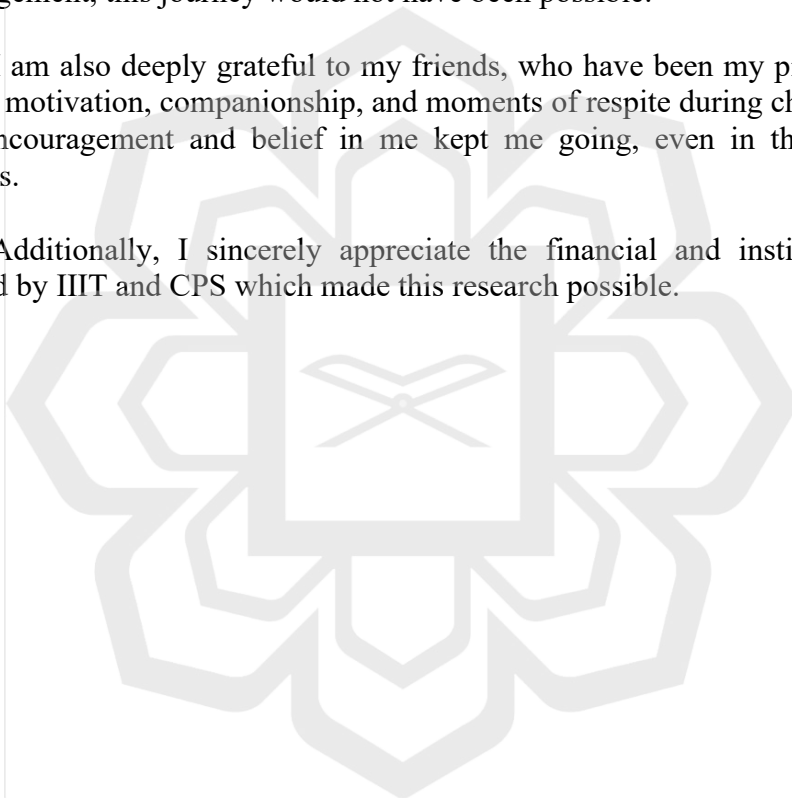


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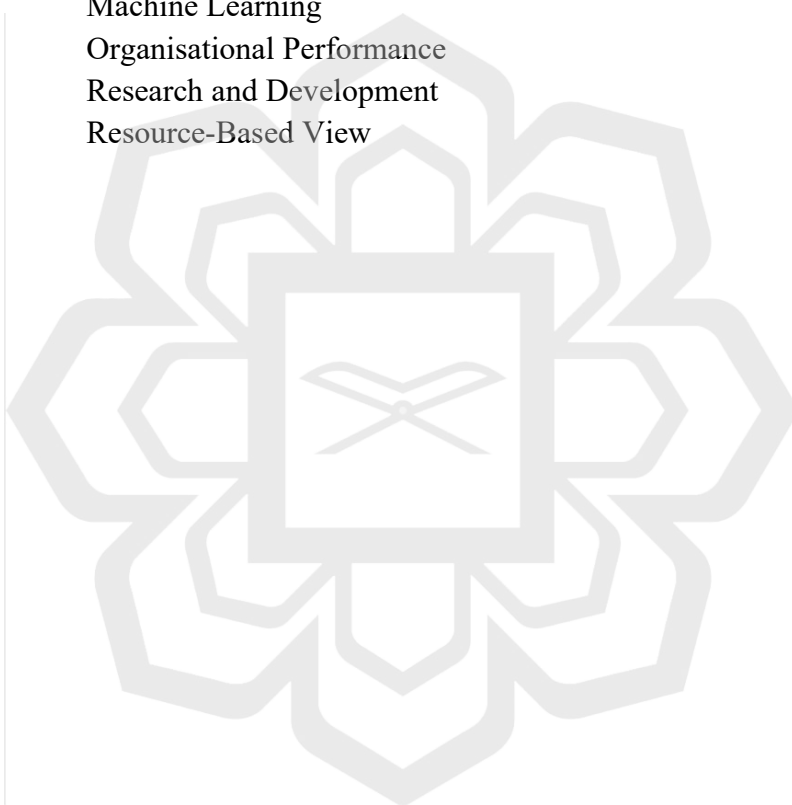
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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
ESD	Explanatory Sequential Design
IDT	Innovation Diffusion Theory
IoT	Internet of Things
IS	Information Systems
M&A	Mergers and Acquisitions
ML	Machine Learning
OP	Organisational Performance
R&D	Research and Development
RBV	Resource-Based View



CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

This study focuses on mergers and acquisitions. The concept of mergers and acquisitions (M&A) has become a cornerstone of strategic growth. The theme of the study is the global economy based on digital M&A (Gharagozloo et al 2022). This has been considered a subcategory and focuses on technology-driven transactions. The study has attempted to fill the gap in the literature, as the existing literature has not been done extensively on this topic (Murthy et al., 2020). This topic and theme of study has been gaining prominence due to rapid advancements in digital transformation. The study has integrated digital M&A strategies to stay competitive and fulfill emerging market requirements. Emerging economies like Pakistan face significant challenges in adopting similar approaches (Abdul-Ramon, 2021). A prime concern is the potential of digital M&A. This study can contribute to strategic planning towards economic growth and competitiveness in Pakistan.

The current era is known as the digital era, and many digital innovations have existed, including advancements in AI, cloud computing, and data analytics. Many other factors have contributed to the progress, which is a critical driver of success and is related to M&A activity. These are the activities that the companies perform to make a profit. There are differences in the countries, and the same has been observed in Pakistan. The government has inadequate digital infrastructure and low investment in research and development (R&D) (Alkaraan, 2021).

Individuals often exhibit a limited strategic outlook, restricting their ability to envision large-scale opportunities. The economy can suffer due to the people's less progressive adoption of digitization ((Shair, W., Tayyab, M., Nawaz, S., Amjad, K.) (2023)). There is also limited integration of digital strategies in corporate culture. These inadequacies are vital, and these are the things that are mainly hindering organizations' ability. It is related to the slowdown of the businesses and a lack of leverage that can be gained in the digital M&A. There is also a lack of development of a competitive advantage. There must be some focus on comprehensive pre-M&A planning. These

firms can do market analysis, and risk assessments (Alkaraan, 2022). These are all strategic-level things that are only done by the top management of these firms. It has been determined that these firms do not cater to the hour's needs and want to apply a rough strategy. These strategies tend to provide very few outcomes, and few outcomes are not sufficient for growth.

1.2 PROBLEM STATEMENT

In the existing literature, several researchers have focused on evaluating the role of M&A in firms with information systems (IS) (Cao et al., 2022a). However, there is an explicit lack of research studies focusing on digital M&A. This study offers deep insights into technological consolidation and operational effectiveness in M&A. However, there is a lack of empirical research exploring the broader organizational impacts of digital-centric M&A. In particular, areas such as leadership realignment, employee productivity, long-term innovation quality, and strategic culture remain underexplored, especially in emerging markets. It is relevant to fill this gap in situations like Pakistan, where digital adoption is biased and organizational strategic foresight capability remains unexplored.

This research study focuses on information systems partially because these are treated as a by-product rather than the target. This implies that the central assertion is on the digital M&A, which brings the merger firm's digital assets (such as information systems) as the result of the deal for the acquirer company. Moreover, the existing studies mostly involve digital companies when digital M&A is considered (Cappa et al., 2022; Collevocchio et al., 2022). However, research on digital M&A by industrial firms remains limited, as most prior studies have focused on technology-oriented or financial companies. This creates a knowledge gap in understanding how traditional sectors pursue digital transformation through M&A. Many digital transformation efforts fail due to the absence of a clearly defined leader or owner, often being treated merely as IT projects rather than enterprise-wide initiatives. For such transformations to succeed, extensive organizational support and strategic alignment are essential.

Additionally, there is a substantial research gap regarding the impact of digital M&A and subsequent digital innovation on the performance of firms in the Pakistani context. Prior research in developed economies shows that digital M&A enhances

innovation and organizational responsiveness (Hanelt et al., 2021; Ren et al., 2023). However, there is little empirical evidence connecting digital acquisitions to post- M&A innovation or productivity improvements in Pakistan. Most national studies mainly address the financial or regulatory aspects of M&A (Ma, 2020; Abdul Rahman, 2023). They rarely explore the role of digital integration or its broader strategic implications. As Pakistan continues to build its digital infrastructure, varying levels of technological readiness can be observed across industries (GSMA, 2024).

This gap limits the ability of policymakers and business leaders to effectively leverage digital M&A for sustainable growth, innovation, and competitiveness.

This research will entail devising an innovative model to implement digital innovation in the industrial firms in Pakistan. Moreover, it will also involve the evaluation of the influence of digital M&A and digital innovation on the organizational performance (OP) of industrial firms.

Mergers and acquisitions (M&A) are widely recognized as powerful tools for organizational growth and transformation (Kang et al., 2020). However, the integration of digital components in such transactions remains underexplored in emerging economies like Pakistan. Kang et al. (2020) highlighted how M&A can reshape market development and operational efficiency, yet their work relied on traditional frameworks that overlooked digital transformation dynamics. More recent research continues to emphasize financial and structural synergies (Benitez et al., 2018; Hanelt et al., 2021), with limited attention to how digital technologies influence post-merger innovation or performance in emerging markets. This lack of focus leaves a critical gap in understanding the strategic role of digital integration in M&A. Addressing this gap is essential for helping firms in countries like Pakistan leverage digital transformation to build sustainable competitive advantage.

Due to the lack of digital integration within the traditional M&A processes of Pakistani industrial firms, there is a significant inadequacy. Many organizations regard digital assets, including enterprise resource planning (ERP), customer relationship management (CRM), and data analytics systems, as their less critical parts (Ranajee et al., 2025). In Pakistan, where industries like textiles, manufacturing, and logistics dominate, there is no sign of the strategic importance of digital innovation as part of the merger and acquisition processes (Joshi et al., 2020). Digital transformation is

implemented as a siloed department activity, involving an IT department and leaving little involvement and executive ownership by other functional groups in the enterprise.

Nevertheless, research gaps exist in multiple dimensions. The literature that discusses integrating digital systems and assets during M&A transactions is mainly based on data and case studies from developed countries (Hanelt et al., 2021). Limited/almost no research addresses how industrial firms in emerging economies, specifically Pakistan, embark on digital integration post-M&A. The gap is critical as the technological infrastructure, human capital readiness, and regulatory environment in developing countries differ quite from what is present in a technologically advanced country. Further, non-tech firms engaging in digital M&A are under-researched. Limited research is available on traditional sectors acquiring digital capabilities other than those of digital enterprises acquired by technology companies.

Despite the Pakistani government's efforts to promote digital transformation through initiatives such as the Digital Pakistan Policy, many traditional manufacturing and service-oriented firms continue to struggle with adopting digital technologies. The policy aims to strengthen digital infrastructure and improve access to digital services across sectors. However, a 2025 report by the Asian Development Bank notes that challenges like inadequate digital skills, limited infrastructure, and regulatory barriers still restrict digital adoption in non-tech industries. These barriers slow progress and limit the competitiveness of traditional sectors. Additionally, a 2024 study by the Asian Productivity Organization stresses the urgent need for a national digital skills framework to guide the manufacturing sector's digital transition. This highlights the importance of workforce reskilling to boost productivity, innovation, and long-term competitiveness in Pakistan's evolving digital economy.

Digital readiness throughout the industries of Pakistan is a key issue that determines the success of digital M&A (Moeini Gharagozloo et al., 2021). Several companies run on old legacy systems and are reluctant to invest in new technologies.

They do not have a digitally savvy workforce to support post-acquisition integration (Moeini Gharagozloo et al., 2022). Before integration, the alignment of the acquiring firm's vision with the acquired firm's digital assets is frequently overlooked, resulting in unsuccessful integrations or underutilization of previously acquired systems. Moreover, there is cultural and organizational resistance to change, which

hampers the process. Employees may be reluctant to adopt the new systems if leadership does not provide adequate training, incentives, and a clear change management plan (Jabeen et al., 2024). Therefore, the potential for digital M&A transformation is extremely bleak. The results of these lapses are significant, and they fail to realize the opportunities to optimize cost, enhance the experience and the customer, and grow using innovation. As per Rauniyar et al. (2023), poorly managed digital integration is also a risk of operational disruption and value erosion. Hence, this study attempts to fill the twin gaps in literature and practice by researching Pakistani industrial firms' challenges in executing digital M&A and developing an innovative model for achieving digital innovation post-acquisition. This is an attempt by the study to contribute to both academic knowledge and practical guidelines to be used in Pakistan's socioeconomic and industrial settings.

Several studies have been performed to determine the gap in the existing literature. The work is based on the efforts put into the work; there are many aspects, despite the concerns about global trends. Many global issues like sustainability have been emphasized throughout the research, but digital transformation is essential in M&A (Yu & Yan, 2022). Developed nations around the globe have been found working on activities to earn profit, but Pakistan has been lagging behind in several key areas such as industrial growth, technological advancement, and policy implementation. Research indicates that Pakistan faces challenges in effectively adopting these practices effectively (Wang & Mushtaq, 2022). Thus, this study explores the barriers limiting the success of digital M&A in Pakistan. There is a need to adopt this tendency, as the country faces challenges such as economic instability, unemployment, and global competitiveness. Insufficiencies in digital innovation further exacerbate these issues.

1.3 RESEARCH QUESTIONS

The proposed research will aim to address the following research questions:

1. How factors such as cultural resistance, poor planning, and infrastructure limitations impact digital M&A efforts in driving digital innovation within industrial firms in Pakistan?

2. What key elements should be incorporated into a digital M&A innovation model to overcome challenges like cultural resistance, inadequate planning, and infrastructure gaps in industrial firms in Pakistan?
3. How the impact of digital M&A on digital innovation be effectively evaluated, considering the influence of organizational culture, planning quality, and infrastructure readiness in Pakistani industrial firms?

1.4 RESEARCH OBJECTIVES

The research objectives of the current research project are as follows:

1. To identify and analyze the impact of cultural resistance, planning deficiencies, and infrastructure limitations on digital M&A initiatives promoting digital innovation in Pakistani industrial firms.
2. To develop a digital M&A innovation model that addresses challenges related to culture, planning, and infrastructure specific to industrial firms in Pakistan. To evaluate the impact of digital M&A on digital innovation in industrial firms in Pakistan.
3. To evaluate the impact of digital M&A on digital innovation while factoring in organizational culture, planning effectiveness, and infrastructure readiness within Pakistani industrial firms.

Table 1.1 Summary of Research Questions and Research Objectives

Problem Element	Statement	Research Questions	Research Objectives
Limited research on factors influencing digital M&A and innovation impact.		How factors such as cultural resistance, poor planning, and infrastructure limitations impact digital M&A efforts in	To identify and analyze the impact of cultural resistance, planning deficiencies, and infrastructure limitations

	driving digital innovation within industrial firms in Pakistan?	on digital M&A initiatives promoting digital innovation in Pakistani industrial firms.
Lack of a tailored digital M&A innovation model for Pakistan's industrial firms.	What key elements should be incorporated into a digital M&A innovation model to overcome challenges like cultural resistance, inadequate planning, and infrastructure gaps in industrial firms in Pakistan?	To develop a digital M&A innovation model that addresses challenges related to culture, planning, and infrastructure specific to industrial firms in Pakistan.
No conclusive evidence on how digital M&A-driven innovation improves firm performance and business models.	How the impact of digital M&A on digital innovation be effectively evaluated, considering the influence of organizational culture, planning quality, and infrastructure readiness in Pakistani industrial firms?	To evaluate the impact of digital M&A on digital innovation while factoring in organizational culture, planning effectiveness, and infrastructure readiness within Pakistani industrial firms.

1.5 SIGNIFICANCE OF THE STUDY

This study has both practical and theoretical significance.

1.5.1 Practical Significance

From a practical point of view, the findings of this research study will help comprehend the influence of digital M&A on the performance of firms. Moreover, it will provide company stakeholders with valuable insights regarding digital innovation and its involvement in enhancing its competitive edge in the market. The findings will be helpful for companies to adopt digital innovation in their business models after digital M&A. By providing a practical and feasible digital transformation model, this study will aid companies in using digital M&A as an efficient strategy to improve digital transformation through the acquisition of digital assets.

This study has important implications for organizational leaders, managers, and decision-makers of organizations that seek to extend digitally. The results offer practical advice for determining the critical success factors of digital M&A transactions and familiarising oneself with the themes that can incur trouble, like cultural integration matters, technological compatibility, and how to keep innovative practices strategically aligned. It will give companies a better perspective on what pre-acquisition strategies, due diligence approaches, and post-merger integration strategies work.

Furthermore, these insights can be leveraged by organizations to train their management teams to enhance managerial competencies in the formulation and execution of digital strategy. Beyond this, policymakers and government institutions will obtain crucial practical insights from this study to help them design regulatory frameworks and policy incentives that encourage digital innovation and digital M&A, which government institutions can use to develop targeted measures such as tax incentives, subsidization of technological upgrades, and framework of collaborative pursuit between the public and private sectors. Such measures would significantly increase Pakistan's attractiveness for foreign direct investments in the digital industry and enhance domestic firms' capabilities to compete internationally. Finally, stakeholders at different levels will utilize the research outcomes as a strategic resource,

substantially helping them make informed decisions and encouraging the productive digital transformation of Pakistan's business ecosystem.

1.5.2 Theoretical Significance

Theoretically, the current study will be a valuable addition to the existing literature regarding digital M&A. Moreover, the study will fill the gaps regarding the implications of digital M&A and innovation due to digitalization for the OP of industrial firms. Based on the theoretical model developed, future research studies will focus on extending such models for the improved digital transformation of firms in the context of developing economies like Pakistan.

Moreover, the research findings will motivate other researchers to carry out advanced research studies in terms of different factors of digital M&A. Consequentially, future research studies will be based on expanding such theoretical models in the digital transformation of firms in terms of developing countries like Pakistan, based on the theoretical model developed in this study. In addition, this study contributes to the theoretical knowledge by contextualizing digital M&A in emerging economies and drawing key inferences about the effect of these factors, such as digital readiness, cultural dynamics, and infrastructural challenges, on the results of digital transactions. Also, it will refine the theoretical understanding of conditions under which such digital.

M&A will be successful or unsuccessful, aiding researchers in improving existing theoretical frameworks. This study closes gaps in the strategic management, information systems, and organizational behavior literature by explicitly integrating innovation and digital transformation theories, thus providing a basis for future research that adopts similar multidisciplinary perspectives.

Furthermore, a theoretical model for this research establishes a systematic framework among digital innovation culture, pre-M&A planning, and organizational performance, providing several theoretical propositions for future empirical testing. It further develops current theoretical discourse by giving a more complex picture of how digital M&A can strategically support innovation and enhance competitiveness. Given the above, this research will significantly contribute to theoretical clarity, build a strong

foundation for future theory-building initiatives, and stir up new scholarly debates concerning digital transformation strategies in developing and transitional economies.

1.6 SCOPE OF THE STUDY

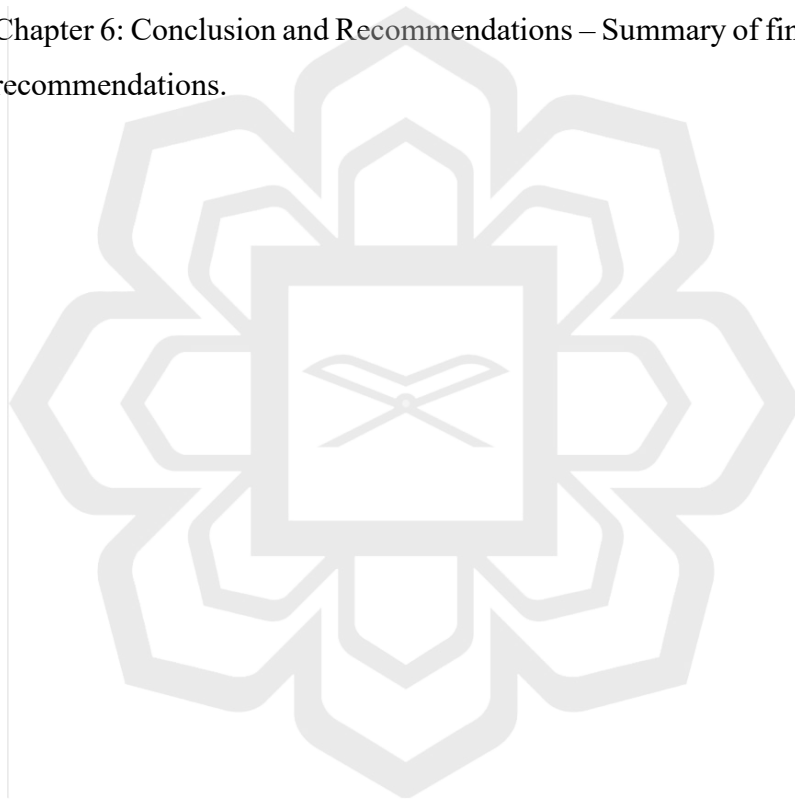
The study focuses on M&A activities in the technology, telecommunications, and financial sectors. The scope has remained wide, but it has come to the point where the digital aspect has been focused (Bharadwaj et al., 2020). It also evaluates government policies, corporate strategies, and market trends. These factors influence the adoption of digital innovation, mainly in these industries. The existing literature largely focuses on M&A activity within the technology sector, often overlooking how traditional industries pursue digital transformation through acquisitions. This leaves a gap in understanding the strategic role of M&A for non-technology firms seeking digital growth.

Reports show that non-technology firms acquiring technology companies accounted for 12% of total M&A volumes in 2024, compared to a historic average of 7% (Goldman Sachs, 2025). Despite this increasing trend, there is limited research on how established manufacturing or service-based firms in emerging economies, such as Pakistan, can leverage acquisitions for digital transformation. In Pakistan, this gap is particularly pronounced. The government's Digital Pakistan Policy aims to strengthen digital infrastructure and expand technology-driven services. However, traditional industries continue to face challenges in adopting these digital technologies effectively (Reuters, 2025).

These challenges include lack of digital skills, limited infrastructure, and resistance to organizational change. As a result, non-tech firms struggle to translate digital acquisitions into meaningful innovation and operational improvements. This study seeks to address this research void by exploring the strategies employed by Pakistani non-tech firms to navigate digital transformation through M&A, thereby providing a deeper understanding of digital M&A dynamics across diverse sectors.

1.7 STRUCTURE OF THE THESIS

- Chapter 2: Literature Review – A detailed analysis of existing digital M&A and innovation research.
- Chapter 3: Methodology – Explanation of research design, data collection, and analysis methods.
- Chapter 4: Findings – Presentation of data and insights derived from the research.
- Chapter 5: Discussion – Interpretation of findings in light of research objectives.
- Chapter 6: Conclusion and Recommendations – Summary of findings and policy recommendations.



CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Mergers and Acquisitions (M&A) are a strategic tool for corporate growth, innovation, and new market development (Cao et al., 2022b). In today's fast-paced and digitizing world, the realm of M&A has advanced beyond its traditional purposes of cost-efficiency and market share building. However, as opposed to this, digital M&A, where an acquisition or merger focuses on acquiring digital assets, technologies, platforms, or capabilities, has become an essential enabler of digital transformation, a significant level in highly competitive global marketplaces (Hanelt et al., 2021). The budding of new technologies and strategic investments has led to an explosion in digital M&A activities in developed economies, in which companies are attempting to hasten innovation, support operations, and strengthen resilience through the introduction of AI, ML, big data analytics, cloud computing and advanced information systems (IS) (Chanda, 2021).

In inclusive terms, digital M&A is acquiring a company primarily to obtain digital capabilities, including software, platforms, digital talent, and data assets. This type of M&A aims to expand the business and create digital innovation opportunities for the acquiring organization (Chinta, 2023). It contrasts with the traditional M&A that involves physical assets and financial synergies. In digital M&A, the information systems are the focal point and, as such, strategic resources in which long-term competitive advantage may be leveraged (Bedekar et al., 2024). Although the world is shifting from physical M&A to digital M&A, countries like Pakistan are lagging in this race because of infrastructural issues, lack of regulatory support, and investment in research and development. However, there is still a gap in understanding how digital M&A enhances organizational performance and innovation in these settings. This chapter, therefore, extends the scope of review literature in the current area and critically evaluates the development, impact, and challenges of digital M&A, particularly for emerging economies and Pakistan. The present study explains the key concepts that

provide the comprehensive background for it, including digital transformation, digital readiness of a firm, information systems integration, and performance metrics.

2.1.1 Key Definitions

The fundamental definition of a Merger is the voluntary cooperation of two or more companies that used to be independent of each other and then use the rest of the companies' resources to create one unified company. Usually, mergers occur when the companies believe that combined resources, presence in the market, and possibilities of technological capabilities will bring them an additional strategic benefit (Bruner, 2004). Moreover, Weston et al. (2001) explain that mergers aimed to obtain economies of scale, access new markets, or generate a competitive benefit from synergy, i.e., the value and potential of the joined companies are higher than the sum of their particular values and potential.

On the contrary, the Acquisition refers to buying one company by another (as an acquisition of a majority shareholding or an outright purchase) so the acquired company becomes a subsidiary (or an integrated division) of the buying one. Strategic motives can propel acquisitions such as market expansion, technological advancement, eliminating competition, or enhancing core competencies (Hubbard, 1999). It is typically expected by the acquirer that, after the acquisition, assets, technologies, and human resources will be controlled, which can help with growing quickly or repositioning in the market (Marks & Mirvis, 2011).

Based on these traditional definitions, Digital M&A means mergers and acquisitions in the digital sectors, or primarily technology-intensive industries with a significant proportion of core business models dependent on digital capabilities (Kohli & Mann, 2012). Hanelt et al. (2021) describe digital M&A activities as consolidating companies specializing in the internet (e.g., platforms), digital technologies, software, cloud computing, electronic commerce, in terms of software and platforms, and related types of business ventures driven by digital technologies. According to Gautier and Lamesch (2021), digital M&A is genuinely driven by the intent of accelerating digital transformation, adding technological capacities, acquiring innovative solutions, or reacting to the disruptive strategies embedded in the changing market trends.

Digital Innovation refers to introducing and adopting new digital technologies, services, business models, and processes to bring about value, improve efficiency, or acquire competitive advantages in the digital economy (Ciriello et al., 2018). According to Yoo et al. (2012), digital innovation combines digital and physical attributes to transform traditional business structures into more flexible and scalable forms. This means that digital innovation happens using advanced technologies, such as artificial intelligence (AI), blockchain, cloud computing, big data analytics, and the Internet of Things (IoT), to produce significant improvement at the operational or strategic level (Hund et al., 2021).

Adequacy of digital innovation means the Internet's sufficiency and effectiveness of the innovation practice to meet the strategic and operational demands of organizations, markets, and the economy (Svahn et al., 2017). Adequacy, in this case, means that digital innovations are adequate, i.e., they meet competitive requirements, industry standards, consumer expectations, or regulatory frameworks. Also, it encapsulates the ability of the firms or economies to regularly develop, integrate, and spread digital innovation capable of adequately responding to evolving market conditions or competitive challenges (Ciriello et al., 2018). Inadequate digital innovation is characterized by failure to exploit emerging digital opportunities, slow response to technological changes, and diminished ability to sustain digital competitiveness in an increasingly competitive global market (Sebastian et al., 2017).

In the Pakistani context, assessing digital innovation adequacy means analyzing the depth, quality, and frequency of such initiatives, investments in infrastructure, and supporting policy to promote innovation (Haque & Mazhar, 2020). However, problems that lead to inadequate digital innovation in most scenarios are a narrow technological infrastructure, poor regulation frameworks, corporate cultures that are very conservative about change, and a shortage of skilled personnel (Ahmed & Naeem, 2021). In addition, the appropriateness of digital innovation in Pakistan is additionally discussed depending on key components of political approaches, the strength of the digital eco frameworks, accessible financial plans, and private ventures in building a digitally educated workforce (Nadeem et al., 2020).

2.1.2 Chapter Structure

This chapter of the literature review has multiple sections. Section 2.2 discusses the theoretical framework, mainly using the Resource-Based View (RBV) and Innovation Diffusion Theory (IDT), to help understand the relationship between digital M&A and digital innovation. Section 2.3 defines and explains the term ‘digital M&A’ and its strategic importance. Section 2.4 shows how M&A is crucial for digitalization and how firms can use M&A to incorporate new technologies. After looking at the integrative process for digital transformation in Section 2.6, Section 2.7 explicates the relationship between digital readiness and international M&A, and Section 2.9 assesses the role of M&A in integrating information systems (IS). The challenges in digital M&A implementation in developing economies are identified in Section 2.12. In Section 2.13, digital M&A in emerging markets is discussed, with Pakistan as a case in point. Gaps in digital innovation in Pakistan are addressed in Section 2.15, which explains the contextual limitations of firms. Section 2.17 closes the chapter by presenting a summary, restating the key implication(s) derived from the literature, and identifying areas for which certain gaps exist, which the current study attempts to fill with empirical research in the Pakistani industrial setup. This chapter reviews the existing literature on digital mergers and acquisitions (M&A) and innovation in industrial firms. To maintain conceptual consistency, the review is organized around four interrelated themes.

Theoretical Perspectives on Digital M&A, examines dominant theories such as the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), Innovation Diffusion Theory (IDT), and Institutional Theory. These theories form the analytical foundation of the study. Concept and Evolution of Digital M&A, defines the construct and explores its strategic relevance and global development. Determinants and Outcomes of Digital M&A, reviews empirical research on pre-merger digital readiness, integration capability, innovation culture, and performance outcomes. Research Gaps and Synthesis of Literature, identifies missing links and justifies the conceptual framework of this research. This thematic arrangement ensures a logical flow. Each topic builds naturally toward the Digital M&A Innovation Model presented in the next chapter.

2.2 THEORETICAL FRAMEWORK

The theoretical foundation for this study draws on the *Resource-Based View (RBV)* and *Innovation Diffusion Theory (IDT)*.

- **RBV** posits that firms achieve competitive advantage by acquiring and leveraging unique resources, including digital assets (Barney, 1991).
- **IDT** explains how innovation spreads within and across organizations, emphasizing the importance of early adoption in achieving market leadership (Rogers, 2003).

These frameworks provide a lens to analyze how digital M&A can address gaps in innovation and contribute to corporate growth in Pakistan. The literature highlights the critical role of digital innovation in driving successful M&A. However, Pakistan's inadequate digital infrastructure, regulatory constraints, and limited R&D investment pose significant challenges (Ghazi et al., 2018). This study aims to provide insights into how Pakistan can overcome barriers. The country has leveraged digital mergers and acquisitions (M&A) to drive economic and technological advancement. (Goldstein et al., 2020). The study has integrated digital M&A strategies to stay competitive and fulfill emerging market requirements. Developing countries are found to be striving hard to achieve excellence. The evolving technological landscape in Pakistan highlights the required aspects for growth.

The government has inadequate digital infrastructure. It has also been found that there is low investment in research and development. To literature review analysis in established theory, the subsequent section outlines and critically examines the theoretical frameworks underlying digital M&A studies, assessing their relevance and limitations in emerging economy contexts in Pakistan.

This study's theoretical foundation is based primarily on the Resource-Based View (RBV) and the Innovation Diffusion Theory (IDT) in order to capture the contribution of digital mergers and acquisitions (M&A) towards innovation and performance in emerging economies such as Pakistan.

The Resource-Based View (RBV) (Barney, 1991) argues that firms achieve sustainable competitive advantage by acquiring and leveraging valuable, rare, inimitable, and non-substitutable assets. In the context of digital M&A, such assets

include digital technologies, IT infrastructure, and skilled human capital. RBV explains why firms pursue acquisitions to gain unique digital resources. However, the theory has been criticized for its static view of competitive advantage (Teece, 2007). It assumes that the value of resources remains constant, which is often not the case in fast-moving digital markets with rapidly evolving technologies. Dynamic Capabilities Theory (DCT) addresses this limitation by focusing on a firm's ability to recombine, integrate, and reconfigure digital resources. DCT provides a more practical perspective on post-acquisition restructuring and technology upgrading in digital M&A. By emphasizing adaptability and continuous innovation, DCT complements RBV in explaining how firms sustain long-term competitive advantage in dynamic environments.

Simultaneously, Innovation Diffusion Theory (IDT) (Rogers, 2003) explains the diffusion of innovations within and between businesses. It provides a useful framework to understand adoption in digital M&A—i.e., how target firms' new technologies are assimilated by acquirers. IDT is insufficient, however, since it neglects organizational design and institutional constraints, which are key in the developing world. For instance, whereas IDT assumes that innovation diffuses through rational adoption decisions, Pakistani firms are often faced with regulatory rigidity, cultural resistance, and poor digital literacy that undermine or distort diffusion. IDT thus fails to fully explain digital M&A activity in such contexts except by considering external institutional forces.

Finally, both RBV and IDT largely parrot Western organizational assumptions—e.g., sophisticated digital infrastructures, strong intellectual property systems, and competitive market forms. Such presuppositions make their direct transfer to Pakistan doubtful. In the context of emerging nations, Institutional Theory (North, 1990) presents an alternative perspective by considering that formal rules, quality of governance, and social norms shape organizational behavior. Considering institutional variables helps us explain why, even when Pakistani firms possess internal strengths (as RBV forecasts) or available innovations (as IDT assumes), they still struggle with post-merger integration due to ineffective policy enforcement and infrastructural weaknesses.

In comparison, RBV and IDT are incomplete but complementary. RBV would inform us why digital assets are to be sought after, i.e., the strategic imperative, whereas IDT would inform us how digital innovations are to be adopted and diffused. Yet, both

theories would still be insensitive to environmental turbulence and institutional vacuums. This research thus integrates the ideas of RBV, IDT, and Institutional Theory into a hybrid conceptual framework that is more proximate to the facts of digital M&A in emerging economies.

Briefly, while RBV provides the foundation of value creation through the purchase of resources, IDT accounts for the innovation adoption process, and Institutional Theory situates these processes within the context of developing-country constraints. Combined, these theoretical perspectives create a broader analytical framework for examining how Pakistani firms can leverage digital M&A to achieve sustainable innovation as well as competitive competition.

2.2.1 Concept of Digital M&A

Building upon these theoretical insights, this section defines the concept of digital M&A and explores its strategic significance as an enabler of digital transformation across industries. The concept of digital M&A has emerged in recent times. Scholars have not focused on this area before and always tend to focus on the companies of the era. The aspects of all the digital M&A refer to mergers and acquisitions. The firms are found to have the required goals, and their primary goal is to acquire technological capabilities (Benitez et al., 2018). There are some other aims of the firms to enhance digital transformation. According to McKinsey & Company (2020), digital M&A has become a critical driver of competitive advantage, enabling companies to access emerging technologies such as artificial intelligence (AI) and machine learning (ML). Such efforts are put into making these firms, some profitable ones. There must be some focus on comprehensive pre-M&A planning (Chang & Cho, 2019).

It has been determined that these firms do not cater to the hour's needs and want to apply a rough strategy. These are the strategies that tend to provide very few outcomes, which are not sufficient for growth. Research highlights the shift from traditional M&A, driven by cost synergies, to digital M&A, which focuses on enhancing innovation and achieving rapid technological integration (Cappa et al., 2022). Companies in developed economies have strategically used digital M&A to scale their capabilities, reflecting the growing importance of digital strategies in global markets.

2.3 GLOBAL TRENDS IN DIGITAL M&A

Digital M&A has seen exponential growth in the last decade. According to a report published in many articles, there is a focus on technology. These deals accounted for over 40% of global M&A activity in 2020 (Cheng et al., 2021). This trend is particularly evident in sectors like technology, telecommunications, and financial services, where the demand for digital capabilities is high. In the existing literature, several researchers have focused on evaluating the role of M&A in firms concerning information systems (Cappa et al., 2022). There is an explicit lack of research studies that focus on digital M&A. This research study focuses on information systems partially because these are treated as a by-product rather than the target.

This implies that the central assertion is on the digital M&A, which brings the merger firm's digital assets (such as info). Moreover, the existing studies mostly involve digital companies when digital M&A is considered. However, the research on digital M&A by industrial firms is not sufficient. Attempts at digital transformation fail because there isn't a clear owner or leader (Collevecchio et al., 2022). It should be an enterprise-wide effort, frequently regarded as an IT project. For this to be successful, there must be broad support. There are certain things, and there is a substantial research gap regarding the impact of digital M&A and the subsequent digital innovation on the performance of firms in the Pakistani context (Dezi et al., 2018). This research will entail devising an innovative model to implement digital innovation in industrial firms in Pakistan. The work is good, and it is found to be supportive. It will also involve the evaluation of the influence of digital M&A and digital innovation on the OP of industrial firms (Dao et al., 2017). Key global trends include companies from non-tech industries acquiring technology firms to enhance their digital capabilities. Such aspects, such as big data analytics, have been used in evaluating M&A opportunities, which has improved deal accuracy and success rates (Dezi et al., 2018).

Many cross-border transactions and developed economies engage in cross-border M&A to access emerging markets with untapped potential. Digital innovation plays a pivotal role in determining the success of M&A transactions. Gaughan (2020) argues that integrating digital technologies post-acquisition significantly impacts operational efficiency and market competitiveness. However, the innovation gap in emerging markets often impedes the ability of firms to realize these benefits (Edi &

Susanti, 2021). Studies by BCG (2022) have been conducted. They have revealed that companies with a robust digital transformation framework are 2.5 times more likely to achieve synergies.

Significantly, the broad adoption of this model has penetrated not only the technology industry itself but also the otherwise non-tech sectors like financial services, healthcare, manufacturing, and consumer goods (Cappa et al., 2022). These sectors of companies tend to participate in the strategic acquisition of digital firms or assets as an expeditious way of integrating novel technological capabilities that drive their competitiveness, agility, and market responsiveness. For example, automotive firms have invested in autonomous driving and artificial intelligence technology startups, and retail companies have been busy acquiring digital platforms that enable them to build better e-commerce operations and mine data analytics (Garzella & Fiorentino, 2017). Even if digital M&A holds such prominence, current research treats these as secondary consequences of an ordinary merger rather than as mergers toward digital transformation (Collevecchio et al., 2022). Moreover, research is heavily concentrated on purely digital companies, whereas there are major gaps in understanding digital acquisitions by traditional industrial and non-tech firms. Therefore, such research gaps necessitate examining the strategic rationale and repercussions of digital M&A exclusively by industrial enterprises, particularly in emerging markets where digitalization dynamics vary greatly from developed economies (Dao et al. 2017).

The increasing complexity and strategic importance of digital M&A transactions have made companies heavily lean on data-driven decision-making. Advanced analytical tools such as big data analytics, AI, and machine learning substantially improve digital M&A deal precision, efficiency, and success rates. However, Dezi et al. (2018) found that companies can significantly increase the accuracy of their target company valuation, synergy potential, and risk factors during due diligence if they systematically employ data analytics, providing valuable insights for informed and strategically well-thought-out acquisition decisions.

Another essential global digital M&A trend is an increase in cross-border digital transactions. At present, the firms operating in the advanced economies are discovering new avenues and means to take advantage of tremendous digital growth potentials that could be facilitated through acquisitions in the emerging markets that would allow them

to decrease their operational costs and increase their digital consumer base (Benitez et al., 2018). However, this internationalization trend is particularly high in the technology, fintech, telecommunications, and e-commerce sectors. Companies pursue such cross-border acquisitions to secure strategic entry points into promising digital economy growth, where there is massive underlying growth with prominent technology adoption (Schweizer, 2019).

Making successful cross-border digital acquisitions requires us to deal with integration challenges associated with technology standardization, regulatory framework, and cultural differences between the acquirer and the target firm (Collevecchio et al., 2022). Thus, effective integration requires strong digital transformation frameworks that tackle the above challenges holistically. However, companies with integrated overall digital integration strategies have achieved significantly better success in realizing the potential synergistic benefits, superior market position benefits, and sustained competitive advantages after an acquisition. Moreover, Gaughan (2020) further explains how digital innovation post-M&A improves acquisition success. Digital convergence during post-merger inventory combines the application of cloud computing, AI platforms, blockchain solutions, and IoT infrastructures to enhance operational efficiencies, minimize redundancy, and expedite the process. Notably, these digital innovations also enhance the firms' market competitiveness, enabling firms to respond quickly to changing consumer preferences and competitive pressures by allowing them to change their business models. Despite this, the acquiring firms' digital maturity and innovation capabilities are key requirements to leverage these benefits (Gomes et al., 2020).

A significant bottleneck in numerous countries around the world, and particularly in emerging markets, constitutes the existence of a substantial innovation gap, understood as a lack of infrastructure, human capital, or organizational culture to effectively adopt or apply digital technologies for operational performance improvement after an acquisition (Edi & Susanti, 2021). In some markets, companies often fail to reap all the benefits they expect from digital M&A, and this is due to a lack of digital infrastructure, a lack of technical expertise, and resistance to digital adoption. This underlines the need for targeted digital innovation management and encompassing change management strategies that close innovation gaps and enable a smooth digital integration (Warter & Warter, 2019). In their work, Collevecchio et al. (2022) also

spotlight a significant gap regarding who owns digital transformation after an M&A and who is responsible for driving it once the deal has been closed. Although digital transformation must be treated as a holistic, enterprise-wide undertaking, digital transformation is often misperceived as an IT-only play. This can result in poor implementation of the digital M&A initiative, such as poor strategic commitment from the senior leadership or fuzzy leadership roles, which can hinder the effectiveness and longevity of the digital M&A transaction (Cappa et al., 2022).

2.4 BENEFITS OF DIGITAL M&A

Existing literature assumes that digital mergers and acquisitions (M&A) are a strategic lever for digitally driving transformation, fostering innovation, and improving organizational performance. The assiduous assumption is that digital M&A enables firms to acquire and integrate digital capabilities, such as data analytics, automation, artificial intelligence (AI), and digital platforms, thereby fueling more efficient operational and strategic outcomes (Cappa et al., 2022; Hanelt et al., 2021). These intellectual assets are strategic ones that contribute to a company's competitive strength by having greater agility, efficiency, and ability to innovate (Cao et al., 2022a). One key assumption is that digital M&A is increasing technological complementarity and innovation. Through the acquisition of digital firms or assets, organizations aim to be capable of integrating new technology that complements existing systems in order to facilitate faster product innovation and improving customer engagement (Collevocchio et al., 2022). This assumption is based on the Dynamic Capabilities Theory, which places core emphasis on a company's ability to transform resources amid technological change (Teece, 2020). Through building digital skills, companies are likely to build up their absorptive capacity and permanent innovation capacity (Moeini Gharagozloo et al., 2022).

Another common assumption has to do with improving efficiency and performance. Scholars believe that digital M&A allows for automation of processes, data integration, and wiser decision-making, leading to productivity and profitability improvement (Ryu & Koh, 2020; Li et al., 2021). Digital assets such as ERP, CRM, and big data infrastructure are expected to kill redundancies, streamline processes, and become more operationally agile (Cao et al., 2022b). These benefits are particularly

relevant to sectors that seek to refresh legacy systems via acquisition over organic growth. Thirdly, there is an assumption related to strategic flexibility and market expansion. Digital M&A is regarded as a way of "shortcut" entry into new markets and adapting to emerging technology by accessing the digital environment of the acquired firm (Chen et al., 2021). Buying digital firms is believed to help incumbent firms bridge the digital capability gap and upgrade their market responsiveness, customer orientation, and innovation performances (Yu & Yan, 2022).

Lastly, it is assumed that digital M&A promotes a digital culture of innovation, since it is through exposure to technologically advanced companies that organizational learning and cultural change toward innovation are supposed to be triggered (Cappa et al., 2022; Rauniyar et al., 2023). Empirical evidence, nonetheless, confirms that this assumption is not always materialized. Most firms do not associate digital integration with strategic purpose or downplay the challenge of integration across technology and culture (Collevecchio et al., 2022). The variations highlight that even though digital M&A has high potential benefits, success hinges largely on contextual situations such as digital readiness, leadership attention, and institutional maturity—especially in developing economies such as Pakistan, where digital infrastructure and managerial abilities are uneven (Wang & Mushtaq, 2022).

2.5 IMPORTANCE OF M&A FOR THE DIGITALISATION OF THE COMPANIES

Gharagozloo et al. (2022) argued regarding the importance of M&A for the digitalization of companies. They focused on the resource-based perspective to conclude that it alludes to gaining a competitive advantage through M&A activities. This gave companies the digital knowledge required to gain a competitive edge in the market. They concluded that the digital readiness of the companies is a significant factor in attracting M&A. Studies have also provided evidence of the direct effect of mergers on the performance of corporate firms. Pachulia (2018) found that M&A resulted in a significant increase in product diversification and broadening of the company portfolio. The author also argued that it can be associated with the company's information system capacity and knowledge rise. In their empirical research work, Hanelt et al. (2021) found that M&A of IT companies by industrial companies can add significantly to the digital

innovation processes of the companies. Moreover, they also reported that adding digital knowledge to the information system helped improve the business models, resulting in increased firm performance.

Scholars have also focused on factors that impact the adoption of M&A for digital transformation in telecommunications, fintech and healthcare firms and companies. In this regard, Benitez et al. (2018) argued that the extent of flexibility in the IT setup is a vital factor of the M&A in firms. It is because such an IT system proves to be helpful in the post-M&A integration of the acquired firms' IT resources and information systems. In another study, Edi and Susanti (2021) focused on the performance after the merger of the firms by assessing the role of firm reputation. For this purpose, they employed the sample dataset of Indonesian companies and their M&A using the SPSS software from 2014 to 2019. Their findings revealed that the companies that acquired companies from the same industry added to their reputation and increased digital knowledge resources. These firms showed an enhancement in performance after the merger.

It is well established in current literature that M&A is essential for organizational digitalization and evidence for the strategic and operational reasons behind it. M&A allows businesses to quickly gain essential digital competencies, technological assets, and innovative capabilities that would otherwise take much more time and money to develop internally (Bresciani et al., 2022). When firms rapidly adopt through acquisitions to acquire digital technologies, they are highly responsive to market disruptions, competitor moves, and the evolving wants and needs of the consumer. Besides being suitable for competitive positioning, such responsiveness helps build robustness in strategy (Jiang et al., 2022). Recent studies show that one vital benefit that digital M&A brings is to accelerate digital maturity in the acquiring organization. Technological resources enable a firm to achieve a competitive advantage through its strategic management, and digital maturity delineates the ability of a firm to leverage technological resources for a sustained competitive advantage (Vial, 2021). Kane et al. (2022) found that a strategy based on using M&A to acquire digital startups or technologically advanced companies improves digital maturity for firms using such a strategy. In their case studies, the authors showed that the acquisition of digital infrastructures advanced as acquiring firms assimilated, and they also nurtured innovation cultures necessary for continuous digital progression.

In addition, business models can be quickly changed and marketed in the context of the digital economy with digital M&A. According to Puranam and Vanneste (2022), in a comprehensive analysis, traditional enterprises end up with legacy structures that resist innovation and agility. Adopting digitally focused entities through strategic acquisitions gives firms the agility and flexibility to rapidly aim at customer-focused, platform-based, or digital leverage models. The capability to adapt is significantly increased for firms as it makes them much more market-relevant and viable over the long term in this rapid change in digital landscapes.

M&A also gives energy to innovation by infusing new ideas, technological innovations, and innovative processes from the acquired companies. According to Schiuma and Carlucci (2021), recent empirical findings from acquiring tech startups or digital native businesses have resulted in substantial gains in innovation outputs by organizations. Integrating novel technological solutions and local talent pools contributes to the firm's internal innovation capabilities and overall performance. The authors pointed out that the absorbed innovation capabilities are essential for firms in traditionally non-innovating sectors and are vital to their competitive advantage. Moreover, a necessary dimension of the role of M&A in digitalization comes from the ability to acquire specialized digital skills and expertise, an area in which many companies struggle enormously to find the required talent. Therein lies a problem experienced by contemporary organizations in luring and keeping digitally gifted professionals in artificial intelligence, cybersecurity, data analytics, and software development (Freitag et al., 2022). In this regard, Freitag et al. highlighted that buying tech-oriented businesses is an obvious solution to fill the holes in tech skills and join digital initiatives.

Further, strategic digital M&A facilitates extensive knowledge transfer and organizational learning processes. Zhao et al. (2023) deliver a comprehensive empirical study showing that digital acquisitions are conduits for transferring crucial knowledge assets from the target to acquiring firms. The technological absorptive capacity of the acquiring firm is enhanced through this process, and it enhances further learning and capability development. The study found compelling evidence that firms that actively incorporated knowledge management strategies after the acquisition recorded significantly higher long-term digital innovation outcomes and continued high performance. Likewise, digital M&A is responsible for using technological integration

well to improve operational efficiencies. Through M&A, one can acquire advanced technologies like blockchain, cloud computing, robotic process automation (RPA), and AI-driven analytics that optimize organizational processes and resource utilization (Singh & Hess, 2023). Through empirical case studies, Singh and Hess (2023) showed that firms that strategically accrued digital technologies cut costs, improved decision-making abilities, and dramatically shortened service delivery times, allowing them a heightened competitive position in the market.

Moreover, digital M&A enhances the organizational capability to strategically take advantage of the data, leading to robust data-driven decision-making frameworks. DalleMule and Davenport (2022) showed that acquiring firms with strong analytics infrastructures have substantially higher data analytics capabilities than acquiring firms without those infrastructures. It helps organizations develop and use big data effectively to improve strategic insights on customer behavior, market trends, and competitive environment. Enhanced strategic planning, improved firm capacity in predictive analytics, and proactive strategic response capability are the reasons for the improved analytical capabilities.

From a globalization perspective, M&A helps companies with further equipment to operate productively in the international digital market basket. However, recent insights by Verbeke and Asmussen (2022) have shown that digital acquisitions help the firm quickly enter foreign markets by overcoming barriers relating to digital infrastructure deficits, regulatory complexities, and cultural challenges. Acquirers bring the advantages of effectively localizing their digital strategy in an international market by acquiring locally established digital firms, speeding up their global digital integration and market penetration. In addition, M&A allows acquiring firms to offer wider scenarios of digital products, ensuring the ability to provide integrated and innovative solutions. Presenza et al. (2023) found that firms that increase their digital portfolio through acquisition achieve substantial market differentiation and higher customer retention. Diversified digital portfolios can facilitate cross-selling, boost revenue growth, and prolong competitive advantage.

Notably, acquiring digital firms is often characterized by a better brand perception and image of the market concerning acquisitions from digital startups or highly innovative tech firms. Huang and Yu (2023) argue that companies that

productively made intense, high-profile digital acquisitions increased their industry visibility and brand image as digital innovation leaders. Raising the market perception resulted in a more confident stakeholder, higher investor valuation, and larger market influence.

2.6 INTEGRATIVE PROCESS FOR DIGITAL TRANSFORMATION

Riedel and Asghari (2020) focused on the integrative process for the digital transformation of companies. For this purpose, they argued that mergers and acquisitions are the primary source of digital transformation and referred to this process as the digital business transformation (DBT). Another previous research conducted by Hagedoorn and Duysters (2002) aimed to assess the role of M&A in bringing tech improvements to firms. The findings revealed that M&A played a positive role in enhancing the firms' tech-related performance.

Han et al. (2018) aimed to assess the influence of technology M&A on the performance of the acquirer companies. To this end, they collected a dataset of 192 M&A of technological firms from 2001-2009. The findings showed that M&A led to the overlap of high-quality knowledge, which caused increased innovation performance within the acquiring firms. The study concluded that the acquirer company must obtain technological knowledge from the target company to enhance its innovation performance. Bustinza et al. (2019) highlighted that increasing M&A is an effective strategy for enhancing partnerships and R&D intensity. They further argued that it enhances product-service innovation, which helps improve the firms' performance.

Recent studies have focused on the role that M&A plays in advocating digitalization within organizations. In its fundamental sense, digital transformation via mergers and acquisitions appears to be a strategic tool that quickly builds digital skills, utilizing the novel technological infrastructure and enhancing the competitive advantage in highly dynamic markets (Banalieva & Dhanaraj, 2019). Chui et al. (2018) argue that digital M&A also speeds up the absorption of the technology-based capability and cuts down substantially on the time and the costs of internal learning by a considerable amount. This strategic route facilitates access to advanced technology platforms, intellectual property, and highly skilled digital talent pools. Based on the resource-based perspective, Dezi et al. (2018) supplemented the idea that digital

resources obtained through M&A can support a firm better positioned in competitive differentiation. On the other hand, the study suggested that if companies acquire technologically advanced firms, their digital assets will transfer to acquiring companies, such as proprietary software solutions, digital know-how, and customer analytics capabilities, fortifying market positions. Besides, acquiring these assets mitigates the risks related to their internal development, offering direct benefits regarding strategies and market response (Capron & Mitchell, 2012).

Yaghoubi et al. (2022) also claim that mergers and acquisitions can result in technological assimilation and the cultural change necessary for a successful digital transformation. Often, post-M&A, the need for significant organizational restructuring and cultural alignment (when conducted well) is a driver of digital agility. Angwin et al. (2016) argue that alignment of the corporate cultures of dependent firms is critical if M&A integration successfully acquires digitally oriented startups or firms with dissimilar operational cultures. Effective alignment management can lead to more innovative practices and better organizational digital collaboration.

Also, scholarly discussions assert that digital mergers and acquisitions would enable organizational learning and knowledge transfer on a significant scale. Datta and Roumani (2015) claimed that acquisitions, specifically tech-based firms, can be platforms for acquiring and disseminating digital knowledge. According to research, organizational learning has led to technological capability and promoted managerial practices and innovation culture, contributing to sustained competitive advantage. This view is extended by Bauer et al. (2016), which suggests that digital M&A helps firms bridge substantial knowledge gaps quickly. Strategic acquisitions allow companies that traditionally operated in non-digital industries or have had limited digital capabilities to quickly up-scale their digital competencies. This provides the ability for firms to respond swiftly to technological disruptions and consumer demands, as well as the competitive pressures that have the potential to undermine their market position.

Empirical studies reinforce these theoretical arguments. For example, Hagedoorn and Duysters (2018), who work on technology-driven acquisitions in the high-technology industries, can document that the acquirer's innovation output has increased significantly following the M&A. The findings indicate that companies aiming to overhaul their businesses with digital innovation were particularly successful

when they strategically sought to acquire firms with specialized digital skills and technological resources. Taking this further, Christensen et al. (2017) argued that great fit matters in digital M&A, agreeing that the acquired firms' digital capabilities must align with the acquiring firms' strategic objectives to be considered a successful transaction. They found that strategic fit between digital resources and capabilities of the acquiring and acquired firm was the key to greater success in integration and innovation. Conversely, acquisitions without a strategic fit face integration issues that reduce the anticipated benefits of the acquisition to a large degree.

Also, digital M&A can enhance operational efficiency by eliminating overhead and overlapping processes. Brynjolfsson and McAfee (2017) also note that a digital merger usually includes integrating an advanced data analytics platform, artificial intelligence tool(s), and cloud-based infrastructure. These technologies improve operational processes and decision-making capability and promote the efficient utilization of resources, resulting in performance enhancement after acquisition. Sarrazin and West (2018) looked at the implications of a digital M&A for business model innovation. According to them, following the acquisition of digital native firms, traditional companies can easily embrace new business models like subscription-based service, platform economy, and data-driven service customization. This quick adoption can significantly alter industry maps in ways that let incumbent firms weather digital spikes and consumer expectations.

Furthermore, Gomes et al. (2020) analyzed the fact that digital M&A can notably improve customer engagement capabilities. To this end, they underscored that firms that acquire advanced digital customer relationship management (CRM) platforms and data analytics capabilities have better access to customer insights, quality of service, and customer experiences. These capabilities tremendously increase customer retention rates, market share, and profitability, building even more strategic value to digital mergers and acquisitions. Nevertheless, digital mergers and acquisitions bring some significant integration difficulties. According to Warter and Warter (2019), research has shown that many digital M&As fail to achieve their announced strategic outcomes because of mismanagement of digital resource integration, cultural misalignment, and lack of focus on preserving critical talent after the deal. The study highlights the need for thorough planning, a strong change management framework, and efficient communication efforts to realize value after an acquisition.

From a regional perspective, studies focusing specifically on emerging economies such as Pakistan highlight distinct challenges and opportunities related to digital M&A. Khan et al. (2021) noted that while digital mergers in Pakistan remain relatively limited compared to developed markets, there is substantial untapped potential for growth due to the country's expanding digital infrastructure, increasing internet penetration, and growing governmental emphasis on digital economy development. However, a few notable constraints impede the speed and effectiveness of digital M&A transactions in Pakistan, including regulatory ambiguity, inadequate digital infrastructure, and insufficient technical expertise. Overall, it is irrefutably clear in the scholarly discourse that mergers and acquisitions play a strategic role in digital transformation. Digital M&A enables resource acquisition, accelerated technological integration, operational efficiency, and innovation-inspired business model evolution, conferring strategic leverage.

2.7 TECHNOLOGY INTEGRATION IN DIGITAL M&A

In today's corporate world, digital competence is the way of sustainability, deeming reason for organizations to use M&A as a strategic mechanism to quickly obtain advanced technologies and digital competencies (Westerman et al., 2014). In this part, integrating technology critical scholarly perspectives to technology integration during digital M&A processes by illustrating the importance, challenges, methodologies, and strategic results from digital technology integration in merged companies.

2.7.1 Significance of Technology Integration in Digital M&A

Digital M&A includes transactions intended to meaningfully transform the target's digital footprint or boost the technological capabilities of the target company through the strategic combination of digital assets. Hund et al. (2021) consider the integration of technology vital for digital M&A, as making technology allows firms to scale up digital innovations quickly, streamline processes, and win market opportunities that were previously out of reach. Effective integration of technologies provides a tremendous competitive advantage by enabling fast product innovation, enriched customer experiences, and strategic decisions driven by data (Nambisan et al., 2017).

Effective technological integration is an extremely important factor that significantly increases post-merger performance outcomes, improving operational efficiency, eliminating redundancy, and enhancing synergy in business processes (Chen et al., 2023). Technology integration is a key tenet of value creation in M&A, offering merged firms a means to achieve strategic goals like new market entry, diversification, and competitive differentiation (Bruner 2004).

However, integrating technology into digital M&A ought to face many challenges. Merging firms often have cultural differences that can hinder technological integration by having different levels of digital maturity, technology adoption, and readiness to innovate (Yu & Yan, 2022). This is due to differences in IT infrastructure and legacy systems and the incompatibility between enterprise technological platforms, which results in integration complexities, delays, and high integration costs (Sebastian et al., 2017). Moreover, cybersecurity and data privacy issues are prevalent challenges in digital M&A, particularly in merging information systems. The technological integration process is primarily concerned with data breaches, information losses, and digital regulations. Brutti and Rojas (2022) argued that failure to address these issues adequately could backfire on the effectiveness of the technology integration and the success of the M&A transaction.

2.7.2 Methodologies and Approaches for Successful Technology Integration

Methodological approaches and best practices for successful technology integration in digital M&A are addressed in the literature. Wide acceptance has been created of the need for a phased integration approach comprising initial assessment, strategy formulation, control implementation, and continuous evaluation (Moeini Gharagozloo et al., 2021). In the initial assessment phase, technology due diligence, compatibility, the scalability of the acquired firm's technological assets, and possibilities of creating synergies with the acquiring firm's technological assets are typically rigorous (Nambisan et al., 2017).

2.7.3 Agile Integration Methodology in Digital M&A

According to Zhou et al. (2023), agile integration methodology integrates an iterative, incremental, and responsive integration process that is quickly adaptable to evolving challenges and technological developments. In addition, having dedicated integration teams comprised of technology specialists from both organizations helps to deal with integration complexities, ensure good communications, and align technology goals with strategic goals (Fichman et al., 2014).

What: Agile Integration Methodology is a reactive approach to mergers and acquisitions (M&A) with emphasis on flexibility, iterative development, and reaction to emerging challenges as they arise. Unlike traditional, linear integration, Agile integration applies short, objective-based cycles (sprints) of integrating systems, processes, and cultures and includes frequent feedback and immediate adaptation (Fichman et al., 2014).

Why: Traditional M&A integration processes are likely to fall short of the complexities and dynamism of digital transformations. Conventional processes lead to delay, cultural discord, and value creation opportunities lost. Agile integration avoids these issues by inducing flexibility, enhancing collaboration, and enabling organisations to capture synergies more effectively (Fichman et al., 2014).

How: Agile integration is achieved by creating cross-functional teams that work in iterative cycles to integrate various aspects of the intermingling organizations. It includes ongoing feedback, prioritization of integration activities based on value, and pivoting plans as new information comes out. Real-time dashboards and AI-driven analytics are increasingly common to support decision-making and simplify integration activities (RESTRAT Consulting, 2025).

Outcome: Organizations that adopted Agile integration approaches have reported faster realization of synergies, improved team alignment, and more integrated integration processes. For instance, Cisco and Atlassian applied Agile tenets to integrate M&A more effectively, realizing enhanced digital transformation and long-term competitive advantages (RESTRAT Consulting, 2025).

With digital innovation, the ease and effectiveness of technology integration become very important in the digital M&A context. Ciriello et al. (2018) also highlight

digital innovation as a key facilitator in making technological integration less complicated by supporting flexible and modular technology architectures that can be joined or adapted more easily. Cloud computing, artificial intelligence (AI), blockchain, and advanced data analytics are technologies, among others, that facilitate integration and provide not just scalable and flexible digital platforms for collaboration but also can sustain post-merger integration (Yoo et al., 2012). Furthermore, firms that encourage digital innovation cultures and capabilities before and during the M&A process generally integrate technology more easily and create post-merger value quickly (Tu & He, 2023). Such firms reap the advantages of greater agility, reactivity, and capacity to handle technological and organizational conundrums offensively.

2.7.4 Outcomes of Successful Technology Integration in Digital M&A

The outcome of successful technology integration in digital M&A has been extensively added in the literature. If firms adopt structured integration strategies, such as phased or agile strategies, they are more apt to achieve value creation acceleration, operational efficiency, and competitive advantage (Zhou et al., 2023). Successful integration enables merged firms to streamline processes, eliminate redundancies, and leverage combined digital capabilities in getting products to market faster and improving customer experiences (Chen et al., 2023; Nambisan et al., 2017). Additionally, organizations that effectively integrate emerging technologies—such as cloud computing, artificial intelligence (AI), blockchain, and advanced analytics—report better data-informed decision-making and more responsive operating architectures. These allow for responses to marketplace changes at greater velocities, minimize merger-related threats after the fact, and provide scalable platforms for sustained innovation (Yoo et al., 2012; Tu & He, 2023). In particular, digital innovation cultures and previous technological capabilities significantly influence the simplicity and success of integration, which allows companies to achieve post-merger synergies more quickly and efficiently (Ciriello et al., 2018; Tu & He, 2023).

Empirical evidence from recent M&A studies demonstrates that firms employing iterative, agile, and modular integration methods not only merge technology more quickly but also enhance long-term financial and strategic performance. For instance, firms that employed agile integration practices experienced higher post-

merger digital maturity, better alignment of business and IT objectives, and higher overall resistance to technological disruption (RESTRAT Consulting, 2025; Hund et al., 2021). Therefore, technology integration is not merely a technical process but a strategic enabler, driving increased value realization from digital M&A transactions.

2.7.5 Impact of Technology Integration on Post-Merger Outcomes

The direct impact of technology integration on post-merger outcomes is related to operational efficiencies, innovation capability, and competitive positioning. Liang et al. (2024) identify well-integrated technologies that can boost efficiencies in operations by creating better automation, clean workflows, and more intelligent allocation of resources. This results in a reduction in the costs of operations, increased productivity, and better service delivery by organizations. In addition, efficient technology integration helps quicken innovation cycles for combined entities to deliver new products and services quickly based on integrating the technological assets and competencies of the merged entities (Westerman et al., 2014). Following the merger, post-merger firms with state-of-the-art integrated digital technologies tend to be more responsive to market needs and possess a greater capacity to engage with customers than their competitors, thus ensuring their superiority in the competitive marketplace.

The empirical studies illustrate how and why involving tech is decisive in achieving successful digital M&A outcomes. Similarly, Haque and Mazhar (2020) highlight the experiences of world-leading technology players, namely Google and Microsoft, which, following their acquisition strategies, engaged in strategic technology integration and achieved considerable technological innovation capabilities and market standing. Google's integration of DeepMind through an acquisition perfectly fits the technology assimilation case, which drove the boost to its artificial intelligence capabilities, generating product innovations. On the other hand, cases such as the AOL-Time Warner merger demonstrate how detrimental combinations of technology integration fall victim to significant financial losses, poor operational efficiencies, and the eventual collapse of the merged businesses (Corea, 2017). The cases above demonstrate the need for digital M&A to adopt strategic alignment, meticulous planning, and dedicated execution of ideas when integrating technology.

2.7.6 Technology Integration in the Context of Pakistan

The Pakistani horizons for digital M&A are relatively nascent; however, there is a growing interest in the mergers and acquisitions of technology-driven businesses. Despite this, literature shows substantial barriers posed by inadequate digital infrastructure, inconsistent regulatory framework, and lack of capabilities in digital innovation (Ahmed & Naeem, 2021). Given that the infrastructure is insufficient to withstand the problems of technology integration by Pakistani firms, coupled with the issue of digital illiteracy and resistance to change in technology. According to Nadeem et al. (2020), to be efficient and successful in the technology integration in Pakistan's digital M&A, there is a need for policy interventions, investment in digital infrastructure, and capacity building in digital skills and innovation management. Improved digital ecosystems and robust innovation cultures in Pakistani organizations can considerably mitigate integration challenges, leading to more strategic benefits from digital M&A.

The digital mergers and acquisitions (M&A) landscape in Pakistan is relatively new but is gaining increased momentum, particularly across technology-driven industries. Organizations are now realizing the strategic potential of M&A as a means of quickly acquiring advanced technology, digital expertise, and entry into new markets. Despite the heightened interest, literature points to significant barriers which hinder effective digital M&A and technology integration in Pakistan (Ahmed & Naeem, 2021). Some of these hindrances are poor digital infrastructure, non-conducive regulatory environments, limited technology adoption financing options, and absence of digital innovation capabilities. Among all of the key limiting factors for digital M&A success in Pakistan, the absence of sufficient technological infrastructure to support sophisticated integration processes is perhaps the most significant. Legacy IT systems, data silos, and uneven digital platforms are challenges that afflict many organizations, rendering harmonization of systems upon acquisition problematic. Coupled with this is a relatively low degree of digital awareness and resistance to organizational change, which tends to suppress efforts at effective integration of new technologies (Nadeem et al., 2020).

Policy interventions, digital infrastructure investment, and capacity building in digital competencies are therefore needed to bridge such obstacles. Enhancing the

digital environment through government policies—such as the Digital Pakistan Policy— along with innovation-driven organizational cultures can contribute significantly to minimizing integration challenges. Firms that build internal innovation capacity and a forward-looking digital strategy are likely to achieve post-merger synergies like faster product innovation, enhanced operating efficiency, and data-driven strategic choices (Tu & He, 2023; RESTRAT Consulting, 2025).

Unique national parameters also shape the need for an innovative M&A model in Pakistan. They include regulatory uncertainty, limited access to digital talent, and industry-specific limitations in traditional industries like manufacturing and services. Additionally, socio-cultural drivers such as hierarchical decision-making processes and conservative strategies for new technologies influence organizational readiness for digital transformation. Accounting for such unique drivers is crucial in developing a contextualized M&A model addressing the nation-specific concerns of digital integration and aiming for maximum strategic outcomes.

This review, aims to synthesize existing research on the state of digital M&A in Pakistan, highlighting the country-specific challenges and drivers for innovation. Insights derived from this review will inform the development of a conceptual model in Chapter 3, focusing on how Pakistani firms can strategically leverage digital M&A to enhance technological capabilities, operational performance, and long-term competitive advantage.

2.8 RISK RELATIONSHIP BETWEEN DIGITAL READINESS AND INTERNATIONAL M&A

Financial credit risk indicates the possible risk linked to lending, particularly the likelihood that a borrower may fail to repay the borrowed capital or default on their commitments. The assessment of financial credit risk seeks to address a complex problem: utilizing a set of economic indicators that represent a company's financial condition over a designated period and the group of companies categorized as either good or bad credit, financially stable or bankrupt, the goal is to estimate the likelihood that the company will enter a specific risk category or encounter insolvency shortly.

This assessment is typically termed credit rating or score, while the latter situation is identified as bankruptcy prediction or forecasting financial problems inside an organization.

Since digital readiness is becoming a strategic criterion for international investment, international M&A must be studied in the context of digital readiness. Digital readiness is the organization's or country's readiness to adopt, deploy, efficiently integrate, and optimize digital technologies, leading to increased operational efficiency and competitive advantage (Schneider & Kokshagina, 2021). Digital readiness is often used in international M&A decisions to assess target firms' value creation and innovation capacity to guide acquirers' strategic investment outcomes.

Gharagozloo et al. (2020) intended to assess the relationship between digital readiness and international M&A. For this purpose, they employed 1393 target US companies for M&A during 2010-2016. Their findings explicitly showed that the M&A of firms having high digital readiness caused an increased performance of the acquiring firms. They also reported that the capital reacts positively to such international M&As. Gomes (2020) conducted an overview study to assess the role of M&A in strategic development and change in firms. They reported that a multiphasic and interconnected approach should be employed to enhance the strategic growth in the post-merger scenario. A minority view also maintains that acquisition integration after M&A can cause a decline in technical development and innovation productivity. Paruchuri et al. (2006) reported that acquisition integration during the post-M&A phase disrupts the works of scientists and innovators, which could lead to a decline in performance and productivity. For this purpose, they employed a sample dataset of 3933 scientists from acquired firms. Their findings showed agreement with their hypothesis. In another study, Schiffbauer et al. (2017) aimed to find the association between productivity and M&A. To this end, they employed a dataset of firms in the UK involved in M&A from 1999-2007. Their findings revealed a positive influence of M&A on labor performance. In another relevant study, Bernad et al. (2010) appraised the impact of M&A on the productivity of Spanish firms. Their findings showed that productivity improved in only 50% of the firms within the sourced sample dataset.

In his conceptual study, Margiono (2020) explicitly highlighted that digital transformation is essential for companies to gain optimal growth. For this purpose, the

author recommended two paths: (1) to acquire digital resources by employing the option of portfolio investment and (2) M&A tactics such as digital consolidation, talent acquisition, and technology integration are commonly used to enhance innovation and operational efficiency after mergers. The author concluded that such aggressive paths for digital transformation should be employed because they are rapid. He et al. (2020) researched to highlight the vitality of digitalization for firms in terms of performance and competitiveness in the current era. They also argued that M&A presents an essential opportunity for achieving digital transformation.

Mihaiu et al. (2021) aimed to assess how M&A influences the performance of the acquiring companies. For this purpose, they employed 100 pharmaceutical companies and examined their M&A transactions from 2010-2020. Their findings revealed that M&A depicted a positive influence on the performance of pharmaceutical organizations. In another study, Hess et al. (2016) argued that digital transformation is a pertinent strategy for the increased performance of firms. They reported that M&A presents a feasible digital transformation option to achieve this.

Concerning digital M&A, Uhlenbruck et al. (2006) assessed the market value effects of the M&A of internet firms on acquirer firms. Their survey findings exhibited that the merger of the internet was positively related to the market valuation of the acquirer company. Kiessling et al. (2019) reviewed the role of M&A in the dynamic market scenario. For this purpose, they gathered 933 Scopus articles and analyzed them. They found that cross-border M&A is positively associated with the firms' competitive edge in the dynamic market. Calipha et al. (2018) conducted a theoretical case analysis to assess stages in M&A that led to knowledge integration. They found that knowledge acquired during the M&A scenario and knowledge integration in the post-merger scenario are critical stages for the knowledge transfer process in M&A. It eventually ensures performance improvements.

Some researchers have also targeted innovation improvement to assess the performance of the companies. In this regard, Fei et al. (2019) evaluated the influence of overseas M&A on the innovation enhancement of corporations. For this purpose, they employed a sample of 146 foreign M&A performed by Chinese firms from 2001-2016. Their findings exhibited an improvement in innovation in these firms after the merger. They also found that firms can employ the tacit digital knowledge of the host

country to enhance innovation. Hensen and Dong (2020) aimed to highlight how IT resources are crucial for increased innovation and organizational performance within firms. For this purpose, the dataset of 1028 firms was employed from 2003-2007. Their findings revealed a positive association between IT resources and innovation performance. Xue et al. (2021) conducted an empirical study to assess the effect of the M&A of industry peers on innovation. For this purpose, they employed a dataset of Chinese firms for 2011-2015. Their findings showed increased R&D intensity within the firms, which implies higher digital innovation performance.

Lodh and Battaggion (2015) aimed to assess the role played by M&A in enhancing technology and innovation knowledge in biotech firms. For this purpose, they employed a sample dataset of 200 biotech companies from 1990 to 2009. They found that M&A positively influenced increasing the depth of technological knowledge and innovation in these firms. Liu and Zou (2008) performed a study to assess the influence of M&A on Chinese high-tech firms. For this purpose, they employed panel data analysis. Their findings revealed that M&A helps increase companies' innovation. The productivity of the firms was also improved for the given sample.

Some recent studies emphasize the importance of digital readiness to cross-border M&A performance. For example, an empirical study was conducted by Lewellen and Park (2022) using a database with 870 cross-border M&A transactions between the technology and non-technology sectors from 2010 to 2020. In their analysis, one could explicitly discern that the acquiring firms that focused on realizing targets with high digital readiness always surpassed those that selected firms with low digital abilities. The improved performance of the analyzed target firms was attributed to the rapid technological integration and increased innovation speed resulting from the target firms' digital maturity, which in turn validated the notion that digital readiness is an essential parameter in post-M&A success. Alternatively, Lu et al. (2022) studied the digital readiness of firms that conduct cross-border acquisitions on the absorptive capacity. Using a panel dataset of international M&A deals between European and Asian firms from 2012 to 2019, the researchers found that the absorptive capacity of the acquiring firms improved where target firms were digitally ready. This, in turn, enhanced the absorptive capacity of acquirers, allowing them to leverage newly acquired knowledge and innovative technologies post-acquisition, leading to sustained competitive advantage and operational efficiency increases.

Moreover, digital M&A cross-border transactions are inherently associated with governing different regulations cultural and technological complexities. In this setting, the firms with more digital readiness have better capabilities to overcome these complexity issues, enabling them to use the integration process more smoothly. Srari et al. (2023) found that when international acquisitions seek digitally mature firms, those risks associated with the misalignment between cultures and incompatibility over technology are significantly mitigated. Comparative analysis of European multinational corporations making acquisitions across Asia markets discovered that digitally mature targets reduce the complexity of the integration process by providing compatibility with technological standards, data management processes, and digital infrastructure.

Furthermore, investor perceptions and international market valuation in the case of an acquisition are positively affected by digital readiness. Ahn and Kang (2023) investigated responses to 532 cross-border M&A announcements where digitally mature firms are involved in the fintech and telecommunications sectors. Using their event-study analysis, they found that acquiring firms seeking out digitally ready companies have significantly positive abnormal returns, providing evidence that the market views digital readiness as a predictor of future innovation potential and strategic synergies to be realized upon acquisition. Similarly, another important facet that binds digital readiness with international M&A outcomes is the ability to create innovative solutions after acquisition. Technology industries of US and European firms conducted 385 international M&A transactions in the decade from 2010 to 2020, according to Chou and Huang (2022). They found that acquisitions of digitally mature firms improved post-merger innovation performance when the acquiring firm experienced significant increases in patent activity, new products launched, and R&D capabilities. Effective technology transfer, quicker digital transformation, and good digital platform synergy enabled by digital readiness led to this improved innovation performance.

Moreover, digital readiness enables organizational agility, ensuring post-acquisition integration success and higher operational effectiveness. Park et al. (2023) researched 412 cross-border digital M&A deals between Asian firms from 2011 to 2021 and found that firms that take on the roles of digital agility in the acquiring and acquired positions lead to smoother operational integration, shorter integration times and lower integration costs. The study's main result is that a firm's organizational agility enhanced by the digital maturity of the target firm contributes to accelerating the achievement of

anticipated operational synergies post-acquisition, contingent on the robustness of digital infrastructures and digital skills of the target firm's workforce.

Moreover, it also affects the long-term competitiveness of acquiring firms in being able to effectively exploit digital assets in post-M&A. Martínez-Costa et al. (2022) carried out a comprehensive analysis based on 650 European cross-border acquisitions performed during the period 2015-2020 and found that digital readiness is a determinant of sustained competitive advantage. In particular, they discovered that firms acquiring digitally mature targets exhibited better competitive positioning in the long run by acquiring customer analytics capabilities, streamlining digital processes, and upgrading service innovation. Additionally, Buono and Calipha (2022) have recently developed a conceptual model that brought to light the significance of digital readiness as a strategic predictor of the effectiveness of knowledge transfer in cross-border acquisitions. The authors established that digitally mature target firms significantly enhance the ability to acquire organizations to effectively internalize and use absorbed knowledge, leading to improved strategic agility, digital innovation, and competitive responsiveness.

In addition, digital readiness also helps support better data governance and cybersecurity practices in international M&A, drastically reducing integration risk. According to Herath and Gupta (2023), their research of 120 digitally mature firms' international acquisitions in the financial service and technology industry from 2016 through 2021 showed a positive association between digital readiness and more robust data governance frameworks and cybersecurity resilience post-acquisition. However, using these robust digital practices increased reliability, decreased vulnerabilities of integration activities, and increased regulatory compliance, all critical factors to integration success. It has also been shown that firms' digital readiness increases their attractiveness as an international acquisition target. Researchers like Lee et al. (2023) argued that such premiums stemmed from acquiring firms' anticipation of fast innovation integration, swift market entry, and short-term strategic edge realized by the acquired firms' digital prowess.

2.9 SECTORAL VARIATION IN DIGITAL M&A ADOPTION IN PAKISTAN

Although digital M&A adoption remains primarily constrained in Pakistan by structural barriers such as poor IT infrastructure, digital leadership incompleteness, and integration challenges, these constraints are not uniformly distributed across all industries. Sectors such as telecommunications, FinTech, and e-commerce have demonstrated relatively higher success rates in adopting digital M&A. For instance, Alibaba's acquisition of Daraz enabled the local e-commerce platform to scale up operations with access to international logistics, digital payment facilitation, and technology support (Dawn, 2018). Similarly, Ant Financial's investment in Telenor Microfinance Bank strengthened the mobile payments ecosystem in Pakistan, driving Easypaisa's digital growth (Reuters, 2018). Such industries are complemented by stronger digital ecosystems, greater access to funding, and meaningful exposure to global tech networks (GSMA, 2022; PIDE, 2021). Conversely, industries like manufacturing and textiles lag behind with low levels of IT expenditures, digital capability deficits, and bureaucratic organizational structures (World Bank, 2020; ADB, 2022). This industry cross-difference suggests that the use of digital M&As depends on the situation, underscoring the need for sectoral-level analysis.

2.10 ROLE OF M&A IN THE INTEGRATION OF INFORMATION SYSTEMS (IS)

Henningsson et al. (2018) aimed to assess how M&A is useful in the integration of information systems. Alkaraan (2021) argued that M&A in the current era has emerged as a wave for digital transformation and knowledge acquisition. They reported that it can help companies move towards Industry 4.0, significantly improving production processes and performance. In another relevant review study, Osmundsen et al. (2018) reported that M&A leads to digital transformation and information system integration within acquirer firms. They found that this digital transformation causes increased organizational performance in companies. Gomes et al. (2020) reviewed papers related to M&A in 27 journals in another review analysis and concluded that M&A is highly correlated with the increased organizational performance of firms. Chang et al. (2014) conducted a case study to evaluate the integration of information systems (IS) during the post-M&A scenario. The case study involved two high-tech firms. They found that

post-merger standardization processes are crucial for increasing the performance of the acquirer firm.

Some researchers have associated M&A with increased technical resources and the resource-based perspective. Tao et al. (2017) aimed to examine the trend of M&A within Chinese firms to obtain a competitive advantage. For this purpose, they included a case study of 3 Chinese firms and found that M&A is quite significant for extension into emerging markets from the firms. Tarba et al. (2019) surveyed the role played by M&A in increasing the organizational performance of the firms. The study focused on human resource management (HRM) as the leading indicator and found a strong positive association between HR and M&A. The author also found that it enhanced the organization's innovativeness, which helped increase organizational performance.

Li (2022) aimed to evaluate the influence of M&A on the technical position of industrial firms in the market. They found that the firms are more inclined towards adopting the target firms' knowledge resources, strengthening their market performance. Fernández, Triguero, and Alfaro-Cortés (2018) intended to evaluate the influence of M&A on the innovation of telecommunication equipment firms. They subjected the collected data to the matching score propensity approach. Their findings depicted that the internal technology capabilities of the acquired firms play a crucial part in increasing innovativeness. However, some researchers have argued that M&A does not guarantee improved organizational and financial performance unless acquired resources are managed well. In this regard, Dezi, Battisti, Ferraris, and Papa (2018) employed a systematic LR method that depicted M&A as an essential corporate strategy; however, certain post-merger risks are involved, which can impact the organizational or financial performance of the companies.

Rennings et al. (2022) examine the cross-industry M&A in the information industry to assess the extent of digital transformation. For this purpose, they analyzed M&A deal data from the Journal of Mergers and Acquisitions. They found that these firms showed significant digital transformation post-M&A. This eventually helps in increasing firm performance. Moreover, Kar et al. (2021) executed a study to assess the association between firm performance and M&A in Indian firms. For this purpose, they sourced a sample of mergers from 1991-2003. The findings depicted a positive effect on the performance of companies in sectors after the merger, including the

pharmaceutical, banking, and finance industries. In a similar study, Abdul-Ramon and Ayorinde (2021) determined the influence of M&A on the performance of companies in the Nigerian context. To this end, they employed a survey-based approach for the firms involved in M&A. Their findings revealed that M&A can cause operating losses in the short term.

Hedman and Sarker (2015) aimed to assess the integration of information systems because M&A information systems are considered quite valuable for organizational performance. They further argued that M&A often fails to deliver the promised increase in financial value because of the low integration of IS. They concluded that there should be an alignment between M&A and IS acquisition strategies. In their study, Evens and Donders (2016) highlighted that M&A has increased the performance of companies in many industry sectors, such as TV broadcasting. However, they argue that the recent increase in the trend of M&A has created particular challenges for mergers. They found that these challenges are related to increased competition and industrial and media policymaking. In more relevant research to the current study, Chang and Cho (2017) aimed to highlight the risks and challenges for large firms in the M&A of IT firms. They specifically focused on post-merger risks and challenges. They reported that firms more concerned with customer-side motives are more exposed to post-merger risks. They found industry dynamism as the moderator between these risks. Kooli and Lock Son (2021) aimed to assess the challenges imposed by the coronavirus pandemic on mergers and acquisitions. They argued that during the pandemic, challenges related to capital restructuring occurred. They concluded that in the future, M&A deals will need to develop technically different business models to tackle such unexpected post-merger challenges.

Tanriverdi and Uysal (2011) also conducted a study to inspect the integration of IT systems in the acquirer companies and their impact on the company's performance. For this purpose, they sourced a dataset of 141 M&As and subjected them to analysis.

The findings revealed that the firms that integrated the information technology for the long-term post-merger period showed better value creation performance. Ahammad et al. (2017) highlighted that during M&A, it is quite essential to effectively acquire all the technical and knowledge resources of the target firms. For this purpose, they surveyed 111 M&A practitioners. In the context of a non-market environment,

findings showed that M&A significantly adds to firms' organizational performance. Irwin et al. (2022) conducted a study to examine the dynamic capabilities (DC) acquired in an M&A and their impact on company performance. Their results showed that DC added positively to the long-term performance of the firms post-M&A. They also reported that uncertainty factors play a negative moderating role in this linkage.

2.11 KEY CONSTRUCT AND RELATIONSHIPS

The integration of the current studies on mergers and acquisitions (M&A), digital transformation, and innovation demonstrates that the comprehension of how digital M&A influences firm performance, particularly in the emerging markets such as Pakistan, is disjointed. Although previous studies have individually analyzed these constructs, fewer of them have synthesized them in a single integrated framework that comprehends their mutual interdependence in dynamic as well as scarce resource environments. Theoretically, the Resource-Based View (RBV) can account for the motivation for gaining strategic digital capabilities and assets via M&A. Yet, RBV cannot account for the speed and magnitude of technological change that necessitates firms' constant reconfiguration of resources. The Dynamic Capabilities Theory (DCT) builds upon this logic by underlining organizational adaptability and integration abilities post-acquisition. Meanwhile, the Innovation Diffusion Theory (IDT) elucidates how technological knowledge and innovation spread between merging firms, but it often overlooks contextual barriers such as cultural resistance and weak institutional support. Therefore, these perspectives must be integrated to fully explain the innovation impact of digital M&A.

Empirical evidence of global studies suggests that successful digital M&A performance rests on three interconnected factors: pre-M&A digital readiness, integration capability, and innovative culture. Firms performing M&A with relatively well-established digital infrastructures and high absorptive capacities have higher chances of internalizing external technology and generating innovation. However, studies also suggest that contextual moderators such as digital infrastructure, institutional controls, and managerial mindset could also have a dominant influence in shaping these relationships, especially for emerging economies.

Synthesizing these conclusions, it becomes evident that digital M&A outcomes cannot be explained through abstract theoretical models. Instead, they emerge from the interaction between internal capability (RBV and DCT), innovation processes (IDT), and context forces (Institutional Theory). This synthesized perspective generates the conceptual foundation for the Digital M&A Innovation Framework described in this research. It connects pre-merger readiness, strategic intent and digital integration capability to innovation performance and organisational effectiveness within the boundaries of moderating effects of contextual and cultural factors of Pakistani industrial economy.

2.12 CHALLENGES IN DIGITAL M&A

Integrating digital technologies post-merger is often challenging, notably when the acquiring firm lacks expertise in digital domains. Kaufman (2019) emphasizes that cultural differences and a lack of alignment in digital strategies often lead to the failure of M&A deals (Fei et al., 2019). The developed countries have been developing new mechanisms. But on the other hand, there is a very low condition for the regions that are not going well. This has been seen in emerging economies like Pakistan (Fatima et al., 2022). Many regulatory frameworks have been made for digital innovation and cross-border M&A (Shehzad et al., 2021). The people remain underdeveloped in these kinds of regions. The study has been conducted, and this creates uncertainty for investors.

Moreover, some managers delay finalizing the deal, which makes the issues that are found to be resolved at a very late date and point in time. It has often been adopted (Fernández et al., 2018). The value of these decisions tends to decrease. There must be some focus on comprehensive pre-M&A planning. The strategic-level things that are only done by the top management of these firms (Gregory et al., 2018). It has been determined that these firms do not cater to the hour's needs and want to apply a rough strategy. These are the strategies that tend to provide very few outcomes. These little outcomes are not sufficient for growth. The lack of advanced digital infrastructure is a significant barrier in emerging markets. In Pakistan, limited access to high-speed internet, underinvestment in R&D, and outdated technological systems hinder the adoption of digital M&A practices (Ahmed, 2023).

Integrating different organizational cultures in digital M&A is a significant challenge when acquiring digitally oriented firms with agile cultures driven by innovation, which is commonly very different from more hierarchical or traditional corporate structures. Kim and Finkelstein (2022) claim in a thorough analysis that cultural incompatibility often impedes communication, collaboration, and mutual understanding after a merger. Additionally, they discovered that disparities in risk tolerance, decision-making process, and digital innovation attitudes toughen integration problems during mergers. Many acquiring firms do not pay enough attention to deliberate strategic alignment, proactive communication, and well-structured change management programs to effectively manage cultural integration.

Moreover, there is another formidable challenge regarding a mismatch in digital strategies between acquiring and acquired firms. An effective M&A of digital organizations often leads to integrating organizations with fundamentally different strategic visions regarding technology deployment, innovation processes, and digital positioning in the market. Clarysse et al. (2023) recently presented an empirical study on the causes behind the failure of technology-focused acquisitions made by European firms, which suggested that strategic misalignment is a key precursor to integration failure. Without clear pre-acquisition assessments and alignment of digital strategies, firms may not be able to realize synergies, and the integration phase may be prolonged with substantial operational disruptions and lower competitive advantage.

In addition, there are regulatory ambiguity and inadequate legal frameworks, which are particularly pronounced in emerging markets and create other obstacles to digital M&A, as international acquisitions are likely to encounter disparate regulatory standards in data governance, privacy compliance, cybersecurity norms, and intellectual property rights (Xu & Meyer, 2022). In their research on digital acquisitions between European and Asian firms, Xu and Meyer highlighted that regulatory complexities often lengthened the acquisition timelines, raised compliance costs, and caused uncertainty among investors. One contributing reason to such uncertainty is the underdeveloped legal frameworks for digital transactions in markets like Pakistan, which diminish investor confidence and discourage cross-border digital investment activities (Ahmed & Anwar, 2023). In addition, digital M&A initiatives are severely impeded by the absence of adequate digital infrastructure. Limited technological resources, such as internet connectivity's unreliable or slow speed, the absence of robust cloud computing

services, and legacy systems, have always been the hotcakes for emerging economies. Fatima and Malik (2022) conducted a detailed investigation of the readiness of Pakistan's digital infrastructure, finding its limitations to be severe because of a lack of technology infrastructure. In particular, they found that such constraints fundamentally disintegrate post-merger digital integration, reducing firms' ability to exploit newly acquired digital assets and diminishing overall expected strategic benefits from digital acquisitions.

Likewise, the digital-skilled talent deficit in the market aggravates integration challenges and thus prevents a smooth digital M&A experience. This is because one of the means organizations use to go through digital transformation through acquisition is digital-skilled talent for managing digital systems, cybersecurity protocols, data analytics platforms, and innovative technology implementations. As stated in a comprehensive study by Cram and Marabelli (2022), companies that buy digital entities often underplay the complexity of the integration of talent, resulting in a high post-merger turnover, talent attrition, and diminished organizational capacity. Specifically, given the lack of digital talent in acquiring companies, risks from integration do exist, leading to poor acquisition of digital assets, technological inefficiencies of acquired companies, and decreased performance.

However, an inadequate or superficial due diligence process during the pre-acquisition phase erodes digital M&A success even further. When acquiring an entity, organizations often forget to carefully evaluate the technological compatibility, cybersecurity vulnerability, data management practices, and digital governance systems. Rao and Agrawal (2023) conducted an empirical study of more than 300 technology acquisitions worldwide to analyze the strategic sources of post-merger risks, integration costs, and operational disruptions that result from inadequate digital due diligence. They highlight the importance of strictly overseeing digital audits and having a technology compatibility assessment as prerequisites for successful digital integration and synergy realization. Other people must deal with the challenge of handling cybersecurity risks when integrating digital systems after an acquisition. If left unattended, cybersecurity vulnerabilities can enable acquiring firms to face a high risk of data breaches, operational disruptions, and tarnished reputations. In their research, Puranam and Singh (2023) showed that cybersecurity incidents following the merger were much higher for firms that did not conduct thorough cybersecurity assessments

during acquisition processes in the fintech and healthcare sectors. In most cases, these vulnerabilities are caused by gaps between merged entities' incompatible security systems, weak cyber-risk governance frameworks, and inconsistent cybersecurity protocols.

Significantly, integration challenges of digital M&A are exacerbated by managerial uncertainty and imprecise leadership clarity since firms tend to underestimate the need to define explicit leadership responsibilities and clear integration governance frameworks after the deal closes. According to a study on managerial practices in digital transformation at the firm level, managers were determined to have unclear leadership accountability rooted in ambiguous strategic directions and drawn-out integration milestones, leading to employee disengagement (Lazonick and Shin, 2022). As key elements in integrating digital, they argued for clearly defined leadership roles and responsibilities. Similarly, cross-border digital acquisitions are also fraught with peculiar challenges that arise from gaps between digital maturity and technological adoption between the acquiring and the targeted market. Digital maturity differences are found to significantly pull-out integration timelines and complicate efforts to harmonize technology, according to recent research by Gehrke et al. (2023). Many acquisitions of firms from technologically advanced countries investing in the less digitized emerging economy encounter integration bottlenecks, considerably delaying the expected digital transformation benefits and the anticipated monetary synergies.

Also, many digital acquisitions fail to achieve the possible synergies due to unrealistic synergy expectations, which causes the merger's failure. Commonly, managers overestimate an anticipated reduction of costs, revenue increase, or speedy market expansion resulting from digital acquisitions. Unrealistic synergy projections result in inflated valuations followed by asset impairments and integration disappointments, as Banalieva and Sarala (2022) pointed out. Based on this, they stressed the need to take a realistic, data-driven approach to synergy assessments in the pre-acquisition phase to reduce risks of value destruction. Overall, there are many challenges to the M&A transaction success in the digital space, with cultural misalignment, strategic incompatibility, regulatory complexities, lack of infrastructure, cybersecurity vulnerabilities, lack of available talent, uncertain managerial calculus, unrealistic synergy expectation, or some combination of these variables. These broad

challenges must be addressed through pre-acquisition planning for comprehensive solutions, exhaustive due diligence processes, effective governance frameworks, strategic alignment of digital capabilities, and active talent management approaches. Recognizing and dealing with these complexities systematically are vital for firms that aspire to use digital M&A to their benefit.

2.13 DIGITAL M&A IN EMERGING MARKETS

Emerging economies offer significant growth opportunities for digital M&A due to their expanding consumer bases and increasing technology adoption. Certain aspects of these markets face unique challenges that differentiate them from developed economies. There are many aspects, despite the concerns about global trends. Many global issues have been emphasized in research, but digital transformation is essential in M&A (Gharagozloo et al., 2020).

Alignment with international standards varies. There appears to be a lack of commitment and ethical diligence among some individuals in their professional roles. This study explores the barriers limiting the success of digital M&A in Pakistan. There are many kinds of insufficiencies in digital innovation that exacerbate these challenges. As a comparative example, India's digital M&A landscape demonstrates the potential of strategic investments in digital innovation. Government initiatives like Digital India and the proliferation of start-ups have created a conducive environment for digital M&A. According to Gomes et al. (2020), India recorded over 120 technology-driven M&A deals in 2019, reflecting a growing focus on digital transformation. Pakistan, by contrast, lags due to several factors, including a lack of policy incentives, insufficient investment in technology startups, and limited collaboration between private and public sectors (Grigorios, 2018). The country was found to be working fine, but some digital M&A deals have occurred. All of them were good, based on their scale and impact. This was minimal compared to regional counterparts (Iqbal, 2022).

A growing base of digitally engaged consumers and businesses is one of the main drivers behind the increased digital M&A activity in emerging markets – much driven by increased smartphone penetration and internet connectivity. According to Cuervo- Cazorra and Rui's (2022) recent empirical study, emerging markets driven by technology and consumer trends, such as inclining mobile commerce and digital

payment, have become appealing to digital-centric M&A. Asian and Latin American countries have also used to measure the surge in M&A activity in particular sectors such as e-commerce, fintech, and digital media, which coincides with a rise in digital adoption among younger generations.

Despite the morality of these trends, emerging economies remain challenged by significant structural challenges that impede effective digital M&A. Research uncovered a primary barrier in recent literature: inadequate digital infrastructure, including lack of broadband access, unreliable power supply, and poorly developed digital logistics networks. Raza et al. (2023) provide details of research on Pakistan's digital infrastructure, which suggests the increase in internet access but the poor level of quality and reliability of digital connectivity is inadequate to support digital M&A. Consequently, the inadequacy of infrastructure has a lasting and significant effect on market capability for expansion and adoption rate of innovation post-acquisition that ultimately discourages investors and strategic involvement. In addition to these infrastructural limitations, it must be noted that regulatory environments can be complex and uncertain in operations. Regulatory ambiguity about digital transactions, data privacy, cybersecurity, and intellectual property rights tends to be the traits of emerging economies (Walden & Christou, 2018). Meyer and Peng's (2023) studies about digital M&A in Southeast Asia and South Asia identified the uncertainty of existing and incoming regulations as a significant obstacle for multinational corporations (MNCs) to make comparably substantial investments. However, due diligence for digital acquisitions is complicated by the unpredictable regulatory landscape, leading to the perception of investment risks and dissuading foreign investors from pursuing large digital acquisitions.

Moreover, there are also some significant differences in the approach of governments, policy initiatives, and the strategic thinking of the market between India and Pakistan, which directly impact the way digital M&A takes place in a country. An example of such government initiatives for growing technology is India's "Startup India" and "Digital India," which have become extremely attractive for India's technology sector, and they have created a structure of growing digital mergers and acquisitions (Pal & Tripathi, 2022). On the other hand, Pakistan's digital M&A ecosystem is yet to be built owing to inadequate public and private sector collaboration and bonuses from the government. However, an analysis by Khan & Malik (2023) stated

that Pakistan's large youth population and growing internet consumption do not help the realization and size of digital M&A activities in Pakistan due to the lack of targeted policies and subsequent lack of strong governmental support.

Moreover, there is also a deep digital talent shortage prevalent in emerging markets that aggravates integration complexities post-acquisition. According to Singh et al. (2023), in their recent study about digital acquisition in Brazil, India, and South Africa, there are immense talent gaps in cybersecurity, software development, and data analytics. The other argument they had was that acquiring companies often struggle to successfully integrate new digital assets because the local digital expertise is not strong enough, which negates expected strategic and operational synergies. Similarly, cultural dimensions in emerging markets also pose unique integration problems in the digital M&A contexts. Tadesse et al. (2022) assert that research exploring digital mergers in Sub-Saharan African markets contends that cultural factors play a major role in determining the acceptance and the use of any newly acquired digital technology. In markets with strong collectivist and hierarchical cultures, they showed that integrating innovative digital practices after M&A tends to face strong resistance from employees who are used to traditional management practices and organizational structure.

Concerning the availability of financing for digital M&A transactions, emerging economies face considerable barriers, especially within less developed financial markets. For instance, Khan et al. (2023) highlighted that lack of access to capital and shortage of financial tools for investment in technology are key hindering factors of digital acquisition in countries like Pakistan and Bangladesh. According to their research, these markets exhibit considerable potential for digital growth, but their financial infrastructure and investor hesitation often slow or diminish the scale of possible M&A deals. Additionally, the financial volatility in emerging markets also increases the uncertainty involved in digital M&A investments, given the risks of political instability present in these markets. Gawer and Bonina (2024), who researched digital acquisitions in developing countries, studied the major deterrents for international firms making digital acquisitions, such as political and economic instability. Such regions are volatile and have confusing economics, volatile exchange rates, and inconsistent policies, which discourage international investors from making substantial long-term investments in the digital field of such regions.

2.14 RELATED WORK

Companies increasingly use digital M&A as a strategic tool to increase innovation, competitiveness, and digital transformation. An increasing amount of written work studies the relationship between mergers and acquisitions and innovation performance, especially in industrial sectors moving into the digital economy. Scholars like Hagedoorn and Duysters (2002) were among the first to suggest that M&A, especially in high-tech industries, can boost innovation by transferring and integrating capabilities.

Recent studies have looked at digital M&A, specifically how the technological ability that an acquirer and acquiree negotiate during an acquisition can shape the performance of the combined organization (Capron & Mitchell, 2012; Li et al., 2016). The term “digital M&A” refers to the acquisition of firms possessing digital capabilities (e.g., data analytics, AI, or platform-based technologies) in which the acquiring firm’s aim is often rapid digital transformation (Bughin et al., 2018). According to this, technological fit and digital cultural fit are critical for post-merger integration and innovation outcomes. Bock et al. (2020) argue that emerging economies have a dearth of literature concerning digital M&A strategies, even though there has been a rise in digital infrastructures. In South Asia, especially Pakistan, studies like Qureshi and Shah (2021) show that industrial firms practice digital M&A to remain competitive as globalization and technological disruption increase. However, there are challenges of institutional voids, regulatory barriers, and cultural heterogeneity that prevent successful integration (Khan et al., 2020).

M&A literature is usually linked to financial performance, but recent studies suggest a broader perspective, looking at innovation performance, market orientation, and digital agility (Wamba et al. 2017). Analysis of Ahuja and Katila (2001) suggests that post-merger and acquisition (post-M&A) innovation will depend on the technological assets obtained and the acquiring firm’s absorptive capacity and innovation management. Furthermore, in the literature on contingency theory, it is assumed that digital M&As do not universally lead to positive performance outcomes. Instead, this performance depends on contextual factors such as leadership readiness, IT capability, and strategic fit (Venkatraman, 1989; Tallon, 2008). The recent work of Bauer and Matzler (2014) argues that dynamic capabilities, such as adaptation and integration mechanisms, are essential to achieving sustainable performance

improvement in digital M&A. A significant deficit in research is the absence of theoretically relevant frameworks that incorporate digital preparedness, innovation strategy, and post-M&A performance, especially in the case of developing countries. The existing models are highly Western-oriented and may not appropriately depict the institutional environment and technological limits of industrial firms in Pakistan. This research helps connect the gap by developing a digital M&A innovation model using an organizational culture, self-organizing digital networks, and macro-level digital health environments. Overall, the literature on M&A, digitalization, and innovation has significant insights, but there is scope for more integrated and contextualized models, especially in the industrial settings of developing economies. In response to this gap in the literature, the current research proposes a framework for the Pakistani industrial sector, employing a mixed-methods methodology to capture overall patterns and performance of digital M&A.

2.15 DIGITAL M&A CHALLENGES IN EMERGING MARKETS IN PAKISTAN

Digital mergers and acquisitions (M&A) are today a global strategic imperative for organizations with the aim to acquire new technological assets and spur more innovation. The mergers and acquisitions facilitate product diversification, business model creation, and more competitiveness in the markets. The need for digital transformation is particularly salient in the emerging markets of Pakistan, where governmental strategies such as the "Digital Pakistan" policy make explicit the necessity for leveraging digital assets in propelling growth and development.

Yet, despite such promising opportunities in digital M&A, its implementation in Pakistan has substantial challenges. Numerous companies have high failure rates while trying to incorporate digital assets because of such challenges as limited IT infrastructure flexibility, low digital readiness, organizational resistance, and poor post-merger integration practice.

Mergers and acquisitions (M&A) are now a key strategy for Pakistani business to promote innovation, increase competitiveness, and become part of the rapidly evolving world digital economy. M&A to procure digital capabilities can facilitate diversification of the product range, enhance business models, and leverage emergent

technologies that are crucial for growth in the future. However, although being strategically crucial, many digital M&A initiatives in Pakistan face alarming failures and a high rate of failure. The reasons for the failures mainly lie in structural limitations such as IT infrastructure inflexibility, low digital preparedness, resistance at the organizational level, and a failure to have systematic post-merger integration procedures. This irony that digital M&A is both necessary and difficult to execute successfully reflects the distinctiveness of digital transformation in emerging economies. Instead of discouraging such efforts, these problems highlight the call for customized frameworks and local approaches that work within Pakistan's distinctive economic and technological environment. This research hence purports to examine the determinants of effective digital M&A in Pakistani companies and determine their critical enablers and inhibitors. While doing so, it seeks to provide actionable recommendations that reduce failure rates and empower Pakistani businesses to reap the full value of digital M&A, thus facilitating the country's overall digital economy vision. Comprehending the paradox is critical to designing the research questions and methodology of this study. The next chapter describes a research design crafted specifically to overcome these contextual difficulties and explore factors that drive digital M&A success in Pakistan.

2.16 GAPS IN DIGITAL M&A IN PAKISTAN

The inadequacy of digital innovation in Pakistan is a significant obstacle to prosperous M&A. Pakistan spends less than 1% of its GDP on R&D, limiting technological advancements (World Bank, 2023). The lack of a skilled workforce in emerging technologies such as AI and data analytics affects the ability of firms to engage in digital M&A (Haider, 2023). The absence of comprehensive digital transformation policies inhibits the technology sector's growth.

Table 2.1 Synthesis and Analysis of Important Studies from Previous Literature

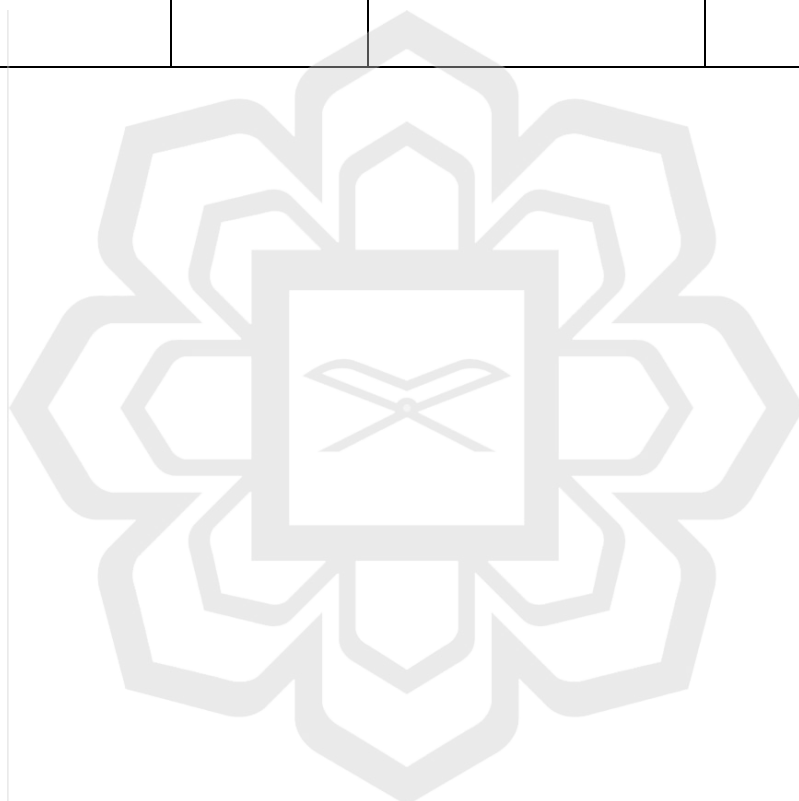
Article #	Title	Author(s)	Year of publication	Text Analysis	Feedback and Synthesis	Gap(s)
	Impact of Mergers and Acquisitions on Corporate Performance: A Case Study of Silknet Company	Pachulia	2021	The author conducted case-study-based research to assess the impact of M&A on the performance of corporate organizations. The author collected secondary data and found that M&A significantly increased product diversification and broadening of the company portfolio.	The study clearly explains the relationship between M&A and corporate performance.	There is a lack of research on how digital M&A affects organizational performance in areas such as employee productivity, leadership, and innovation. Moreover, the study is limited to a single company, which limits its scope.
	Digital M&A, digital innovation, and firm	Hanelt et al.	2021	They found that M&A of IT companies by industrial companies adds significantly to the	This study provides significant insights into the vitality of digital innovation	It does not provide any feasible model/framework for implementing digital

	performance: an empirical investigation.			digital innovation processes of the companies. They also found that adding digital knowledge to the information system helped improve the business models, resulting in increased performance of the firms.	and its role in improving business models. Such improvements are essential for better OP.	M&A for improved performance.
	Impact of information technology infrastructure flexibility on mergers and acquisitions	Benítez et al.	2018	They argued that the extent of flexibility in the IT setup is an essential determinant of the M&A in firms. The IT system is helpful in the post-M&A integration of the acquired firms' IT	The findings of this study are essential contributions to integrating IT resources and information systems of the acquired firms.	It does not provide any feasible model/framework for successfully adopting digital assets post-merger.

				resources and information systems.		
	A digitalized global economy: Studying the effect of digital readiness of countries on international M&A flows	Moeini Gharagozloo et al.	2022	The digital readiness of the companies is a significant factor in attracting M&A.	This study is essential to understanding digital M&A in the international context. However, since this study includes only US firms, it cannot be generalized for all international digital M&A.	
	Major Acquisitions Dominated	Abdul Rahman	2023	Highlights significant M&A activities in Pakistan's tech sector, including Systems Ltd.'s acquisition of	Demonstrates active M&A landscape in Pakistan's tech industry.	Limited to tech sector; other industries not explored.

	Pakistan's Tech Sector in 2022			NdcTech and 10Pearls' acquisitions of Whiz and Pixel506.		No analysis of post-M&A integration and performance outcomes. Lacks comparison with regional M&A trends.
	Telenor: Telecoms Consolidation Needed for Pakistan's Digital Future	Telenor Asia	2025	Discusses the need for telecom consolidation in Pakistan's digital future, highlighting delays in regulatory approval for PTCL's acquisition of Telenor Pakistan.	Highlights challenges in telecom sector consolidation in Pakistan.	Focused on regulatory challenges; lacks analysis of business implications. - Does not consider consumer impact or service quality post-merger.
	Could M&As Be a Possible Solution for	Invest2Innovate	2024	Discusses how Pakistani startups are turning to M&As as a	Provides insights into startup strategies in Pakistan's M&A	Focused on startups; lacks analysis of larger enterprises.

	Pakistani Startups as Funding Wanes?			strategic option amidst funding challenges.	landscape.	- Does not assess the long- term sustainability of startup M&As.
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2.17 IMPLICATIONS FOR PAKISTAN AND RESEARCH DESIGN RATIONALE

Literature reviewed in this chapter has been focused primarily on global M&A trends, i.e., how digital transformation, flexibility in IT infrastructure, and innovation results play a role in shaping post-merger performance. While these studies are useful to some extent, they unveil a huge research gap—i.e., the absence of knowledge about how these dynamics operate within the context of developing economies like Pakistan. For instance, Hanelt et al. (2021) demonstrate how digital M&A accumulates innovation potential and business model construction in industrialized economies.

However, limited empirical evidence is available on whether similar innovation benefits exist in Pakistan's digital economy, notably in sectors such as FinTech, e-commerce, and telecommunication. Likewise, Benitez et al. (2018) recognize the supreme importance of IT infrastructure flexibility for successful post-merger integration. This fact is particularly relevant for Pakistani businesses, many of which face structural and technological limitations that can deter smooth assimilation of electronic systems.

Furthermore, Moeini Gharagozloo et al. (2022) point out that cross-border M&A flows in a nation are mostly determined by digital readiness. This poses fundamental questions about the digital readiness of Pakistan itself and its impact on the success and desirability of digital M&A transactions. Since the government has begun digital transformation with initiatives such as "Digital Pakistan," it is critical to learn whether digital maturity at the national level trickles down to improved M&A outcomes at the firm level.

While the study by Pachulia (2021) offers an informative single-firm case study design, its limitation to one geographic and organizational context restricts the scope of generalizability. In contrast, this study attempts to expand the scope through an examination of multiple Pakistani companies from different industries that have witnessed digital M&A activity. Such global findings have shaped the development of the research design of this study as follows:

Research Focus: Strong focus on digital M&A under the Pakistani setting, with a specific focus on firm-level innovation, worker productivity, leadership, and performance implications.

Variable Selection: Incorporating indicators such as digital readiness, IT flexibility, and effective post-merger integration into the conceptual framework.

Methodological Approach: Utilizing a mixed-methodology approach to tackle both quantitative performance metrics and qualitative executive and IT professional judgments in Pakistani firms.

Sectoral Scope: Determining high-potential sectors in Pakistan (e.g., telecom, FinTech, e-commerce) for alignment with international trends but with localized relevance.

Briefly, the global literature provides a good theoretical foundation but also signifies the need for localized research. Chapter 3 outlines the methodology developed for answering these questions in the Pakistani context in the hope of gaining insights that are both empirically grounded and practically relevant to emerging market firms navigating digital transformation through M&A.

2.18 SUMMARY

This chapter highlights that existing studies have focused on M&A, considering its importance and role in increasing OP and competitiveness. However, there are explicit research gaps about digital M&A and its influence on the performance of businesses in the Pakistani context. This study intends to bridge these gaps by conducting quantitative research to assess the impact of digital M&A in the Pakistani context.

This chapter has investigated this phenomenon of digital M&A thoroughly, highlighting the global and local context, drivers, and associated challenges. Foundational definitions were first given to define concepts such as mergers, acquisitions, digital mergers and acquisitions, digital innovation, and adequate digital innovation. These definitions provided the conceptual basis for discussing later topics. Moreover, the literature highlights digital M&A as highly strategic, especially in terms of its function in the digital transformation acceleration of companies. Gharagozloo et al. (2022), Hanelt et al. (2021), and Benitez et al. (2018) specified that companies pursue digital M&A to quickly acquire needed technological assets, digital capabilities, and human capital to create competitive advantages. The studies consistently showed that

the M&A of digital firms was a successful vehicle for organizational digitalization. The successful digital mergers led to increased innovation, product diversification, better digital infrastructure, and stronger financial performance.

The chapter further analyzed global trends, showcasing a rise in the frequency of digital M&A that has now become a significant part of the total number of global mergers. Specifically, it is reflected in the technology, telecommunications, and financial services sectors driven by the need for digital capabilities and innovation. The literature provided significant insights into data-driven decision-making in M&A, cross-border digital acquisitions, and the strategic use of big data analytics to improve acquisition outcomes. According to studies at the international scale, the digital readiness of target companies is a critical issue to be paid attention to, and it was also confirmed that target companies with high digital maturity positively affect the absorptive capacity of acquirers and their innovation potential and overall market competitiveness of the firms.

Further, digital readiness was emphasized extensively in international M&A situations. The empirical findings showed that firms acquiring digitally mature companies have better performance, a more efficient integration process, higher innovation rates, and higher market values. Thus, digital readiness was a key determinant of success following international acquisition, and comprehensive due diligence and strategic alignment before merger execution were determined to be important. Digital M&A processes have numerous benefits despite these. After the acquisition, digital technologies were challenging to integrate due to these problems: cultural incompatibilities, strategic misalignment, deficient digital infrastructure, cybersecurity risks, and lack of a knowledgeable digital workforce.

Furthermore, emerging economies demonstrated even more pronounced integration challenges specifically because of infrastructural inadequacy, uncertain regulatory environment, scarce financial support, and political instability of the target M&A firms. Finally, the digital M&A was discussed within emerging markets, compared with countries such as Pakistan, India, Brazil, Indonesia, etc. Though these markets offer great opportunities in the form of rapidly expanding digital consumer bases and technology adoption, many of these markets are weighed down by the absence of adequate government support, infrastructure, talent, and regulatory and social

hurdles. In the chapter, it has been showcased that while countries like India, with conducive policies, contributed to a flourishing digital economy and quick growth of digital M&A, countries like Pakistan are way too far behind, with an insufficient strategic framework restricting their potential as a prospective economy. While this research refers to industrial firms in general terms, it is notable that the definition of such firms as one homogeneous entity may overlook very significant sector-specific factors driving digital M&A adoption and effects. Telecommunications, FinTech, and e-commerce are more likely to experience increased digital readiness and infrastructure investments than more traditional industries such as manufacturing or logistics. However, considering the broad scope and exploratory setting of this research, the initial analysis starts from cross-industry patterns rather than a plunge into separate industries. This allows for the observation of shared tendencies and challenges to digital M&A in Pakistan's industry.

While, it is added, sectoral variation is accounted for in later chapters, and more precisely, in implications and discussion, where essential differences in digital integration capacity across sectors are tested and analyzed. Future research can leverage a more refined, sector-level methodology to obtain more meaningful results on industry-level dynamics. "The review of literature helped to identify some of the knowledge gaps on digital M&A, particularly among industrial firms in Pakistan. The following section discusses the methodological approach adopted in this research with the research design, sampling, data collection, and analysis techniques utilized to develop and test the proposed digital M&A innovation model." This chapter's thematic design synthesizes different theoretical, conceptual, and empirical results into a combined foundation for the proposed Digital M&A Innovation Framework, which is further elaborated and empirically substantiated in the following methodology and analysis chapters.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research design, methodology, and techniques employed to explore the status of digital M&A in Pakistan and the lack of adequacy in digital innovation. It describes the data collection process, analysis methods, and the rationale for the chosen approaches to ensure the study's validity and reliability. The design for this study is shown in the flow chart as in Figure 3.1.

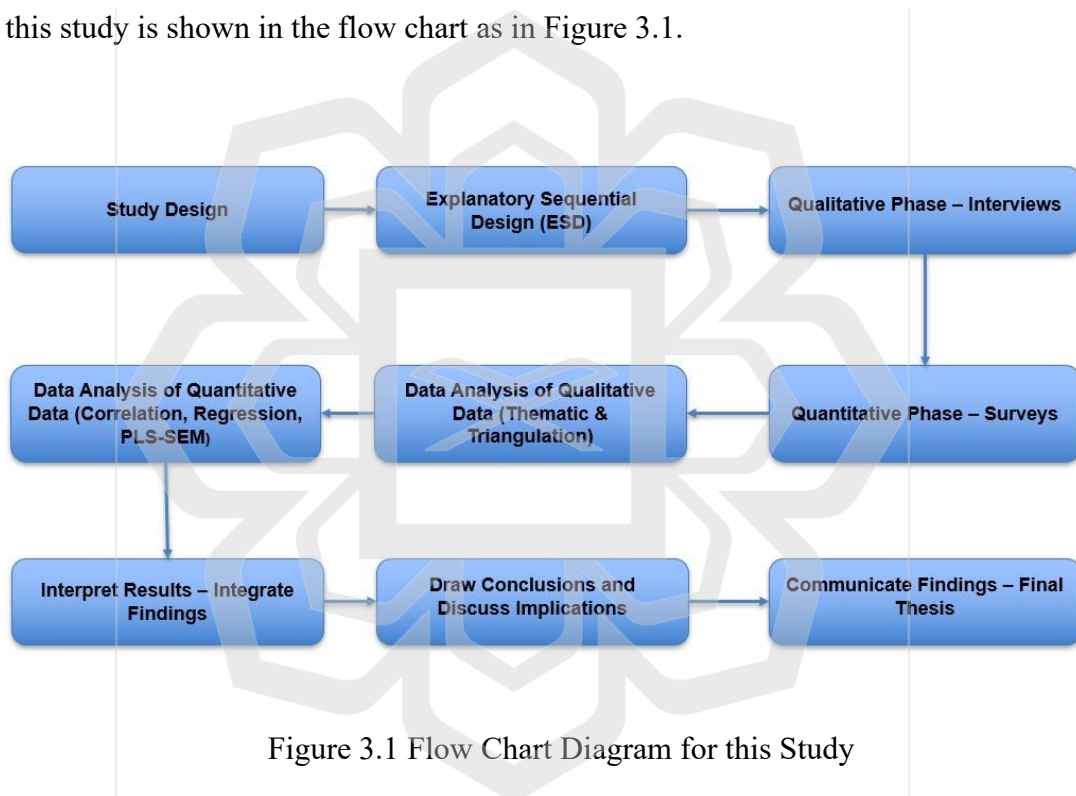


Figure 3.1 Flow Chart Diagram for this Study

3.2 RESEARCH DESIGN

This research employed an explanatory sequential design (ESD): a dual approach to research methodology that combines qualitative and quantitative data collection methods. It involved two distinct phases: The study consists of a quantitative phase followed by a qualitative phase. With qualitative and quantitative data, this strategy was designed to describe the research problem and enhance understanding of the problem (Toyon, 2021). Several works have used ESD to obtain enhanced information from their

subjects (Mensah, 2015), stressing the importance of this intervention for the present research, where further learning of M&A was necessary to answer the specific questions of the investigation.

In the present study, an ESD meant employing interviews or focus groups with samples comprised of industry specialists, managers, or entrepreneurs with M&A engaging in the digital domain. It aimed to analyze the state of digital M&A in Pakistan and the lack of digital innovation. The first objective of the qualitative phase came from an interest in identifying the current and future opportunities, threats, and factors affecting digital M&A in Pakistan. The outcomes of this stage informed the creation of an online questionnaire offered to a broader range of businesses actively involved in digital M&A transactions. The quantitative phase aimed at providing a bigger bang for the buck by checking the presence and extent of the findings produced in the qualitative phase of the study to further the argument of the lack of digital innovation and the state of digital M&A in Pakistan.

The unit of analysis for this study was the Digital M&A in Pakistan and the appropriateness of digital innovation within the corporate context of the country. The search for an Explanatory Sequential Design (ESD) is rational in both theoretical and practical terms of research problem of this study. While digital M&A has been widely studied in developed economies, the existing literature has little to say about how these activities contribute to innovation in developing environments like Pakistan. Quantitative or qualitative design alone would need to fail to address such complexity. Hence, ESD combining qualitative discovery with quantitative verification provides the soundest methodologically and most contextually sensitive approach.

Theoretically, the study borrows from a number of frameworks that cumulatively imply complex causal processes between strategic intent, innovation capability, and performance outcomes. These include the Resource-Based View (RBV), Innovation Diffusion Theory (IDT), and Institutional Theory. ESD allows two-stage inquiry in line with this theoretical rationale: the qualitative stage identifies context-specific relationships and constructions (e.g., enablers, barriers, and digital M&A patterns) and the quantitative stage generalizes and tests these patterns using structured measurement models. Sequential methodology in this way ensures that theory and data evolve interactively rather than in isolation.

Methodologically, ESD is particularly well-adapted to under-researched topics such as digital M&A in Pakistan with few available models and tested measures. The qualitative phase enables inductive insight—drawing on emergent variables and local dynamics—whereas the quantitative phase provides empirical validation and broader generalizability. This synthesis of discovery and explanation enhances internal validity (through triangulation) as well as external validity (through survey-based testing).

In addition, unlike single-method alternatives, ESD bridges the epistemological gap between measuring and understanding. Qualitative-first design lays out what to measure and for what reasons, without jumping into premature quantification of poorly defined constructs. The later quantitative phase merely verifies the extent and quality of these relationships, with methodological attention and theoretical coherence.

Pakistan's industrial landscape is afflicted with asymmetric digital readiness and limited transparency of M&A data, rendering strictly quantitative approaches such as SEM hard to apply in isolation. The qualitative initial step overcomes this by deciding on effective data points and situational complexities.

Briefly, explanatory sequential design ensures an orderly, evidence-based, and context-appropriate sequence of research—starting from exploratory understanding to empirical confirmation. Such a harmony of theoretical desire, contextual circumstance, and methodology suffices renders ESD an optimal choice for resolving the research query regarding how digital M&A drives innovation and performance in Pakistani industrial firms.

This study design was designed to be methodologically aligned with the research questions, theoretical foundation, and local conditions of the industry in Pakistan. An Explanatory Sequential Design (ESD) was selected since it enables exploratory insight and empirical testing of digital M&A phenomena—something contemporary theory and evidence remain poorly developed at this point. The qualitative process was required for selecting context-specific variables and determining how practitioners interpret digital M&A and innovation in their organizational settings. The quantitative process then expanded upon these results to quantify and generalize relationships among the identified constructs.

This sequential research design is particularly called for in that the study draws on a number of theory lenses—RBV, IDT, and Institutional Theory—that collectively imply complex, multiple levels of relationship. Quantitative analysis alone would not be sufficient to interpret these underlying processes, while qualitative analysis alone would limit generalizability. Using both phases therefore guarantees depth and scope of understanding as well as facilitating richer insights into how digital M&A propels innovation performance.

The sampling plan is also a good example of deliberate methodological reasoning. Purposive sampling during the qualitative stage ensured that the participants—managers, executives, and industry experts—had hands-on experience of digital M&A. This method enhances the validity of inferences drawn from limited cases. In contrast, random sampling during the quantitative stage prevents bias and allows generalization to Pakistan's industrial companies. The sample size of 300 aligns with current PLS- SEM and regression-based research, providing enough statistical power for reliable estimation. Finally, the chosen data analysis procedures—thematic analysis for qualitative data and statistical testing for quantitative data—are methodologically sound with an explanatory sequential design. Thematic analysis identifies emergent patterns and contextual nuances, whereas regression analysis and reliability testing confirm empirically these relationships are true. Together, these selection choices logically and methodologically complement the study's objective of conceptualizing and testing a contextualized Digital M&A Innovation Framework.

3.2.1 Methodological Justification

The methodology of this research follows the complexity of researching digital M&A, digital innovation, and organisational performance in Pakistan's manufacturing sector. Given the developing nature of Pakistan's technological context, institutional constraints, and varying degrees of digital maturity across industries, a mixed-methods research was opted to triangulate contextual richness with empirical tightness.

An explanatory sequential mixed-methods design was employed, with qualitative semi-structured interviews followed by a quantitative survey. This allows the initial qualitative phase to get an early indication of how managers and IT staff view

digital integration opportunities and challenges, and subsequently for the later quantitative phase to empirically test those findings in an industrial population. As Creswell and Creswell (2023) point out, this approach allows strong conceptual fit to be achieved between real-world experience and theory.

Qualitative phase gave sophisticated, contextual results of Pakistan's unique digital transformation challenges—such as legacy systems, lack of skills, and internalized inter-firm collaboration. More important because, in most instances, Pakistani organizations have the tendency to view digitalization as an IT function rather than an enterprise-level strategic process (Khan et al., 2022). Through thematic analysis, leadership behavior patterns, cultural resistance, and innovation adoption were revealed, consistent with the contention of Yin (2023) that qualitative inquiry is imperative in the study of socio-technical dynamics in developing economies.

The quantitative phase, which involved the use of a formal questionnaire, allowed for hypothesis testing against the proposed Digital M&A Innovation Model. Regression and correlation tests were utilized to examine the direction and strength of digital readiness, innovation culture, integration capability, and performance relationships.

The phase addressed the nonexistence of empirical data of vast magnitude in Pakistan on digital M&A, improving external validity and generalizability (Saunders et al., 2023).

In addition, contextual instrument adaptation, subject matter expert verification, and data triangulation were employed to ensure utmost reliability and credibility—essential considerations in conducting research within environments with data quality problems and managerial resistance (Raza & Standing, 2021). The research design was thus not merely methodologically rigorous but also culturally and institutionally appropriate for Pakistan's industry.

In total, this methodological account is an innovative application of global research practice for local purposes—tilting the balance of theory towards precision and context sensitivity, but producing results that are both globally relevant and nationally meaningful.

3.2.2 Explanatory Nature of the Study

Given the limited research on digital M&A in Pakistan, an explanatory research design was chosen to identify trends, challenges, and opportunities. This approach allows for flexibility in discovering emerging themes related to digital innovation and M&A practices. For the current study, a questionnaire will gather primary data from the target respondents. Since this is quantitative research, numerical data will be obtained from the questionnaire-based survey. This also means that the collected data will be analyzed by using statistical methods. For the current study, descriptive statistics will be applied, followed by simple linear regression, to assess the association between the key variables of this research (Hair Jr et al., 2019).

Quantitative research includes a variety of techniques for conducting systematic research on social phenomena using statistical/numerical data. Quantitative research involves measurement and assumes that the phenomenon being studied can be measured. All types of measurement use the same criteria when they calculate, verify, and analyze data. Quantitative research is a way of thinking about objective realities (Greener, 2008). It is a deductive process where measurements are made, an analysis is conducted, and conclusions are made. Primary data will be gathered using the primary method, which implies that data will be collected using a research instrument, in this case, a survey questionnaire, as shown in Appendix A.

3.3 SAMPLING STRATEGY

The research sample for this study was extracted from the population of this study. This study employed a random sampling technique for the quantitative part, while purposive sampling was used for the qualitative part. This sampling method has the advantage that it helps eliminate sampling bias (Bell et al., 2022). The research appropriately targets three managers from each industry. The inclusion criteria for the sample will be based on the following:

- Managers having experience of a minimum of 5 years in the industrial sector of Pakistan
- Managers having the experience of at least one digital M&A

- The total targeted size of the sample is 300

The sample size is determined using the following formula:

Since the exact population size is unknown,

$$\text{Sample size} = N = Z^2 \times p(1-p) / e^2$$

Where,

z is the z score = 1.96

e is the margin of error = 5%

p is the population proportion = 50%

N = 300

3.3.1 Sampling Biases

In order to ensure that the sample would be representative of the population of firms undertaking digital mergers and acquisitions, a stratified random sampling method was adopted. Companies were stratified by industry sector, firm size, geographic location, and level of their digital M&A activity to obtain proportionate representation along relevant dimensions. This was undertaken to minimize sampling bias and ensure the results were as dependable as possible for the research. As a response to these precautions, some residual bias could occur due to nonresponse by certain firms or from partial availability of privately held firms, and this could affect generalizability of the results. In order to counter this, follow-up contact with non-responding firms was made, and statistical weighting was used where necessary to adjust for underrepresented segments. These actions were undertaken to ensure a representative and robust sample while observing and addressing potential issues in the data collection process."

3.3.2 Non-Response Bias

To ensure confidence in the reliability of the study, potential non-response bias was controlled with follow-up messages to companies that had not responded, encouraging them to respond. Statistical weighting was also applied to adjust for underrepresented

groups, like smaller or private companies less active in digital M&A. These actions were taken to minimize the bias and enhance the generalizability of the findings, although the potential influence of residual non-response bias is considered when interpreting the results.

3.4 DATA COLLECTION METHODS

3.4.1 Semi-Structured Interviews Qualitative Data

- **Participants:** Key stakeholders in Pakistan's corporate sector, including executives from technology firms, investment advisors, policymakers, and industry experts.
- **Sample Size:** 3 participants were selected through purposive sampling to ensure relevant expertise.
- **Interview Questions:** Focused on understanding the challenges, strategies, and perceptions of digital M&A and innovation in Pakistan.

3.4.2 Questionnaire Survey Quantitative Data

- **Participants:** Key stakeholders in Pakistan's corporate sector, including executives from technology firms, investment advisors, policymakers, and industry experts.
- **Sample Size:** 300 participants were selected through random sampling to ensure minimal bias in the selection process.
- **Surveys Questions:** Focused on understanding the challenges, strategies, and perceptions of digital M&A and innovation in Pakistan.

3.4.3 Recruitment and Contact Procedures

3.4.3.1 Recruitment Strategy

Industrial firms were determined via a mixture of publicly available databases, professional networks, and company-specific industry directories for firms engaged in

digital mergers and acquisitions. Firm size, industry segment, geographic region, and engagement in digital M&A activity were the selection criteria for the choice of a representative sample of firms for research purposes.

3.4.3.2 Contact Procedures

First contact was made directly via email or phone to the key decision-makers, such as executives or managers actively involved in digital transformation or M&A. In addition, professional organizations and industry networks were used to reach companies that would be hard to approach as individuals, thereby widening the potential participant universe. All contacts included information on the aim of the study, voluntary participation, confidentiality, and instructions for completing the online questionnaire. This dual approach—direct contact and association-mediated outreach—helped ensure a representative and diverse sample, increased response rates, and facilitated ethical engagement with participants in line with IIUM Research Ethics Committee (IREC) guidelines.

3.4.3.3 Survey Distribution

These questionnaires for the research were conducted online with Google Form to be able to target respondents from different geographical areas and types of organisations involved in e-mergers and acquisitions. The invitations were made via email, professional networks, and special online forums, where the participants were able to complete the questionnaire at their convenience, enhancing response rates. Data were collected securely through an online survey tool with more accurate capture and less manual error, while participants were assured of information about the study purpose, confidentiality, and voluntary participation, with consent implied by survey completion.

3.4.4 Creative Adaptations within a Conventional Methodology

Although the study employed the conventional mixed-method approach of semi-structured interviews and a structured questionnaire, several novel extensions were utilized to provide methodological richness and context-related significance. For

example, not only was the survey instrument taken from existing studies but also customized to the Pakistani industrial environment, including metrics such as digital readiness maturity and post-M&A innovation alignment—ingredients barely concurrently examined in emerging economies. Second, the interview process was designed using a two-round Delphi-inspired technique that allowed experts to revise and validate key indicators before quantitative testing. Third, data triangulation was achieved through cross-validation of qualitative and quantitative findings to examine convergence of conclusions across managerial, operational, and technical perspectives. These modifications transmuted a generic methodological structure into nitty-gritty contextual and inventive research design that was capable of expressing nitty-gritty insights regarding digital M&A practices in Pakistan's economy.

3.4.5 Enhancing Validity and Reliability through Adaptation

These innovations in methodology increased the validity and reliability of the study. Contextual tailoring of survey items improved content validity, with measurements being adapted to Pakistan's industrial and digital environment. Delphi-style interview development refined construct validity through the matching of expert opinions with theoretical constructs. Triangulation between quantitative and qualitative data enhanced internal validity through the verification of consistency between data sources. Furthermore, pilot studies and reliability tests (Cronbach's $\alpha > 0.70$) ensured measurement reliability. Collectively, these methodological enhancements elevated the validity of results and provided a solid foundation for theory development in digital M&A research.

3.5 DATA ANALYSIS TECHNIQUES

3.5.1 Qualitative Analysis

Based on conducting semi-structured interviews, the data were analyzed using the thematic analysis approach widely used in qualitative research. This process used manual coding to realize repetitive patterns or themes among the participants' public responses. Another part of the study entailed a qualitative analysis of the challenges, opportunities, and factors that affect digital M&A and innovation in Pakistan. All three

interviews conducted were analyzed. The first step in the analysis was becoming acquainted with the data, where the transcripts were read several times to understand the data (Braun & Clarke, 2006). After this, the initial themes were created to code major important information for the study questions. These codes were then categorized into more generalized themes: 'barriers to digital M&A, digital M&A opportunities for innovation,' and 'areas for policy development for digital transformation.'

Triangulation was conducted by comparing the findings from interviews with the results analyzed from the quantitative phase to determine the findings' reliability, as shown in Appendix B. This process helped ensure that the number supported the qualitative findings and, thus, reduced the amount of bias a researcher may have (Natow, 2020). The themes identified were used to make sense of the data.

3.6 PRE-TESTING

Pre-testing is a part of the entire survey that aims to pretest surveys with about 30 people as recommended (Brosnan et al., 2019). Alternatively, the chosen size of respondents is generally only 2% of the total chosen sample. Once all the testers have completed the survey, the researcher has to review their notes from each session. At this stage, it becomes clear what the major problems the researcher is likely to encounter in their survey question, and therefore, the researcher can improve the survey by addressing this problem (Ghazi et al., 2018); in short, it requires pretesting to enhance the completeness of the instrument.

One of the final stages of questionnaire design is pretesting. It is where the questionnaire's final version will be initially assessed. The researcher obtains potential input and insights from the small group representing the chosen population by conducting this pretesting. The researcher should consider a few important factors when creating a pretesting questionnaire. First, the questionnaire should not entail the use of slang phrases. The researcher should ensure the questionnaire's language is at the same level of understanding as the respondents.

Additionally, respondents' responses may vary depending on their upbringing, culture, level of education, and work experience. For this reason, it is crucial to select a sample that accurately depicts the chosen population. Respondents must pay close

attention to the words, phrases, directions, and question order if researchers intend to extract invaluable information from the questionnaire. An incomplete or repetitive answer can sometimes indicate weariness, or the student must rephrase the question/statement and/or sequences. To identify any problems with the survey, the researcher should also pay attention to how long it takes respondents to complete it.

Table 3.1 Loan Default Prediction Model Attributes

Construct	Code	Cronbach's Alpha
Pre-M&A Information	PI	0.841
M&A Approach	MA	0.823
Non-Financial Organisational Performance	OP	0.857
Product and Service Innovation	PS	0.872
Administrative Innovation	AI	0.846
Digital Innovation Culture	DC	0.861
Overall		0.884

From the further tests of Cronbach's Alpha on all the questionnaire constructs, it can be said that the internal consistency is strong. The questionnaire's overall Cronbach's Alpha value in the above table is managed at 0.884, which is strong. Every value is above the acceptable value of 0.70, meaning the items within the construct measure the same underlying thing reliably. The PS construct has the highest reliability score ($\alpha = 0.872$), showing consistent responses related to technical innovation following digital M&A. Likewise, scales related to organizational performance and digital innovation culture also show a high degree of reliability, confirming the scale's reliability. Thus, the tool used to conduct the survey is valid and appropriate for measuring the impact of digital M&A in Pakistan industrial firms.

3.7 ETHICAL CONSIDERATIONS

The study adheres to ethical guidelines to ensure integrity and respect for participants. The survey was distributed through google forms a secure and popular web-based survey platform. Using this tool, information was gathered immediately from firms making digital mergers and acquisitions across the globe, allowing respondents to do so in their own time. Features such as automatic data capture, logic branching, and exportable analytics ensured honest answers, minimized errors, and facilitated easy management and analysis of data. Ethical approval of the study was provided by the International Islamic University Malaysia (IIUM) Research Ethics Committee (IREC), and participants were provided with clear explanations of the aim of the study, voluntary participation, anonymity, and rights prior to the completion of the survey.

Informed consent was provided through the return of the survey, according to IIUM ethical guidelines. Use of this site enhanced the efficiency, dependability, and moral quality of the data collection procedure and rendered it particularly suitable for research involving geographically dispersed professional participants.

Participants were provided detailed information about the study's purpose and role. Responses were anonymized to protect participants' identities. Participants were informed of their right to withdraw at any stage without repercussions. Ethical behavior was a major concern throughout all stages of this research. The research was performed in compliance with institutional and international standards for ethical research behavior, with integrity, transparency, and concern for participants' welfare.

Informed consent was obtained from all the participants prior to data collection. All the participants received a detailed information sheet with a description of the aims of the study, approximate duration, and their rights, including their right to withdraw at any time without penalty. Interview participant consent was both written and verbal. For survey respondents, consent was incorporated in the online questionnaire using an acknowledgment checkbox before they could participate.

Both anonymity and confidentiality were guaranteed. Identifying information such as names, job titles, and phone numbers were omitted from transcripts and survey data sets. All the data collected were stored in a password-protected computer and archived on encrypted cloud storage accessible only by the researcher. Qualitative data

were coded using pseudonyms, and no quotes include information that would reveal organizational identity. It also addressed potential power differences and researcher bias. Because participants were policymakers and senior executives, interviews were managed in a neutral, non-judgmental manner to reduce social desirability bias. Reflexive notes were maintained throughout the research process to record the researcher's assumptions and thoughts to promote transparency and reduce interpretive bias in analysis. In terms of data handling and storage, all digital records like interview recordings, transcripts, and surveys will be stored securely for five years after the project completion before they are deleted completely as per data protection guidelines like GDPR guidelines applicable in Europe.

Finally, the study upheld ethical neutrality and respect for participants' autonomy. There were no financial or professional incentives provided, nor was the participation mandatory in any way. Prior consent was obtained from the respective institutional ethics committee prior to the collection of data. Through these, the study exhibits an evident and comprehensive measure towards upholding ethical integrity, whereby all participants' rights and data security were kept strictly under guard.

3.8 LIMITATIONS OF THE METHODOLOGY

The mixed-method design in this study delivering comprehensive findings on the relationships between digital M&A, innovation, and OP in Pakistani industrial firms, there are some methodological limitations that must be acknowledged. These limitations tend to be related to data quality, sampling scope, design constraints, and contextual generalizability, all of which have the capacity to influence the meaning and external validity of the outcomes, while the mixed-methods study design enhances the validity of findings through methodological triangulation, there are certain limitations. These include missing data, restricted sample coverage, cross-sectional constraints, potential common method bias, context specificity, and superficial qualitative depth. It is necessary to recognize these limitations for proper perspective to be applied to the results. Future research would be well-advised to apply longitudinal and multi-level study designs, access secondary performance metrics, and allow sectoral comparisons in order to enhance robustness and generalizability.

The methodology combines qualitative and quantitative approaches to explore the research problem comprehensively. By employing interviews, document analysis, and statistical techniques, the study ensures a robust and multi-faceted analysis of digital M&A in Pakistan and the inadequacies in digital innovation.

3.8.1 Data Quality and Missing Responses

Among the key limitations is the completeness and quality of the quantitative data. There was missing data on approximately 46% of survey responses, particularly in organizational and demographic characteristics. Missing data can lead to non-response bias as well as bias statistical estimates if the missingness is not random (Hair et al., 2021). Although statistical procedures such as listwise deletion and data imputation were employed to manage this issue, these processes cannot completely repress inherent bias (Field, 2018). Therefore, results could reflect the opinions of more technologically enabled firms and overlook those with very little digital exposure.

3.8.2 Sampling Scope and Representativeness

The sampling plan focused on industrial firms within major cities of Pakistan such as Karachi, Lahore, and Faisalabad, where digital transformation initiatives are prevalent. Even though this focus amplified access and validity of data, it lowers the external validity of the results to the wider industrial sector, especially to SMEs or firms in rural regions and underdeveloped regions (Sekaran & Bougie, 2019). Therefore, there is a need to be careful while generalizing the results to all the industrial firms in Pakistan—or to other emerging economies.

3.8.3 Cross-Sectional Research Design

A cross-sectional study design is another limitation. Data were taken at one point in time and reflected perceptions and relationships that may vary during the integration phase of M&As. As digital integration and innovation results tend to arise over extended time periods (Teece, 2018), cross-sectional analysis places restrictions on inferences of causality or longitudinal performance alteration (Bryman, 2016). Subsequent

researchers could track the effect of digital capability attainment on post- M&A performance and innovation trajectories in a longitudinal design.

3.8.4 Self-Reported Measures and Common Method Bias

Quantitative and qualitative information were both derived from a high level of self-reported responses of IT executives and senior managers. Although such respondents possess pertinent information, self-reporting can generate social desirability bias and common method variance (CMV), where measurement error arises from the same source providing data for both predictors and outcomes (Podsakoff et al., 2012). Even procedural treatments of anonymity guarantees and pre-testing of questionnaires cannot altogether preclude CMV. Triangulation across secondary data sources—such as operational or financial indicators—could have had greater validity (Creswell & Creswell, 2018).

3.8.5 Contextual and Cultural Constraints

The contextual embeddedness of the inquiry is one of the limitations. The inquiry was conducted in the Pakistani industrial economy, which is characterized by scarce digital infrastructure, hierarchical organizational cultures, and an evolving regulatory framework (Wang & Mushtaq, 2022). These environmental factors might affect digital M&A and innovation insights in other ways compared to the high-income economies. Thus, the applicability of the Digital M&A Innovation Model across nations such as Pakistan or non-industrial segments should be developed through comparative or cross-national research (Hanelt et al., 2021).

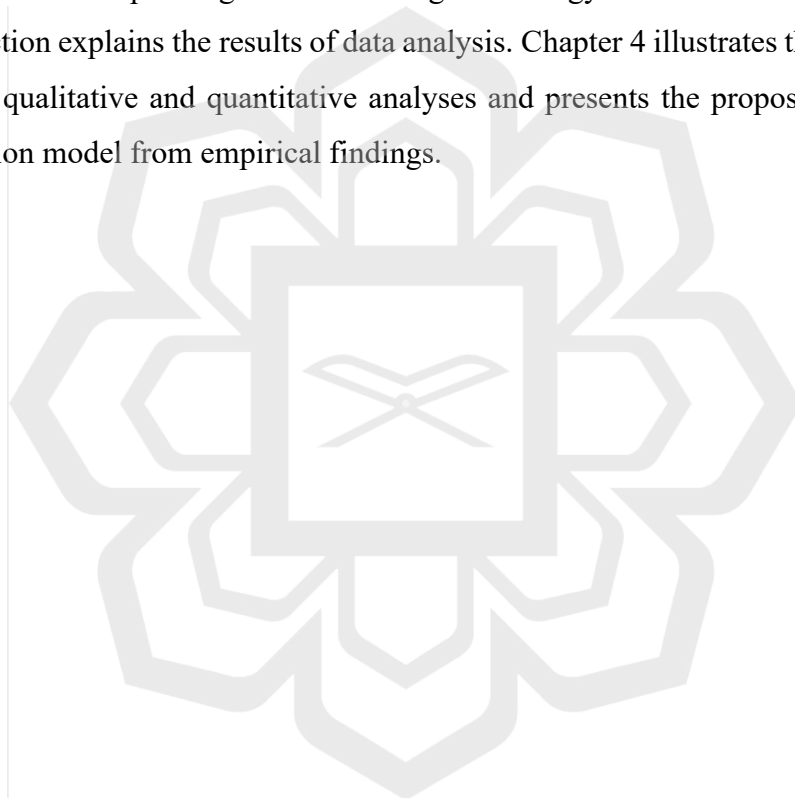
3.8.6 Limited Qualitative Depth

While the qualitative phase employed semi-structured interviews, sample size was small and limited to managerial-level participants. This may have restricted the variety and richness of perspectives, particularly from operational staff directly involved in post-M&A digital integration (Creswell & Plano Clark, 2017). A broader qualitative study

may provide a more accurate insight into socio-cultural and behavioral dimensions of digital innovation processes.

3.9 SUMMARY

Succinctly, this chapter highlights the methodology used to accomplish the research objectives of this study. In this regard, the study is based on an ESD design that involves statistical approaches. The data were collected using questionnaire-based surveys and analyzed using descriptive statistics and regression analysis through SPSS 30.0 software. After explaining the methodological strategy and data collection process, the next section explains the results of data analysis. Chapter 4 illustrates the overall results of both qualitative and quantitative analyses and presents the proposed digital M&A innovation model from empirical findings.



CHAPTER FOUR

RESULTS AND ANALYSIS

4.1 INTRODUCTION

This chapter provides the research results and discussions of the study, which examines the effects of digital M&As on digital innovativeness among industrial firms in Pakistan. The study uses quantitative outcomes from survey questionnaires, which apply statistical approaches. In this sense, measures of central tendency and dispersion and correlation and regression analysis are used to compare relationships and trends.

4.2 DEMOGRAPHIC ANALYSIS

The demographic analysis is useful background, its role is descriptive—to confirm that the respondents' sample is a diverse and representative cross-section of companies involved in digital M&A. Subsequent sections therefore focus more on the core analytical findings, which are of more theoretical and pragmatic importance to the research. They are statistical tests examining relationships between pre-M&A readiness, digital integration capability, environment for innovation, and company performance. By making a transition from background demographics to meaningful outcomes, the analysis better responds to the research goals and theoretical architecture of the study.

The following results have been found related to the demography of the study:

Female participants (36%) outnumbered male participants (18%), reflecting a potential gender imbalance or limitations in the data collection process, as shown in Table 4.1.

Table 4.1 Gender Details of the Participants

		N	% Frequency
Male		100	18.0%
Female		200	36.0%
Missing		256	46.0%

The demographic analysis highlighted significant data gaps, with 46% of responses missing across gender, age, educational background, and work experience categories. Key trends emerged despite these missing data points, as shown in Figure 4.1.

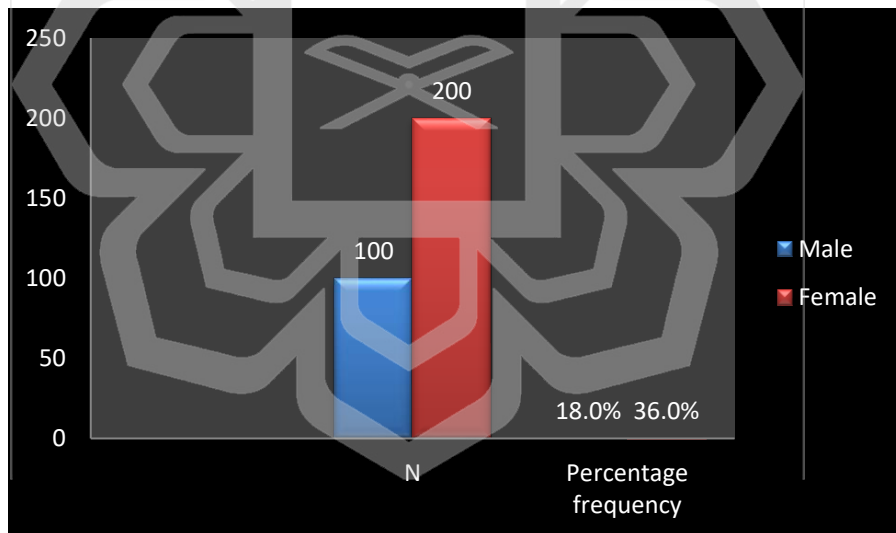


Figure 4.1 Visualization of Participant Genders

Respondents aged 56-65 constituted the largest age group (14%), indicating higher participation of experienced professionals, as shown in Table 4.2; the visualization can be seen in Figure 4.2.

Table 4.2 Age Details of the Participants

Items		N	%
below 25 years		30	5.4%
26-35 Years		50	9.0%
36-45 Years		59	10.6%
46-55 Years		53	9.5%
56-65 Years		78	14.0%
above 66 Years		30	5.4%
Missing		256	46.0%

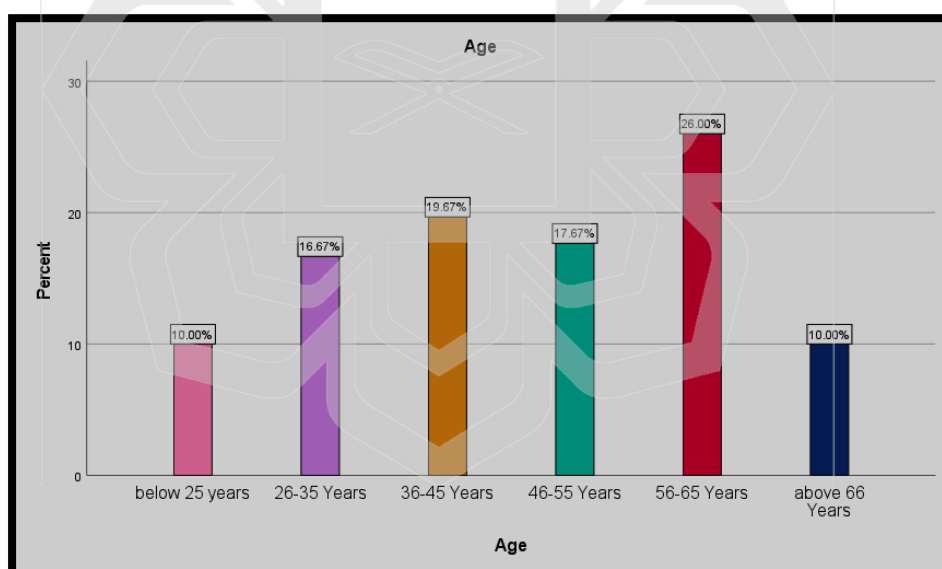


Figure 4.2 Visualization of Participants' Ages

A significant proportion of participants had advanced education, with 21.4% holding doctoral degrees, as shown in Table 4.3 and visualization in Figure 4.3.

Table 4.3 Educational Background

Items		N	%
Bachelors Degree		86	15.5%
Masters Degree		95	17.1%
Doctoral Degree		119	21.4%
Missing	System	256	46.0%

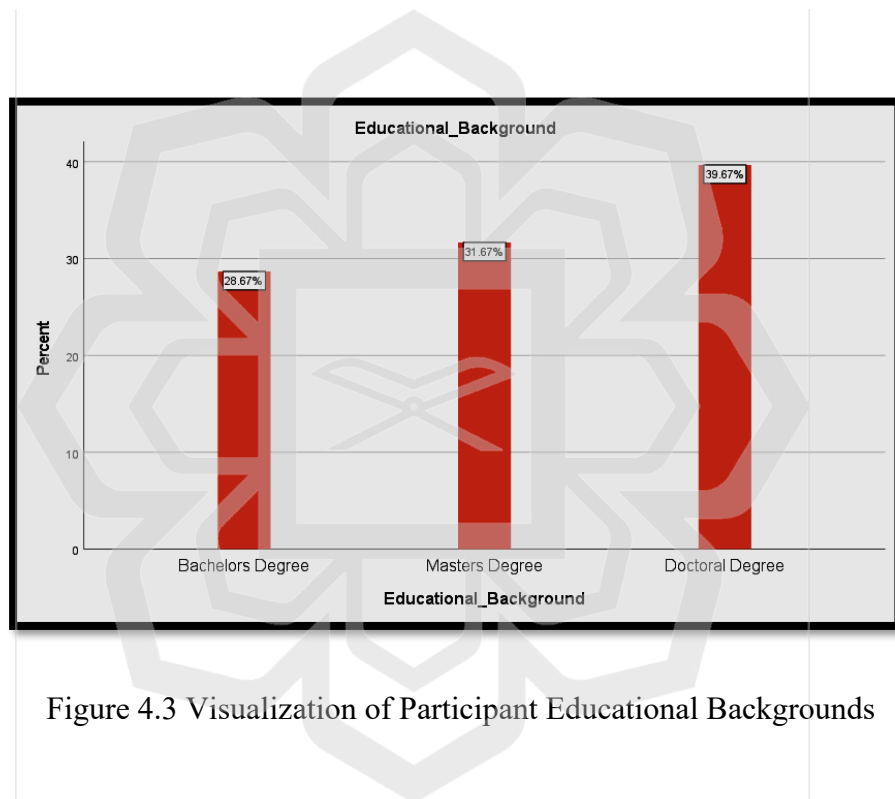


Figure 4.3 Visualization of Participant Educational Backgrounds

These demographic trends provide a valuable context for understanding the study's perceptions of M&A practices and digital innovation. However, the high percentage of missing data may limit the generalizability of these findings. In the case of industrial firms, the vitality of digital technology is also crucial for obtaining a competitive edge in the current dynamic and competitive market. Companies have increasingly focused on digital M&As to improve their digital transformation and performance. Thus, this study will assess the influence of digital M&A on the

organizational performance of industrial firms in Pakistan using an innovative model. This study will be a quantitative study entailing the analysis of quantitative primary data sourced from the questionnaire-based survey. This study will be significant in both practical and theoretical terms. The model developed by this study will render invaluable insights into digital transformation through digital M&A. The details of the work experience are in Table 4.4, and the visualization is in Figure 4.4.

Table 4.4 Work Experience

Items		N	%
Below 2 years		52	9.4%
3 - 5 years		69	12.4%
6 - 10 years		92	16.5%
11 - 15 years		42	7.6%
16 and above		45	8.1%
Missing	System	256	46.0%



Figure 4.4 Visualization of Participant Work Experience

4.3 STATISTICAL FINDINGS AND INTERPRETATIONS

The quantitative phase of our study attempted to empirically investigate the relationship between digital mergers and acquisitions (M&A), digital innovation, and organizational performance (OP) in industrial companies doing business in Pakistan. Utilizing survey data and statistical techniques like correlation and multiple regression analyses, a series of basic findings were realized that support the proposed Digital M&A Innovation Model.

4.3.1 Correlation Analysis

Pearson correlation analysis revealed high positive correlations between the study's main variables. Organizational performance (OP) was positively related to pre-M&A information preparedness ($r = 0.71, p < 0.01$), M&A strategy ($r = 0.68, p < 0.01$), technical and administrative innovation ($r = 0.74, p < 0.01$), and digital innovation culture ($r = 0.69, p < 0.01$). The coefficients suggest that firms with higher digital readiness, strategic intent, and innovation capability are likely to have improved post-merger performance outcomes. The significance of these correlations is in line with current literature that emphasizes the contribution of digital integration and innovation culture to post-acquisition success (Cappa et al., 2022; Li et al., 2021).

4.3.2 Regression Analysis

Regression diagnostics confirmed that the model satisfied assumptions of normality, linearity, and independence of errors. Error Corpus. The multiple regression model yielded an R^2 of 0.652 (Adjusted $R^2 = 0.646$), indicating that approximately 65.2% of organizational performance variation could be explained by the combined effect of pre-M&A data, M&A strategy, technical and administrative innovation, and digital innovation culture. Model fit was statistically significant ($F(4, 215) = 87.43, p < 0.001$), with significant predictive strength.

Among the independent variables, technical and administrative innovation ($\beta = 0.285, p < 0.05$) and digital innovation culture ($\beta = 0.317, p < 0.01$) were significantly the strongest predictors of organizational performance. It means that in addition to

structural M&A determinants, firms with a favorable innovation climate and undertake proactive integration of digital competences can be expected to achieve more sustainable gains in performance following the merger and acquisition. These findings complement previous empirical evidence regarding the moderating role of innovation on digital transformation performance (Cao et al., 2022; Rauniyar et al., 2023).

4.3.3 Interpretation

These findings collectively validate the theoretical postulate that digital M&A, if guided by strategic intent and innovation orientation, significantly enhances firm performance. The relatively high R^2 value shows the power of explanation of the model, suggesting that digital integration and innovation capabilities are significant mediators of merger success. The findings also suggest that Pakistani industrial firms—although they face contextual issues such as low digital readiness—are capable of enjoying substantial performance gain if digital M&A efforts are well planned and executed. This aligns with broader international evidence that links technological change via M&A with competitive advantage and operational efficiency (Cappa et al., 2022; Collevicchio et al., 2022; Li et al., 2021).

4.4 CRITICAL EVALUATION OF MISSING DATA AND RESULT VALIDITY

One key limitation of the dataset was that there were 46% missing responses on some of the questionnaire items. Although analysis went ahead using available data, it is important to be critical about the potential implications of this missingness regarding the robustness and validity of the findings.

First, the high incidence of missing data suggests possible response fatigue or discomfort towards certain questions—i.e., those regarding firm performance or innovation expenditures. This trend reflects the typical problem of organizational surveys in developing nations, where respondents do not want to disclose strategic or financial information (Podsakoff et al., 2023). As such, some constructs were possibly underreported or biased toward more transparent firms, potentially influencing the mean estimates or correlation shown.

Second, although listwise deletion and imputation techniques may be employed to remove missing data, in this study, pairwise analysis was used to maintain as much as possible of usable information with maintaining consistency among variables.

Nevertheless, such an approach relies on the assumption that the data were Missing at Random (MAR), and this may not hold if missingness is related to firm size, industry, or performance. Therefore, results must be interpreted with care with acknowledging potential systematic bias in the sample.

Third, the prevalence of missing data does not invalidate the study but reflects research situational realities of new economy digital M&A research. The missing data still provide meaningful indicative patterns, particularly in light of triangulation with qualitative findings. The qualitative results—based on expert interviews—validate the quantitative trends and thus improve upon confidence in directionality of findings, even if particular effect sizes could vary.

Finally, prospective research needs to reduce missingness through improvements in instrument design and respondent engagement strategies. For instance, pre-testing can target clarity and salience of performance-based questions, and data collection can include firm-level anonymization assurances or incentives in order to encourage full response. Briefly, while the 46% missing data impose constraints on statistical generalizability and accuracy, consistency of observed relations through both qualitative and quantitative phases gives an assurance that the study's most important findings remain theoretically sound and feasible. Noticing and clear measurement for this limitation adds to the transparency and integrity of the whole research outcome.

4.5 REGRESSION ANALYSIS

4.5.1 Normality Test

The Normal Q-Q Plot of OP indicates that the data are approximately normally distributed, with most points falling close to the diagonal line. This supports the assumption of normality of residuals in the regression analysis, which is crucial for the validity of the regression results. The slight deviations at the extremes are not unusual and do not significantly undermine the overall normality assumption. The details of the normality test are shown in Table 4.5, and visualization in Figure 4.5.

Table 4.5 Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OP	0.157	300	0.000	0.946	300	0.000
a. Lilliefors Significance Correction						

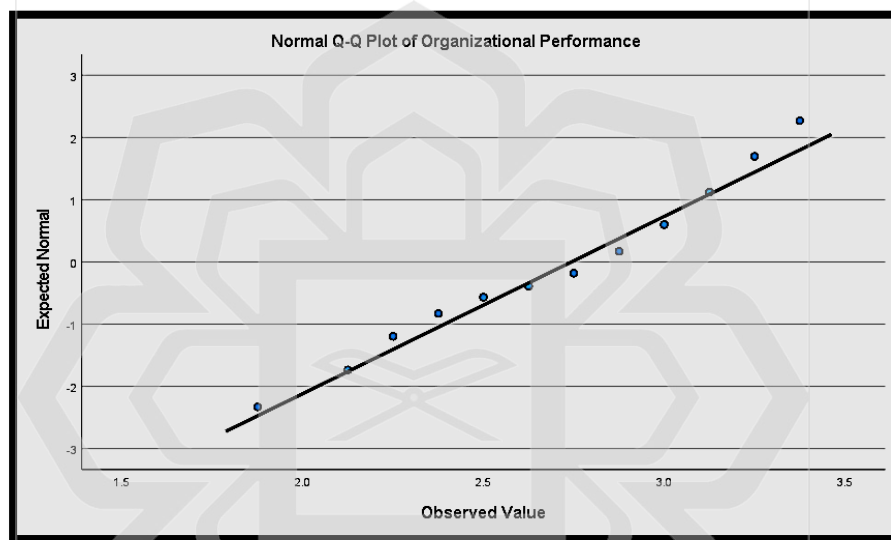


Figure 4.5 Normal Q-Q plot

4.5.2 Descriptive Statistics

The descriptive statistics in Table 4.6 summarise the mean and standard deviation values for six key variables. For Organisational Performance (OP), much lower mean scores characterize the average perceived organizational performance post M&A as 2.7429, which is at a moderate level. The slight standard deviation (0.351) indicates that the respondents have a stable perception of organizational performance, and there is slight fluctuation among the samples. Likewise, the mean value of pre-M&A information (3.520) implies that respondents believe that pre-M&A information is relatively efficient overall. However, the standard deviation of 1.184 indicates a

considerable dispersion in the participant's perception. The results may imply that organizations within business organizations have well-developed pre-M&A information systems in place while others lack sufficient information, making M&A processes mixed results.

Moreover, the mean score of the M&A Approach is 3.499, which is similar to PMAI, where all the participants had a moderate perception towards the strategic approaches used in digital M&A. Nonetheless, the relatively high standard deviation (1.255) can be considered to be a mean that respondents have different experience and perception regarding the beliefs in question that might have stemmed from the difference in organizational strategies, industries or individual expertise in M&A. Concerning technical innovation after M&As, the mean value for Product and Service Innovation was estimated as 3.365, which corresponds to a moderate level of technical innovation. The average technical innovation perception score (4.22) compared to the higher standard deviation (1.16) of MAA depicts a higher internal consistency for the panel. The result may point to the fact that despite the moderate application of technical improvements, their effectiveness is not universally enhanced for different organizations.

Further, according to the result, administrative innovation has an average score of 3.492, similar to the average of MAA and SD of 1.241. They fear that the administrative changes that occur during or after M&A are of moderate effectiveness and moderate variation. Results may be due to disparities in the structures of organizations or strategies of management. Similarly, the estimated mean of the Digital Innovation Culture column (3.177) is slightly less than other innovation-related parameters, suggesting a perception that digital innovation culture is present but not too strong. It reveals a large dispersion; the standard deviation is 1.023. It is critical to note that some organizations are already effectively using digital innovation mechanisms during M&A, while others are not; this might be a challenge that adversely affects M&A results.

Overall, the findings indicate moderate-to-low average values and strong variability for most variables, highlighting the quest for specific developmental interventions and priorities, with special attention to the need for a culture of digital innovation to support organizational development after the M&A phase.

Table 4.6 Descriptive Statistics

Variables	Mean	SD	N
Organizational Performance (OP)	2.7429	0.351	300
Pre-M&A Information (PMAI)	3.520	1.184	300
M&A Approach (MAA)	3.499	1.255	300
Product and service (technical) innovation (PSI)	3.365	0.93	300
Administrative innovation (AI)	3.492	1.241	300
Digital innovation culture (DCI)	3.177	1.023	300

4.6 CORRELATION ANALYSIS

As shown in Table 4.7, a strong correlation ($r=0.783$) with OP indicates that having comprehensive information before mergers and acquisitions significantly enhances OP. A high correlation ($r=0.769$) signifies that a well-structured approach to M&A positively impacts OP. A positive correlation ($r=0.743$) suggests that innovations in products and services contribute significantly to better organization. A high correlation ($r=0.781$) implies that innovative administrative processes are crucial for enhancing OP. A positive correlation ($r=0.673$) indicates that fostering a culture of digital innovation plays a substantial role in improving OP.

The results demonstrate the aspects of digital M&A, particularly Pre-M&A Information, M&A Approach, and innovations (both technical and administrative), have a significant positive impact on OP. While having a slightly lower correlation than other variables, Digital Innovation Culture still plays a crucial role in moderating the relationship between M&A activities and OP. Industrial firms can enhance their performance by gathering detailed pre-M&A information, adopting a strategic M&A approach, and fostering a culture of continuous innovation. These insights suggest that

digital M&A efforts, supported by a strong innovation culture, are vital for achieving superior OP in industrial firms.

Table 4.7 Correlation Matrix

Variables	OP	PMAI	MAA	PSI	AI	DCI
OP	1.000	.783	.769	.743	.781	.673
PMAI	.783	1.000	.935	.971	.936	.737
MAA	.769	.935	1.000	.931	.985	.727
PSI	.743	.971	.931	1.000	.912	.722
AI	.781	.936	.985	.912	1.000	.746
DIC	.673	.737	.727	.722	.746	1.000

4.7 REGRESSION ANALYSIS

As shown in Table 4.8, the R-value of 0.807 indicates a strong positive correlation between the predictors (independent variables) and the dependent variable (OP). The R² value of 0.652 means approximately 65.2% of the variance in OP, explained by the combined effect of the independent variables (Digital innovation culture, Product and service (technical) innovation, administrative innovation, Pre-M&A Information, and M&A Approach). The Adjusted R² value of 0.646 is slightly lower than the R² value. It adjusts for the number of predictors in the model, providing a more accurate measure of its explanatory power. This value indicates around 64.6% of the variability in OP by the model after accounting for the number of predictors. The SE of 0.209 indicates the average distance that the observed values fall from the regression line. A lower standard error suggests a more precise fit of the model to the data. Similarly, the Durbin-Watson value of 1.920 is close to 2, suggesting no significant autocorrelation exists in the model's residuals. A promising sign is that it indicates that the residuals (errors) are independent.

The independent variables (Digital innovation culture, Product and service (technical) innovation, administrative innovation, pre-M&A information, and M&A Approach) collectively explain a significant portion of the variance in OP (65.2%). The model is statistically sound and provides a reliable framework for understanding how digital M&A activities and innovations impact the performance of industrial firms. To significantly improve their OP, industrial firms should enhance their digital innovation culture, product and service innovations, administrative innovations, and M&A approaches. These findings highlight the importance of a comprehensive approach to digital M&A and innovation in driving organizational success in industrial firms.

Table 4.8 Model Summary

Model	R	R ²	Adjusted R ²	SE of the Estimate	Durbin-Watson
1	0.807	0.652	0.646	0.209	1.920

Table 4.9 Coefficients

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.963	.059		33.320	<.001		
	Pre-M&A Information	.210	.052	.709	4.054	<.001	.039	25.795
	M&A Approach	.040	.066	.141	.602	.548	.021	46.685
	Product and service (technical) innovation	-.144	.063	-.382	-2.298	.022	.043	23.302
	Administrative innovation	.055	.066	.193	.832	.406	.022	45.310
	Digital innovation culture	.062	.018	.180	3.392	<.001	.422	2.369
a. Dependent Variable: Organizational Performance								

Table 4.10 Residual Statistics

	Min	Max	Mean	SD	N
Predicted Value	2.2007	3.0933	2.7429	0.283	300
Residual	-.49982	.51429	0.00	0.207	300
Std. Predicted Value	-1.912	1.236	0.00	1	300
Std. Residual	-2.390	2.459	0.00	.992	300

The histogram Figure 4.6 and Table 4.10 depict the regression standardized residuals distribution, which should ideally be normally distributed if the regression model is appropriate. The overlaid curve is a normal distribution curve, showing that the residuals are approximately normally distributed. Results suggest that the model's assumptions about the residuals are reasonably satisfied. The key independent variables (Pre-M&A information, M&A approach, product and service innovation, administrative innovation, and digital innovation culture) likely have a significant and explainable relationship with the dependent variable (OP). The study suggests that digital innovation might moderate the relationship between M&A activities and OP. The residuals' normal distribution supports the reliability of these findings.

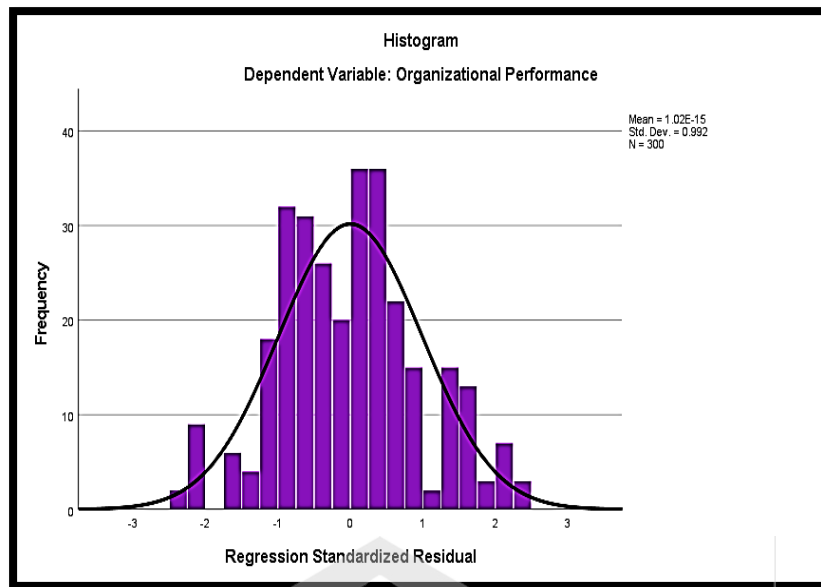


Figure 4.6 Visual Depiction of Standardized Residual

The scatterplot Figure 4.7 shows a positive linear relationship between the predicted and actual values of OP. The result indicates that the actual OP also tends to increase as the predicted value increases. In the case of industrial firms, the vitality of digital technology is also crucial for obtaining a competitive edge in the current dynamic and competitive market. Companies have increasingly focused on digital M&A to improve their digital transformation and performance. Thus, this study will assess the influence of digital M&A on the OP of industrial firms in Pakistan using an innovative model. This study will be a quantitative study entailing the analysis of quantitative primary data sourced from the questionnaire-based survey. This study will be significant in both practical and theoretical terms. The model developed by this study will render invaluable insights about digital transformation through digital M&A.

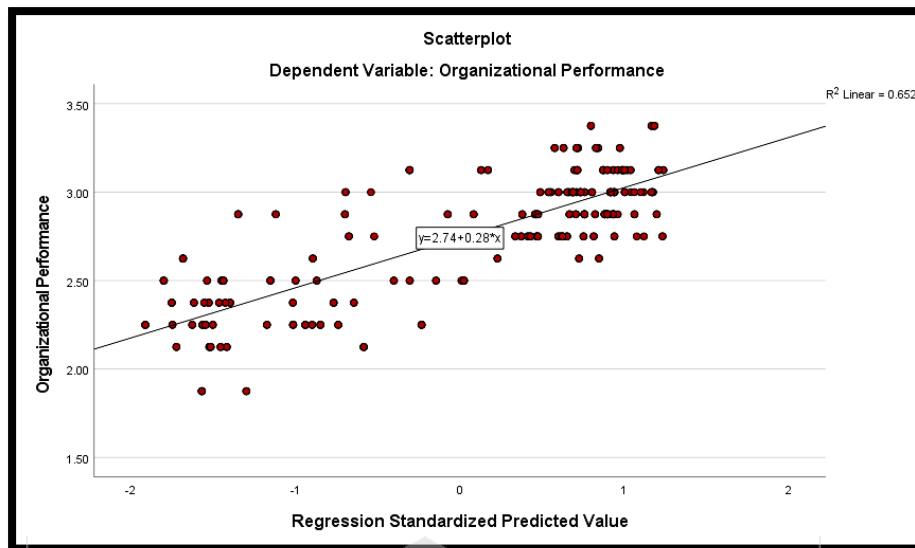


Figure 4.7 Scatterplot for OP

4.8 UNEXPECTED INSIGHTS AND EMERGING PATTERNS

Although the general findings confirmed the theorized positive correlations between digital M&A, innovation, and organizational performance, certain surprises followed. Contrary to common assumptions that firm size and fiscal capacity determine the success of digital M&A, innovation culture and pre-M&A digital readiness were found to exert stronger impacts on performance results than structural resources.

Surprisingly, medium-digital-maturity companies fared better in post-acquisition innovation results than heavily digitalized ones, which suggested that organizational flexibility and learning orientation might surpass dominant digital infrastructure in synergetic drive. Moreover, qualitative interviews stressed that commitment on the part of the leadership and cross-functional integration were more vital in post-merger integration success than technology adoption per se. These findings are counterintuitive to traditional M&A thinking, emphasizing that success in digital transformation is not as much about size as it is about responsiveness, culture, and strategic intent alignment. These unexpected results contrast with international studies, where firm size and technological capabilities consistently turn out to be the strongest predictors of M&A success (e.g., Hanelt et al., 2021; Cappa et al., 2022).

Digital integration in advanced economies is generally resource-driven, with emphasis placed on technological capability and deal size. But in Pakistan, the evidence suggests that organizational agility, leadership involvement, and culture of innovation play a far more salient role. This difference illustrates Pakistan's relatively less developed digital infrastructure, where human and strategic capabilities bridge technological gaps. Unlike Western or East Asian firms, Pakistani industrial organizations often leverage adaptive learning and informal knowledge transfer to achieve post-merger digital integration. The study thus underscores that contextual facilitator, rather than technological richness, characterize digital M&A success in emerging economies.

4.9 INTEGRATION OF QUANTITATIVE AND QUALITATIVE FINDINGS

Quantitative and qualitative findings provides an exhaustive image of digital M&A in the Pakistani industrial context. Quantitative results proved statistically significant relationships between digital maturity, integration capability, and innovation performance, supporting that more digitally advanced firms achieve greater innovation results. Qualitative interviews, however, enriched this explanation by offering the reason for these tendencies—exploring managerial culture, infrastructural constraints, and institutional factors inducing or hindering digital integration after M&A. Together, the two data sets create a convergent message: successful digital M&A is not only technologically compatible but also organizationally and culturally ready. For example, statistical correlations between innovation culture and performance were captured in interview results emphasizing leadership support and openness to experimentation. While quantitative analysis identified moderate correlations between contextual variables and performance, qualitative data shed light on the fact that these correlations are conditional on institutional barriers, such as regulatory complexity and poor digital infrastructure.

4.10 PROPOSED INNOVATION MODEL

The proposed Digital M&A Innovation Model presents a distinct strategy for industrial companies in Pakistan that aim to convert digital acquisitions into enhanced innovation

capabilities and better performance. Based on insights obtained from both quantitative and qualitative research phases, the model emphasizes three essential components: readiness for digital transformation before acquisitions, aligning newly acquired digital technologies with business goals, and facilitating seamless integration following the M&A process. It identifies digital innovation as the fundamental mechanism that allows firms to transform digital investments into concrete organizational advantages. The model also acknowledges the impact of internal factors, such as cultural receptiveness to change, strong leadership support, and the compatibility of technological systems. Overall, this framework serves as a practical guide for organizations looking to improve their digital maturity, address issues with outdated systems, and achieve sustained competitiveness through innovation-driven digital M&A initiatives.

4.10.1 Weaknesses in The Existing Models

Xu and Li's (2023) model is mechanistic, whereby the authors' appetitive digital transformation directly influences firm boundaries, further influencing market power. Nonetheless, M&A processes, in reality, increasingly operate in a non-linear and many-to-one, two-way, three-way, etc. manner. Even though it is central to digital M&A, the model does not integrate innovation as a construct. It focuses on structural limitations and market growth but does not discuss how digital acquisitions help or hinder innovation capabilities. The model focuses on the organizational form (subsidiaries vs. M&A) while ignoring organizational culture, capabilities, or knowledge integration. These are crucial elements impacting post-merger digital innovation outcomes. This framework expects a level of institutional sophistication and technical infrastructure that is generally not seen in industrial companies in Pakistan. It does not consider the contextual barriers, such as disinterest in digital readiness, constraints, and skills mismatch in the workforce.

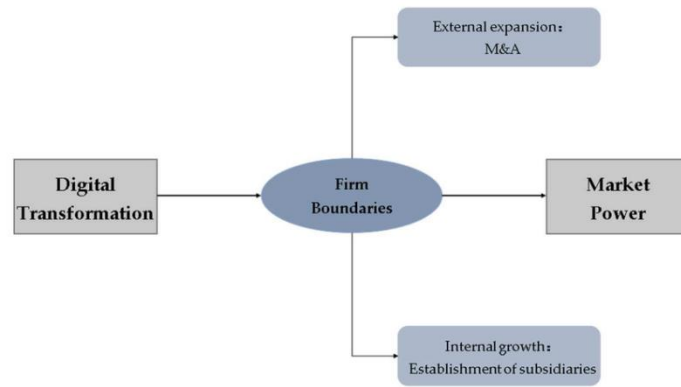


Figure 4.8 Mechanistic Model

Source: (Xu and Li, 2023)

Also, the framework by Zhang et al. (2023) includes serial M&As, digitally inclusive finance, financing constraints, and innovation performances. Though more lively than the first one, it also suffers considerable limitations concerning its applicability in industrial firms in Pakistan. It is the M&A performance primarily linked to financial variables, such as financing barriers and inclusive finance. In other words, access to digital finance is the main bottleneck. Financing is significant; however, innovation requires different things, such as organizational culture, leadership, integration process, and digital capability. The framework treats M&A as either serially occurring or not happening, ignoring merger type, strategic intent, and a firm's digital acquisition integration difficulty. In Pakistan's fragmented industrial sectors, the above variables particularly matter. Another key failure of M&A deals, especially in the digital space, is cultural integration. The model ignores the fit with organizational culture, differences in leadership style, and digital capability, which often drive success. Innovation performance is a single end-point construct without considering the type (e.g., process versus product; incremental versus radical) or the mechanisms to achieve during/after M&As.

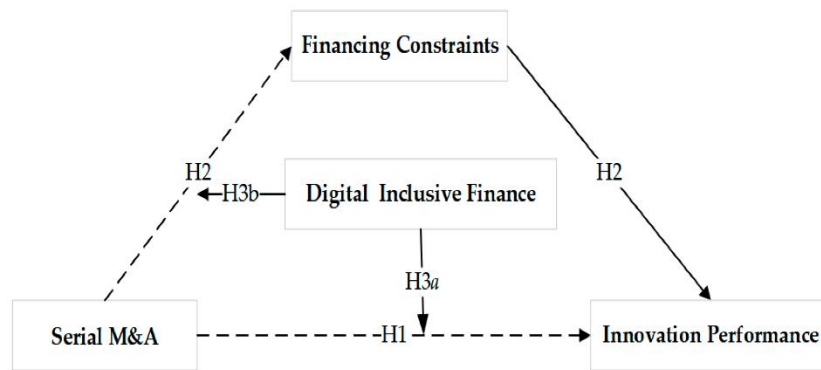


Figure 4.9 Linear Model Showing the Relationship between Digital Transformation, Firm Boundaries, and Market Power Post-M&A

Source: (Zhang et al., 2023)

4.11 PROPOSED DIGITAL M&A INNOVATION MODEL FOR INDUSTRIAL FIRMS IN PAKISTAN

Considering the limitations in existing models and the specific conditions of Pakistan's industrial sector, the study put forward the Digital M&A Innovation Model, which is multi-level, dynamic, and context-specific. The model consists of the organizational, strategic, cultural, and contextual factors that shape innovation outcomes from digital M&As.

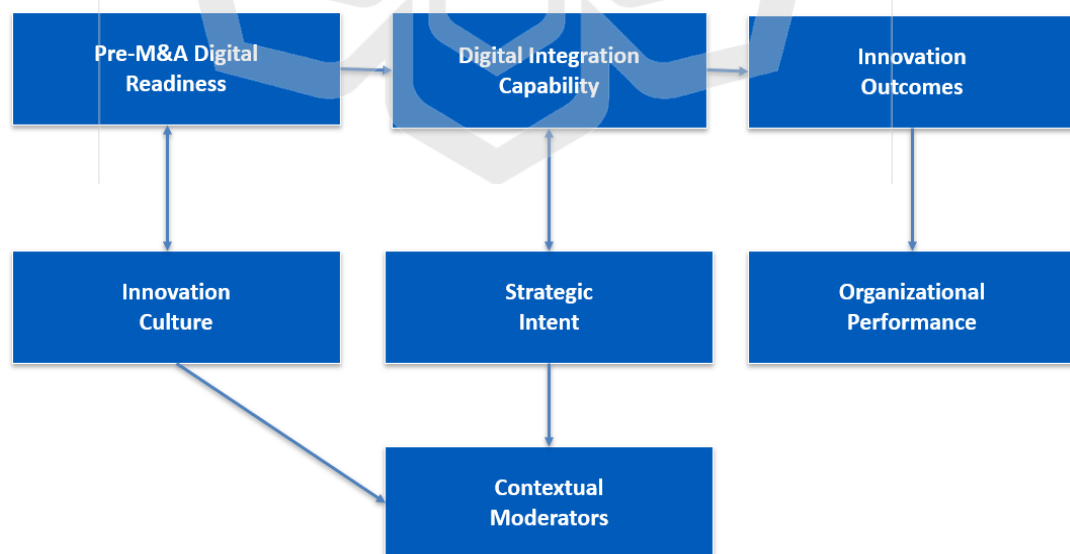


Figure 4.10 Proposed Model for M&A

4.11.1 Key Constructs and Relationships

4.11.1.1 Pre-M&A Digital Readiness

Digital readiness refers to an organization's capacity to effectively adopt, integrate, and utilize digital technologies across its processes, supported by adequate infrastructure, skilled human resources, and enabling policies (Ali & Amin, 2025). For example, Pakistani higher education institutions with reliable internet connectivity, trained faculty, and supportive administration are considered digitally ready to implement online learning platforms (Ali & Amin, 2025).

It shows the levels of technological infrastructure, digital skill, leadership mindset, and organizational adaptability before entering a merger and acquisition (Zhao et al., 2025). Digitally mature firms are better at absorbing, integrating, and scaling the innovations gained from M&A.

4.11.1.2 Strategic Intent of M&A

The primary purpose behind taking over is market entry, technology absorption, resource acquisition, or capability expansion (Felker et al., 2024). The type of mergers and acquisitions will influence the innovation output or innovation type.

4.11.1.3 Digital Integration Capability

The firm can combine bought-in digital systems teams and processes (Zhao & Liu, 2024). Due to inadequate integration, many digital M&A deals fail to deliver the expected benefits.

4.11.1.4 Innovation Culture

Innovation culture is the shared values, beliefs, and practices within an organization that encourage creativity, experimentation, risk-taking, and continuous improvement (Munir, Parvaiz, & Hussain, 2023). In Pakistani telecom companies, an innovation culture exists when leadership actively supports employee initiatives for new fintech

solutions and invests in research and development despite potential risks (Munir et al., 2023).

It describes the common norms and values that encourage experimentation, risk-taking, and openness to digitization (Zhao et al., 2025). A strong innovation culture moderates the influence of structural and strategic elements on innovation performance. The indicators include R&D intensity, ability to tolerate failure, openness to change, and reward systems.

4.11.1.5 Contextual Moderators (Pakistan-Specific)

Digital infrastructure limitations comprise bandwidth accessibility, power stability, and national IT penetration. The institutional Environment includes government rules, industrial rules, and digitalization incentives. Organizational hierarchies, resistance to change, and language issues hinder technical adoption.

4.11.1.6 Innovation Outcomes

In their 2019 work, "The Relationship Between Types of Innovation and SMEs' Performance: A Multi-Dimensional Empirical Assessment," Alfonso Expósito and Juan A. Sanchis-Llopis examined the effects of different types of innovation on the company performance of small and medium enterprises (SMEs). They utilized a multi-dimensional analysis approach to assess the effects of innovation on multiple measures of performance.

4.11.1.6.1 Innovation Types Examined

The study highlighted three principal types of innovation:

- **Product Innovation:** Introduction of new or significantly improved product or service.
- **Process Innovation:** Introduction of new or significantly improved production or delivery methods.

- **Organizational Innovation:** Introduction of new organizational practices for business strategy, workplace organization, or external relations.

4.11.1.6.2 Performance Indicators Measured

The authors quantified the impact of these innovations on four performance measures:

1. Financial Indicators:

- **Sales Growth:** Sales revenue growth.
- **Cost Savings:** Decrease in cost of doing business.

2. Operational Indicators:

- **Increase in Productive Capacity:** Enhancement in the productive capacity to produce goods or offer services.
- **Enhancement in Quality:** Enhancement in the quality of products or services offered.

3. Methodology

The study employed a multi-dimensioned analysis framework to analyze the data collected from Spanish SMEs. The methodology allowed for overall assessment of how every category of innovation influenced the different measures of performance.

Findings

The study found that:

- **Positive Effects:** Every type of innovation had a positive effect on both financial and operating performance measures.
- **Differential Effects:** The size and nature of such effects varied depending on the type of innovation as well as the performance measure at hand.

- **Strategic Implications:** The results emphasized the need to align innovation strategies with strategic performance outcomes, especially when there are few resources to be devoted to innovation.

1. Relevance to Pakistan

For your research on digital M&A and innovation in Pakistan, using the parameters adopted by Expósito and Sanchis-Llopis's study can assist you in arriving at fruitful conclusions. By analyzing the impact of digital product, process, and organizational innovations on the financial performance measures and operation performance measures, you can form a comprehensive perception regarding how such innovations influence business outcomes within Pakistan.

To render these modified parameters valid and reliable, it would be required to:

- **Contextual Adaptation:** Modifying the parameters to fit the specific economic, regulatory, and cultural milieu of Pakistan.
- **Pilot Testing:** Pilot questionnaires to test out the suitability and clarity of the modified questions.
- **Expert Validation:** Taking feedback from local industry participants and scholars to ensure the parameters are properly adapted.

By carefully adapting and validating these parameters, you can effectively assess the impact of digital M&A and innovation on business performance in Pakistan.

4.11.1.7 Organizational Performance

Organizational performance is the degree to which a firm achieves its strategic objectives, measured through financial outcomes, operational efficiency, innovation outputs, customer satisfaction, and employee engagement (Irfan, Khurshid, Khurshid, & Khokhar, 2023). A Pakistani telecom firm's organizational performance might be assessed by increased revenue, faster rollout of new services, and reduced customer churn post-merger (Irfan et al., 2023).

It presents the financial and non-financial outcomes influenced by the digital M&A. Key dimensions are profitability, market share, operational efficiency, employee satisfaction, and ESG performance.

4.11.2 Critical Evaluation of the Proposed Digital M&A Innovation Model

The Digital M&A Innovation Model, which has been conceptualized, provides an effective blue print for understanding how pre-M&A digital readiness, strategic intent, digital integration capability, and innovation culture overlap to influence innovation outcome and organizational performance within Pakistani industrial firms. Nevertheless, several limitations must be taken into consideration.

First, the model assumes a linear and sequential causality among variables, whereas, in real M&A operations, variable relationships are typically iterative and dynamic, influenced by continuous learning and feedback cycles. Second, the model focuses on internal organizational drivers but under represents external environmental drivers such as market volatility, changes in policy, and technological surprises that have a tendency to be key drivers in emerging markets such as Pakistan.

Third, the treatment of contextual moderators in the model is very broad. Their rich and perhaps non-linear interactions with other constructs may limit the model's predictive capacity. Fourth, the organizational level emphasis of the model neglects determinants at the individual level—leadership commitment, employee digital literacy, and resistance to change—that may mediate or moderate digital integration effects.

Lastly, as the model was developed and validated within the Pakistani industrial firms environment, it is not universal to other industries or countries. Future research must therefore adopt longitudinal and cross-industry designs, study multi-level dynamics, and modify contextual constructs to enhance the model's robustness and extensibility. Despite these limitations, the proposed Digital M&A Innovation Model by this study is a significant contribution to understanding the impact of digital capability acquisition on organizational performance in emerging economies. It bridges both theoretical and practical gaps via convergence of digital readiness, innovation culture, and strategic intent into one framework that is modified to suit the context of Pakistani industrial companies. While further tuning by further empirical testing and

multi-level examination is needed, the model provides a sound theoretical foundation for follow-up research and a managerial manual for managers seeking to implement digital transformation as part of post-M&A integration plans.

4.12 SUMMARY

Chapter 4 presents the findings of a quantitative research study that investigates the impact of digital M&As on OP and digital innovation in industrial firms in Pakistan. The study used survey questionnaires to collect and analyze data using statistical techniques. The demographic analysis revealed that 46% of the data were missing. However, the other information shows that there was diversity in the participants' age, education, and experience variables. Regression diagnostics analysis confirmed that the model was normally distributed and independent. Most people's perception of OP, digital innovation culture, M&A & associated indicators is moderate. According to correlation analysis, a strong positive relationship exists between OP and pre-M&A information, M&A Approach, technical and administrative innovation, and digital innovation culture. The regression results revealed that these variables explained 65.2% of OP's variance, indicating that the model fit was fairly good ($R^2 = 0.652$, Adjusted $R^2 = 0.646$). In short, the findings suggest that a digital M&A driven by a strategic and innovation focus will drive better organizational performance. The chapter calls for creating a conducive digital innovation culture and effective integration strategies to reap the benefits of digital transformation in post-M&A situations.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter synthesizes the research findings, links them to the research objectives, and compares them with existing literature. It also discusses the theoretical & implications of these findings for stakeholders, outlines the study's limitations, and provides recommendations for future research. The central theme of this study was to explore the current state of digital M&A in Pakistan and the inadequacy of digital innovation within this context. Demographic analysis, regression models, and correlational studies offer a holistic understanding of the interplay between M&A processes, innovation, and OP.

The quantitative data analysis provides robust empirical support for the suggested Digital M&A Innovation Model. The model's explanatory power ($R^2 = 0.652$, Adjusted $R^2 = 0.646$) indicates that pre-M&A information preparedness, strategic M&A approach, and digital innovation culture collectively account for over 65% variance in the organizational performance of Pakistani industrial firms. Strong positive correlations between organizational performance and the key innovation constructs ($r > 0.68$, $p < 0.01$) further support interdependence among digital integration and innovation. These results confirm that firms with better post-acquisition performance are those that are able to align digital strategy, innovation capability, and integration processes. Thus, the empirical evidence corroborates the model's hypothesis that digital M&A, if led strategically and backed culturally, serves as a driver of digital transformation and long-term competitive advantage in the industrial sector of Pakistan. Finally, the chapter concludes with directions for future research. This structure ensures concise and coherent discussion connecting theory, evidence, and practice.

5.2 KEY FINDINGS AND INTERPRETATION

This section discusses the key findings in Chapter 4 using existing literature. It focuses on the status of digital M&A in Pakistan, the influence of pre-M&A planning, and the role of innovation in M&A outcomes.

5.2.1 Status of Digital M&A in Pakistan

The status of the digital M&A is weaker in the region. The private sector is still lagging behind the factors that mainly support all the performance. Companies in Pakistan's telecommunications and banking sectors tend to perform more effectively due to their higher degree of digital readiness and process integration, whereas traditional manufacturing firms continue to struggle with operational inefficiencies. Findings have revealed that the M&A ecosystem in Pakistan is still evolving. The public and private sectors are working on the issues that are going on in the region. There is a lot of pressure from the public on the local servants of the country. Services are going on in the region, and there is a noticeable lack of emphasis on integration. There is a lack of digital innovation in these processes.

The work has to be done based on the standards set by the regulatory bodies, and the firms recognize their importance. The simple adoption of the strategies does not solve many issues; some issues need an M&A as a strategic plan for growth. The competition is coming worldwide into developing countries like Pakistan through foreign direct investments (Saleem et al., 2021). These developing countries cannot make robust decisions because they often fail to leverage digital advancements effectively. Research must address the prime concern, which is the evolving scenarios. The demographic data of this study implicitly highlights the need for more experienced professionals. There can be the addition of human factors (e.g., training) as these are the factors that can make digitalization better in the country. Thus, there is a need for many comprehensive approaches to create successful M&A activities. Findings align with previous studies suggesting that M&A efforts in emerging markets often lack robust digital strategies (Moeini Gharagozloo et al., 2021). The missing data across demographics (46%) further indicates a lack of consistent record-keeping and data transparency, which hampers strategic decision-making in the M&A landscape. The

study has integrated digital M&A strategies to stay competitive and fulfill emerging market requirements.

Developing countries are found to be striving hard to achieve excellence in digitalization (Mondejar et al., 2021). The evolving technological landscape in Pakistan highlights the required aspects for growth. There are many gaps in innovation and preparedness. A prime aspect is the potential of digital M&A. This study has to contribute to economic growth and competitiveness. Several studies have been performed regarding M&A and its role in increasing businesses' digital transformations. Researchers such as Alkaraan (2022) have highlighted that M&A can be highly effective in enhancing technological advancements and digital knowledge and improving the performance of companies. The M&A and its association with organizational performance can be depicted through the role of IT resources and information systems. Nwankpa and Datta (2017) reported that exploiting and acquiring the IT resources of target companies can significantly add to the digital business intensity of the firms. There are new aspects, and they reported increased organizational performance.

Recent research studies have highlighted the growing trend of digital mergers. Rizzo (2021) explicitly highlighted that investors have used M&A, especially digital M&A, as an effective exit strategy. The outcomes of this study reflect sectoral heterogeneity reported in the literature. Firms operating in telecommunication, FinTech, and e-commerce demonstrated much higher capacity to integrate digital assets following mergers and acquisitions. The respondents in these industries reported smoother system integration, quicker implementation of digital tools, and improved strategic fit of target companies. These results reinforce the presumption that success in digital M&A is strongly linked to industry readiness in terms of accessible IT infrastructure, staff capability, and acceptance of digital change. Delegates from manufacturing and logistics sectors, for their part, referred to significant post-merger integration challenges and mentioned weak digital infrastructure and resistance from within. This divergence is in accordance with existing studies (e.g., GSMA, 2022; World Bank, 2020) and supports the contention that sector-specific elements play a key role in defining M&A outcomes in the case of Pakistan. They reported that investors sell companies to digital incumbents through M&A. This includes advancements in AI,

cloud computing, and data analytics. Many other factors have been contributing to the progress. This is a critical driver of success, and it is related to the M&A activity. These are the activities that the companies perform to make a profit. There are differences between the countries. It has also been observed in Pakistan. The government has inadequate digital infrastructure. It has also been found that there is low investment in research and development (R&D). These inadequacies are significant, and these are the things that mainly hinder organizations' ability. The issue is related to the slowdown of businesses and a lack of leverage that can be gained in digital M&A. There is also a lack of development of a competitive advantage.

5.2.2 Challenges and Opportunities in Pakistan's Digital M&A Landscape

Mergers and acquisitions (M&A) in the digital space are increasingly viewed as key drivers to drive economic growth and technological advancement in Pakistan, particularly with the country looking to move further into the digital global economy. Digital M&As can, through their capability to pool resources, access new technologies, and venture into bigger markets, potentially drive faster innovation and competitiveness in Pakistan's emerging technology ecosystem. For example, large deals such as DigitalOcean's acquisition of Cloudways reflect the contribution digital M&As conducted with integrity can have on Pakistan's tech sector (Dawn, 2024). That being said, few digital M&A attempts in Pakistan are unsuccessful since, though strategically valuable, they are rather frustrated by several issues that persist.

Operational and cultural misalignments often hinder effortless integration between converging organizations, whereas regulatory complexities and infrastructural limitations—e.g., unstable internet connections—pose critical barriers to scaling digital businesses (Financial Times, 2023). Furthermore, a lack of deep market understanding frequently causes products and services not fully to resonate with localized consumer needs, leading to poor adoption rates and financial losses (Flare.pk, 2025). Retention of human capital is also a major concern as skilled professionals move abroad or get poached by multinationals, leaving local industries without experienced hands to spearhead growth (Livewell, 2023). This nuance creates an apparent contradiction: digital M&A is the future of Pakistan but is largely unable to fully realize its real potential. Solving this dilemma must be tackled from multiple fronts, including rigorous

due diligence to gain a complete understanding of cultural and market trends, regulatory reform to present an enabling platform for digital innovation, and investment in human capital to retain expertise. Only by solving these systemic problems can Pakistan maximize the benefits of digital M&As and make them a cornerstone of the nation's sustainable digital economy development.

5.2.3 Influence of Pre-M&A Planning

The high correlation between PMAI ($r = 0.783$) and OP underscores the critical role of thorough due diligence in M&A success. The regression analysis further confirmed that pre-M&A planning strongly predicts performance, accounting for significant outcome variance. These findings align with global research emphasizing that M&A success hinges on well-informed decisions backed by accurate data and strategic foresight (Mondejar et al., 2021). In the Pakistani context, the lack of structured approaches to pre-M&A analysis may explain why many transactions fail to meet their objectives.

5.2.4 Role of Innovation in M&A Outcomes

The study highlights the significant impact of PSI ($r = 0.743$) and administrative innovations ($r = 0.781$) on OP. These findings suggest that firms that integrate innovative practices into their products, services, and operations are more likely to achieve positive M&A outcomes. The relatively lower correlation for Digital Innovation Culture ($r = 0.673$) indicates a gap in embedding a long-term, innovation-driven mindset within organizations. This gap resonates with the broader challenge faced by companies in Pakistan, where traditional business practices often overshadow digital transformation initiatives.

5.2.5 Strategic Approaches to M&A

The strong positive relationship between the MAA ($r = 0.769$) and OP highlights the importance of adopting a structured and adaptive strategy. Firms that actively plan for integration, resource alignment, and cultural synergies tend to outperform those with ad hoc approaches. In the case of industrial firms, the vitality of digital technology is also

crucial for obtaining a competitive edge in the current dynamic and competitive market. Companies have increasingly focused on digital M&A to improve their digital transformation and performance. This study uses an innovative model to assess the influence of digital M&A on the organizational performance of industrial firms in Pakistan. The model developed by this study will render invaluable insights about digital transformation through digital M&A. The results align with global best practices, which advocate for a flexible but systematic approach to M&A to address the dynamic nature of modern business environments.

Moreover, the study demonstrates that fostering a culture of digital innovation is a moderating factor, enhancing the relationship between M&A activities and OP. While its direct impact is slightly lower than other factors, the indirect benefits of digital innovation are also lower. It has improved adaptability, scalability, and market competitiveness. This finding reinforces the need for organizations to prioritize digital transformation as an integral component of their M&A strategies, particularly in a rapidly digitizing global economy (Alkaraan, 2022).

5.3 DISCUSSION OF THE DIGITAL M&A INNOVATION MODEL IN LIGHT OF EXISTING LITERATURE

This study has developed the Digital M&A Innovation Model, which is aligned with and extends the existing literature and contextualizes key innovation drivers within the Pakistani industrial sector. The input stage of the model refers to the situation before the M&A deal, and it comprises pre-M&A information (PMAI) and digital innovation culture (DIC), both of which assist the company in going through the DA transition appropriately. Rose (2023) argued that they are flexible and robust in IT infrastructure, which is measured traditionally by the pre-merger due diligence required to achieve success at the post-merger integration stage.

While pointing toward lower performance in our model, digital innovation culture is an essential enabler for absorbing and scaling innovations following a merger. In this sense, Driessen et al. (2023) state that digital readiness and a supportive organizational culture are magnets for value-creating M&A transactions. The scenario is very relevant to Pakistan, which falls in the category of emerging markets where the

diffusion of innovation, particularly from advanced techno design, is significantly constrained by cultural and infrastructural limitations (Shan et al., 2025).

The model process stage has three stages: input, process, and outcome. It is validated by the high correlation between OP and the selected explanatory factors, ranging from 0.743 to 0.781, implying that the latter directly affects post-merger outcomes. This finding is verified by Findsrud (2020), who argues that strategically innovative M&A can integrate faster, allocate resources more effectively, and be more agile. Han et al.'s (2018) observation that digital acquisitions allow for knowledge overlap suggests they also improve the firm's technological capabilities and operational structures.

Finally, an output stage, enhanced OP, aligns with the conclusion put forward by Hanelt et al. (2021), who claim that a successful digital M&A facilitates increased productivity, innovation capacity, and competitive business positioning for the customer organization. However, M&A without the proper IS integration and innovation strategy alignment may not realize the expected returns, and the current model mitigates such risk by employing a structured, comprehensive approach at multiple levels. Collectively, the model provides a literature-grounded framework that allows industrial firms in Pakistan to systematically develop a digital M&A strategy that can enhance innovation capacity and post-merger performance in a way adaptable to context while trying to achieve sustainability.

5.3.1 Comparison with Alternative Theoretical Frameworks

The proposed Digital M&A Innovation Model integrates the knowledge of digital transformation, innovation management, and strategic capability theories in explaining how digital capability acquisition results in organizational performance (OP) in industrial firms. Comparison with other frameworks that have previously been employed to guide similar research for the purpose of theoretic relevance is necessary, including the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), Institutional Theory (IT), and the Technology–Organization–Environment (TOE) framework.

5.3.1.1 Resource-Based View (RBV)

RBV, as developed by Barney (1991) and later developed by Wernerfelt (1984), contends that the competitive advantage of a firm lies in its capacity to acquire and leverage valuable, rare, inimitable, and non-substitutable (VRIN) resources. In digital M&A, RBV explains why firms pursue acquisitions—to attain new digital assets such as analytics capabilities, IT infrastructure, and data-driven skills (Cao et al., 2022a; Cappa et al., 2022).

However, RBV is not dynamic; it is based on the ownership of resources rather than their incorporation and leverage after acquisition (Teece, 2018). The Digital M&A Innovation Model expands the RBV perspective by including innovation culture and digital integration capability as the means by which digital resources purchased are transformed into organizational performance. The model thus makes the value realization process real.

5.3.1.2 Dynamic Capabilities Theory (DCT)

DCT, in the words of Teece, Pisano, and Shuen (1997), focuses on the capacity of a firm to integrate, combine, and rearrange internal and external competences in response to change in the environment. DCT is extremely close to digital M&A, where successful post-merger integration depends on the capability of an organization to dynamically reconfigure digital assets (Hanelt et al., 2021; Moeini Gharagozloo et al., 2022).

The model developed in this article builds upon DCT by establishing digital integration capability as a core dynamic capability for innovation and performance enhancement. However, it builds on this by also including contextual moderators like institutional conditions, employees' digital preparedness, and leadership support, which make the model more suitable for emerging economies like Pakistan (Jabeen et al., 2024; Rauniyar et al., 2023). Besides, by incorporating innovation culture and strategic intent as dynamic capability microfoundations, the model extends DCT's applicability scope to the socio-technical dynamics of industrial firms.

5.3.1.3 Institutional Theory (IT)

Institutional Theory is interested in stressing the institutional settings—regulatory, normative, and cultural-cognitive—that affect organizational action (DiMaggio & Powell, 1983; Scott, 2014). Weak regulatory institutions, legacy systems, and cultural resistance are significant factors in M&A integration success in Pakistan (Joshi et al., 2020; Wang & Mushtaq, 2022).

While Institutional Theory would have predicted alignment with such pressures, the theorized Digital M&A Innovation Model assumes strategic agency and asserts that firms can surmount institutional lag with digital readiness and leadership to innovate. The model thus situates firms as forward-thinking actors capable of shaping their own institutional environments through digital transformation programs instead of playing a passive role to institutional forces.

5.3.1.4 Technology–Organization–Environment (TOE) Framework

The TOE model (Tornatzky & Fleischer, 1990) provides a complete overview of technology adoption in that technological, organizational, and environmental drivers dictate innovation decisions. Though widely employed in digital transformation studies (Moeini Gharagozloo et al., 2021), TOE is more descriptive and less specific concerning how the conditions are associated with performance consequences.

The Digital M&A Innovation Model enhances TOE by bringing these contextual dimensions together in a causal structure linking digital readiness, integration capability, and innovation culture to tangible performance improvements. It therefore gives a more dynamic and process-oriented explanation of how contextual conditions affect post-M&A digital innovation outcomes.

While the RBV, DCT, IT, and TOE views offer valuable explanations of firm-level change, each has drawbacks in capturing the complex, processual, and context-dependent nature of digital M&A in emerging markets. The proposed Digital M&A Innovation Model synthesizes these perspectives into an integrated framework that bridges the divide between resource acquisition (RBV), capability reconfiguration (DCT), institutional adaptation (IT), and contextual integration (TOE). Thus, it provides

a comprehensive explanation of how the acquisition of digital capability leads to better innovation and organizational performance in industrial companies in Pakistan.

5.3.2 Critical Evaluation of Pakistan-Specific Contextual Factors

The Digital M&A Innovation Model proposed includes contextual moderators to encapsulate the local setting, institutions, and organizational circumstances of Pakistan's manufacturing sector. Critical analysis, however, reveals that these factors—though significant in shaping digital M&A success—both embody structural limitations as well as strategic opportunities. Understanding such contextuality is imperative for interpreting the findings and assessing the applicability of the model within and beyond Pakistan.

5.3.2.1 Institutional and Regulatory Environment

Institutionally, Pakistan is characterized by regulatory uncertainty, weak enforcement capability, and errant digital policy implementation (Wang & Mushtaq, 2022; Joshi et al., 2020). The absence of strong data protection laws and thin incentives to digital adoption are barriers to post-M&A IT system integration. Compared with developed economies, where digital infrastructure and governance institutions are sound, regulatory uncertainty in Pakistan increases transaction risk and drives away high-value digital investment (Rauniyar et al., 2023).

Even though the model identifies such challenges in contextual moderators, it has the assumption that companies can counter them through strategic intent and digital readiness. This could be too optimistic because structural flaws such as bureaucratic inertia and fragmented digital policies usually constrain company agency (Scott, 2014). Further evolution of the model could have more focus on depicting institutional asymmetries as external constraints, rather than those that companies can counter.

5.3.2.2 Technological Infrastructure and Digital Readiness

Digital readiness among Pakistani industrial firms is heterogeneous. Firms are primarily legacy-based, featuring little automation, poor cybersecurity architecture, and minimal

interoperability of systems (Moeini Gharagozloo et al., 2021). Industrial digitalization and penetration of broadband are behind other regional peers, constraining the scalability of digital transformation (Yu & Yan, 2022).

The Digital M&A Innovation Model establishes digital readiness as a pre-requisite for successful integration, but in Pakistan, readiness itself is a systemic matter rather than an individual firm-level choice. Without government-backed investments in digital infrastructure and building capability, even strategically oriented firms may not be able to deliver post-M&A synergies. This limitation underlines the need for a macro-level policy framework in applying or extrapolating the model to developing economies.

5.3.2.3 Human Capital and Digital Literacy

One key constraint of digital M&A success in Pakistan is the unavailability of digitally trained human capital. Industrial firms seldom possess employees capable of using advanced information systems, data analytics, or AI applications (Jabeen et al., 2024). The digital skill deficiency among the workforce not only slows down integration but also reinforces resistance to new technologies (Cappa et al., 2022). The model is accurate to identify innovation culture as a mediating variable, but operationally, skill availability significantly influences culture. Without executive sponsorship and attendant capacity building, the intended innovation culture might remain elusive. Therefore, subsequent versions of the model must address digital literacy and skill development as quantifiable moderators and not implicit enablers.

5.3.2.4 Organizational Culture and Leadership Orientation

Organizational designs in Pakistani firms tend to be formal, with high centralization and no room for failure (Wang & Mushtaq, 2022). This culture conflicts with the experimental and adaptive nature needed for digital innovation. Adding innovation culture to the model is theoretically sound but constrained in reality because of deeply rooted managerial habits. Also, digital M&A success relies on cross-functional leadership, yet digital transformation is often considered an IT initiative not a strategic one (Cao et al., 2022a). This siloed thinking limits collaboration among IT, operations,

and strategic management units. Thus, leadership readiness—much like organizational culture—emerges as a significant yet under-represented factor within the model.

5.3.2.5 Economic Volatility and Resource Constraints

Pakistan's macroeconomic volatility—marked by unstable exchange rates, inflation, and electricity outages—directly impacts M&A investment choices and merger integration costs (Joshi et al., 2020). These financial constraints influence the amount of investment firms can make in digital technology and training, thereby limiting the pace of innovation. Though the model has contextual moderators, it classifies them as fixed drivers. In real life, economic instability causes dynamic contextual change that continuously reorganizes digital priorities. Thus, a more realistic model would require temporal flexibility—recognizing that contextual drivers shift and interact with firm-level strategy over time.

5.3.2.6 Cultural Resistance and Change Management

Cultural resistance to change is still the most pervasive hindrance to digital transformation in Pakistan. Digital integration is viewed by employees and middle managers as a threat to their jobs or upsetting processes (Jabeen et al., 2024). The assumption of the model that innovation culture can be created through leadership and training holds true in theory but ignores deeply rooted social norms, such as power distance and risk avoidance (Hofstede, 2011). To increase its applicability, subsequent versions of the model must incorporate behavioral change mechanisms such as incentives, decision-making through participation, and gradual digital uptake to provide for resistance systematically.

Pakistan's industrial environment is a paradox for digital M&A: increasing recognition of the need for digital transformation but systemic barriers in the pipeline. The Digital M&A Innovation Model works well to address the importance of contextual moderators but can overestimate firms' capacity to influence such macro-level factors. The model itself is robust since it is adaptable, but its implementation has to be calibrated cautiously to factor in Pakistan's institutional weakness, technological limitation, and cultural resistance. It would be important for future research to take a

multi-level perspective and look at how national digital policies, sectoral regulations, and company-level strategies interrelate and determine post-M&A innovation performance. Cross-country comparative studies with other emerging economies like India, Malaysia, or Indonesia would be useful in ascertaining the model's generalizability and flexibility.

5.4 IMPLICATIONS FOR PRACTICE

This section presents the implications of this study. It focuses on practical implications for organizations, industrial policymakers, and academic scholars.

5.4.1 Theoretical Implications

The study offers several significant theoretical contributions by synthesizing and developing the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), Innovation Diffusion Theory (IDT), and Institutional Theory in the context of digital M&A in the emerging economies. The study confirms the RBV premise that digital M&A helps organizations acquire unique technology and human resources. However, the study extends beyond RBV by demonstrating that resource possession is insufficient—it is the reconfiguring and combining of such resources (DCT) that generates innovation. The study contributes to IDT by asserting that post-M&A innovation diffusion is subject to cultural readiness, leadership support, and institutional pressures. This dynamic suggests that diffusion is context-specific and not purely technological.

These findings are within the institutionally embedded context of Pakistan; the research contributes to Institutional Theory by illustrating how digital infrastructure quality and regulatory inconsistencies act as mediators between firm-level innovation dynamics. These theoretical contributions offer a multi-level explanation of how digital M&A creates innovation results in emerging markets.

5.4.2 For Organizations

The firms make strategic plans; however, there must be some focus on comprehensive pre-M&A planning. These firms can do detailed due diligence, market analysis, and risk assessments. These are all the strategic-level activities only done by the top management of these firms. It has been determined that these firms do not cater to the hour's needs and want to apply a robust strategy. These are the strategies that tend to provide few outcomes. These little outcomes are not sufficient for growth. Organizations should align their M&A efforts with innovation goals, prioritizing technical and administrative innovations.

Developing a strong digital innovation culture is essential for sustaining long-term growth and competitive advantage. The status of the digital M&A is weaker in the region. The private sector takes many actions but still lags behind the factors that mainly support all the performance. Performance varies across industrial sectors.

Some findings have revealed that the M&A ecosystem in Pakistan is still evolving. The public and private sectors are working on the issues that are going on in the region. There is a lot of pressure from the public on the local servants of the country. Services are going on in the region with a noticeable lack of emphasis on integrating. There is a lack of digital innovation in these processes.

The work has to be done based on the standards set by the regulatory bodies, and the firms recognize their importance. The simple adoption of the strategies does not solve many issues. Some issues need the M&A as a strategic tool for growth. Many firms are necessary for survival. Competition is coming from developing countries all around the world. These developing countries are unable to make solid-state decisions to make them strong. They often fail to leverage digital advancements effectively, which is a prime thing that must be taken care of concerning the evolving scenarios.

The demographic data highlights the need for more experienced professionals. There can be the addition of human factors, as these are the things that can make the aspects better in the country. There is a need for many comprehensive approaches to create successful M&A activities.

Furthermore, the digital innovation culture should be strengthened by organizations in Pakistan. Creating such a culture is more than enhancing short-term

performance; it embeds adaptability, creativity, and long-term sustainable processes into the organizational processes. Companies will have to design structured programs to create innovation at all levels, introducing incentives for employees who help bring digital initiatives to the company. Acquiring digital competencies externally is equally essential for the firm to develop digital competencies internally. Workforce readiness for digital transformation can be substantially strengthened by regular workshops, seminars, and initiatives to offer training on the skills needed to work digitally. Ongoing investment is also in advanced information systems and solid cybersecurity measures. Therefore, companies should invest their resources accordingly in upgrading their technological infrastructures so that post-M&A, these can be integrated and protected efficiently, as well as implement transparent communication strategies to manage expectations and achieve a smooth digital M&A integration process.

Additionally, partnerships and strategic alliances between private sector companies and technology providers, startups, and other international tech firms should be encouraged proactively to access digital capabilities and expertise. These collaborations can result in ventures, partnerships, or strategic alliances that are less risky and cheaper than complete acquisitions. Significant risk reduction can be realized for unsuccessful integrations with the ‘risk off’ approach of collaborative innovation, co-development of digital products and services, and a considerable gain in organizational agility.

Lastly, firms must start being more data-driven with their decisions. We should leverage advanced data analytics and big data capabilities to increase the accuracy of pre-merger evaluations and make strategic foresight more accurate. Sophisticated analytical tools run on sophisticated data significantly increase the odds of successful digital M&A when used by the organization, allowing it to precisely measure future synergies, operational challenges, and risks associated with the integration process.

5.4.3 For Policymakers

Governments and regulatory bodies should provide incentives for digital innovation, such as grants, tax breaks, and public-private partnerships. Policies promoting transparency in M&A transactions can enhance decision-making and research in this

area. The study has integrated digital M&A strategies to stay competitive and fulfill emerging market requirements. Developing countries like Pakistan are found to be striving hard to achieve excellence. The evolving technological landscape in Pakistan highlights the required aspects for growth. There are many gaps in innovation and preparedness, which limit digitalization.

Moreover, there is a need for clearer, stronger regulatory frameworks towards digital M&A, cybersecurity, data privacy, and IP rights among policymakers. The regulatory standards may clear the ambiguity, ensuring a streamlined M&A process and better compliance with international norms. Having transparent policies will ensure smooth-running acquisitions and help build investor confidence, hence approving foreign digital investments. Similarly, there must be investment in national digital infrastructure. First, significant resources should be allocated to increase broadband connectivity, cloud computing abilities, data infrastructure storage, and cybersecurity frameworks. Investment in such foundations will catapult Pakistan into a digital M&A destination by a wide margin.

In addition, the public and private sectors must be persuaded to collaborate in structuring public-private partnership (PPP) models. Digital initiatives can also stimulate PPP frameworks for co-investment to support startups, tech incubators, and digital hubs and stimulate innovation. The tool for successfully creating technology parks, innovation labs, and digital incubators with governmental backing can become the base of vibrant ecologies, attracting M&A activities and speeding up the process of entrepreneurial growth and technological advancements in all sectors.

Finally, prioritizing other educational reforms is essential to develop a digitally literate workforce. Policies on education and training should emphasize digital literacy, coding skills, cybersecurity education, and data analytics. With this in mind, educational institutions should be paired with policymakers to create a pipeline of personnel equipped to handle the eclectic aspects associated with digital M&A transactions.

5.4.4 For Academia

The thesis mainly focuses on increasing and adding to the existing body of knowledge. Many institutions are increasing the amount of literature, but a few are working well.

Academic institutions should collaborate with industry stakeholders. They are required to explore the unique challenges and opportunities in digital M&A. Such efforts are made within emerging markets like Pakistan. A longitudinal design could provide more insights into the long-term impact of digital M&A activities.

Specifically, institutions focusing on digital M&A, innovation management, and digital transformation should develop several specialized research centers. These centers could be a hub for interdisciplinary collaboration between academia, industrial experts, policymakers, and international scholars. Regular academic industry forums, conferences, and seminars facilitate the exchange of knowledge and thus provide a real-world environment to practice or develop practical models for digital M&A.

Moreover, academia should take a more collaborative attitude towards the industry and initiate joint research projects focused exclusively on issues specific to Pakistani organizations operating in the digital M&A environment. Industry data could be leveraged in such collaborations to generate practical solutions and strategic insights to improve organizational and national digital M&A outcomes. Using case studies and simulation exercises using actual digital M&A stories in business, management, or technology programs can provide these students with a better understanding and help hone practical skills and strategic thinking. Experiences such as those in the real world can make future professionals better equipped to deal with the complexities associated with digital transformations, mergers, and integrations. In addition, academic institutions must do their part in policy advocacy by offering rigorous and evidence-based research regarding the best practices of digital M&A and the appropriate regulatory frameworks they must use for their transactions. Therefore, academia's ability to offer an impartial perspective and a necessary dose of analysis can greatly assist in developing policies that will encourage a thriving digital environment.

Finally, academia should look at initiatives to build capacity; thus, it is an important area for capacity-building initiatives such as executive education programs, specialized training workshops, and professional development courses, specifically for developing digital M&A capabilities. Therefore, tailored training programs, designed with input from industry practitioners, can improve the skills of current practitioners significantly, filling the gap in the knowledge of digital strategy implementation and innovation management.

5.5 LIMITATIONS AND FUTURE RESEARCH

5.5.1 Limitations

The study sample is limited to Pakistan, and although it offers essential information on a developing country's digital M&A environment, it may not apply to other locations. One of the significant limitations of this research is that it considers industrial companies as a relatively homogeneous class at the initial stages of analysis. While this allowed a general assessment of digital M&A trends in Pakistan, it may have limited the level of insight into how different industries experience and deal with post-merger digital integration. As was uncovered in Chapter 4, heterogeneity at the sectoral level—indeed, between traditional manufacturing, telecom, and FinTech—plays a significant role in facilitating the success of digital M&A initiatives. Future research should then adopt a more disaggregated, sector-focussed methodology, perhaps using comparative case studies or industry-level surveys, to provide more sector-focussed insights to policymakers and practitioners.

In addition, the concentration of the analysis at the firm level about developed industries in Pakistan may not reveal all the dynamics that sectors not included in the study present in numerous nascent industries like farming or manufacturing industries, which are significant in the Pakistani economy. Secondly, although the sample size of 300 participants has the validity of statistics, using random sampling in the quantitative part and purposive sampling in the qualitative part of the study entails potential sampling biases. For example, using purposive sampling to select industry professionals to participate in interviews could potentially result in overlooking sources of diversity because they would likely only include larger firms or seasoned corporations while omitting smaller and start-up companies, which would likely face somewhat different challenges.

The study over-relies on self-report data in surveys and interviews that may harbor social desirability bias, recall bias, or opacity of participants. The respondents may have provided inflated reports on their organizations' levels of digital innovation or understated the challenges faced in marketing their organizations well. Also, data collection and analysis reflect static digital M&A and innovation measures that may not adequately embody the dynamic context of these concepts. Given the incredibly fast-growing technologies and changing market factors, the significance of the study might

wane over time and could warrant either replication with extended periods or sequential analysis of the subjects in question.

5.5.2 Future Research Directions

New studies should also compare the findings of this research with those of other countries, including those within South Asia (e.g., India). A comparative analysis of different countries' situations will help to get a more generalized understanding of how digital M&A trends and innovation problems differ depending on the economic, cultural, and legal framework conditions. Similarly, future work may elaborate on specific segments, particularly technological industries, financial or retail, to consider the distinctive characteristics and trends of digital M&A and Innovation. The scenario could present a valuable aid for formulating certain staking points for specific industries and comprehending related policies.

Moreover, future work may involve a larger population base, including the employee, the customer, and the outside consultant, to ensure that there is creation of a broad perception of the outcomes of digital M&A and innovation. Importantly, to overcome the temporal limitations of this research, longitudinal studies could help investigate the results of digital M&A and innovation initiatives over time. Implementing such studies would go a long way to offering information on the long-term efficacy and efficiency of measures put in place by organizations.

To overcome Pakistan's unique structural and institutional barriers to digital M&A, this study proposes several innovative and adaptive solutions. To prototype, businesses should adopt hybrid digital integration hubs where local IT professionals collaborate virtually with foreign consultants to deliver knowledge transfer without prohibitive cost. Second, businesses can gain from digital sandboxes—controlled experimentation environments—to test integrate acquired technologies before deploying at scale, reducing disruption risk. Third, partnerships with local universities and tech incubators can build a pipeline of digitally literate professionals while establishing innovation ecosystems that are sensitive to industrial needs. Fourth, introducing "reverse mentoring" programs, where senior managers are taught by younger digital-native employees, can accelerate cultural buy-in for emerging

technologies. Lastly, the formation of industry-specific digital consortiums (e.g., textiles or logistics) would enable the sharing of innovation platforms and data-driven collaboration among firms. Collectively, they turn Pakistan's constraints—thin infrastructure, digital talent gaps, and cultural inertia—into opportunities for adaptive innovation and sustainable digital growth.



CHAPTER SIX

CONCLUSION AND FUTURE WORK

6.1 INTRODUCTION

This chapter presents a summary of the research findings. There are things related to the reaffirms based on the research objectives. The chapter also provides actionable recommendations for stakeholders. The whole study has been concluded in this chapter, and it is vital to understand the prime theme of the study. It also discusses the broader implications of the study. The managers and all the businesspeople working in the industry can adopt many practical things. There are many aspects, particularly for the business and policy environment of businesses working in Pakistan.

6.2 SUMMARY OF FINDINGS

This research aimed to understand the impact of digital M&A on digital innovation in Pakistan's industrial firms, especially against the three research questions outlined in Chapter 1. These objectives were to understand factors influencing digital innovation about digital M&A, generate and test a digital M&A innovation framework, and assess the net effect of digital M&A on organizational performance and innovation.

6.2.1 Objective 1: Identifying the Factors Impacting Digital M&A on Digital Innovation

Based on these propositions, the study established several key drivers of digital innovation in industrial firms engaged in M&A. Overall, the concept of Pre-M&A preparedness was a critical factor impacting the success of the intended digital M&A transactions and integration of correct strategies within the intended ventures. The study also showed that the M&A approach, which is properly coordinated with the main strategic goals and thorough due diligence, also strongly impacted innovations. Both technological and administrative improvements are essential to developing organizational flexibility and competitive edge after the M&A process is complete. Product and service innovation, translating into improving technical solutions, was

noted as improving organizational performance to address the new client needs. The results also highlighted the need for close development of a proper culture of digital innovation that can facilitate the dissemination of M&A and promote effective accrual of new technologies and practices just after the M&A. Some of the issues highlighted were variations in digital innovation culture between organizations and differences in organizations' readiness for pre-M&A processes. Meeting these needs calls for particular approaches to introduce improved methods for shared use and develop an organizational culture predisposed to innovation.

6.2.2 Objective 2: Developing a Digital M&A Innovation Model for Industrial Firms in Pakistan

The results confirmed that the digital M&A innovation model suits Pakistan's industrial environment. This 3-stage model incorporates pre-M&A information, strategic M&A techniques, and technical and administrative innovation promotion. It also captures the fact that these elements are tightly linked and occur sequentially, suggesting that the best practice for the M&A model also consists of pre-M&A planning that creates the right basis for the correct execution of post-M&A integration and innovations. One of the suggested model's key elements is improving the organizational culture within which digital innovation is promoted. Such policies support creativity and knowledge sharing within and between organizations and departments involved in M&A transactions in an organization. The model intends to map the process of using digital M&A as a strategic solution for industrial firms to support sustainable innovation and long-term development. It underlines the necessity of integrating M&A goals with strategic organizational initiatives and maintaining the effective involvement of all participants in innovative work.

6.2.3 Objective 3: Evaluating the Impact of Digital M&A on Digital Innovation in Industrial Firms in Pakistan

This study focused on the complex external effect of digital M&A on digital innovation and organizational performance. The present study provided evidence that IM&AC supported profound improvements in technical and administrative procedures, and thus, organizational effectiveness and strategic market positioning were improved. The use

of the M&A process to integrate new technologies and systems was a way through which firms could build their capacities and bring new products and services to their markets. However, as the study unfolded, there was an indication of inconsistency in the effectiveness of digital M&A strategies. Companies that had established a clear innovation strategy and had prepared well before the M&A dealt with their aims more effectively.

Survey results revealed that firms more committed to promoting technological innovation experienced better implementation success rates of new technologies and practices within the developing country organizations they examined. The situation then introduces the imperative of industrial firms to cultivate and maintain a culture of innovation throughout the organization. Although the study depicted the benefits of implementing digital M&A as a source of innovation, there were also some areas of concern that the study noted. They include improving digital access that targets existing disparities, increasing organizational digital preparedness, and enhancing shared commitment to the process. Therefore, the industrial firms in Pakistan should address these issues to achieve the true essence and benefits of digital M&A for sustainable innovation.

6.2.4 Summary of Overall Finding

The present research significantly contributes to understanding digital M&A and its impact on digital innovation in Pakistan's industrial sector. These findings show that digital M&A offers significant value creation when backed up by an appropriate strategy, favorable innovation culture, and attempts to address organizational and contextual enablers. The prospective model of digital M&A innovation can be viewed as a useful guideline for firms trying to leverage the opportunities of digital sophistication through M&AS. This study helps the theory and practice of digital M&A by defining essential factors, creating a coherent innovation model, and comparing the potential benefits and drawbacks of different approaches. They emphasize the need to ensure that established M&A digital technologies are in harmony with the existing organizational objectives and promote a culture of innovation to enable the development and growth of M&A for sustainable competitiveness. These insights form the basis for

further research and propose best practice guidelines for operationalizing digital M&A in industrial firms.

6.3 RECOMMENDATIONS

Given the identified findings, the following strategic recommendations to improve the contribution of M&As to digital innovation and the organizational performance of industrial firms in Pakistan:

- First, companies must obtain accurate pre-M&A information to support due diligence investigation to establish market characteristics, probable synergies, or risks inherent in the merger or acquisition. Organizations must also work on formulating strategic objectives that should be specifically related to the envisioned overall innovation agenda. Pre-M&A readiness investment minimizes risks, realizes opportunities, and sets the stage for integration and innovation post-M&A.
- Second, the results of the study reveal that the development of a robust digital innovation culture is critical to the realization of digital M&A synergies. The result can be achieved through policies that support sharing knowledge ideas, best practice learning and development, and cross-functional working. Implementing this culture must involve leadership and promote innovation through its actions to set the standards. For firms to foster innovation, they should offer training programs to improve the literacy of the employees in the digital environment and prepare them for new changes. In the same way, promoting idea generation and adoption from employees may also help to extend the idea of innovation within an organizational culture.
- Third, several issues add to the necessity of having a strategic, precise approach to M & A processes, which require technical and administrative innovation in organizations. It comprises the use of advanced technologies in the business processes to efficiently improve the kind of products or services to be produced or delivered. Specific administrative improvements must be implemented and closely connected with scientific and technical advances, including process enhancement and better governance. Organizations should thus incorporate their

M&A strategy and digitization agenda to correspond. The steps involve strategy formulation to select proper M&A to enhance technology and organization growth. In this way, by following the holistic approach, the firms can generate sustainable innovation through M&A.

- Fourthly, to fully hail the benefits of digital M&A, firms must allocate resources to advance their digital environment. This ranges from embracing innovation systems like cloud computing, artificial intelligence, and big data analytics to supporting processes and decision-making. Effective design of antifragile digital systems and processes will help an organization manage the integration of acquired entities and stimulate innovation.
- Fifthly, stakeholders play a significant role in digital M&A, and firms should have channels for staffing employees, partners, and other stakeholders throughout the process. The steps include engaging the stakeholders in strategic formulation and management and executing decisions and plans to provide organizational commitment from the stakeholders. The situation indicates that external collaboration can also plug the gap in firms' innovation capabilities by engaging technology providers, research institutions, and industry experts. Such partnerships can make new technologies, personal skills, and markets available.
- Lastly, assessing digital innovation projects and making suggestions for improvement requires the evaluation of M&A activities after they have been implemented. Companies must identify values to track success and performance in technical improvement, administrative responsiveness, and organizational productivity. For many firms, these assessments will help retain focus, adapt to potential issues, and keep moving forward with innovation.

6.4 CONTRIBUTION

The study makes significant theoretical, methodological, and practical contributions by examining the relationship between digital M&A, digital innovation, and organizational performance in the industrial sector of Pakistan.

6.4.1 Theoretical Contribution

The key theoretical contribution of this thesis is the advancement of existing knowledge and theorizing about digital M&A and organizational innovation. Earlier studies looked at M&A from a financial or strategic point of view. They all studied it in developed countries. This study looks at digital M&A. We study it as a mechanism for innovation and to boost the organizational performance of a developing country. This theory extends contingency theory and dynamic capabilities theory by showing that specific internal and external conditions – for example, digital readiness, innovation strategy, and culture fit – moderate the outcomes of M&A transactions. The thesis also provides a new Digital M&A Innovation Model that links the dimensions of pre-M&A readiness, post-merger integration, DI capability, and organizational outcomes. The model presented here helps to fill a critical gap in the M&A literature by providing a more complex and context-sensitive approach. It involves a technological alignment and other aspects such as environmental technology, self-organizing networks, organizational culture, and macro-level digital environments, which are overlooked in mainstream Western-centric M&A literature. Consequently, the research enhances the understanding of digital M&A as a strategic enabler of innovation for industrial sectors driven by digitization. The research contributes to extant literature in three main ways. It integrates the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), Innovation Diffusion Theory (IDT), and Institutional Theory to develop a multi-level framework that explains how digital M&A performance is determined by resource acquisition, capability reconfiguration, innovation diffusion, and institutional context. Furthermore, the proposed Digital M&A Innovation Model also offers an empirically founded framework that can be tested and further advanced in future studies across industries or countries. These contributions are substantial but in relation to the evidence drawn, demonstrating theoretical advancement within a reasonable empirical framework.

6.4.2 Theoretical Advancement

This study makes a significant theoretical contribution by extending the understanding of digital mergers and acquisitions (M&A) from traditional strategic and financial theories towards a digital innovation and capability perspective. Through the synthesis

of RBV, Dynamic Capabilities Theory, and Innovation Systems Theory concepts, this study theorizes digital M&A as a means for the acquisition, integration, and reconfiguration of digital resources to enhance organizational performance. The proposed Digital M&A Innovation Model contributes theoretically by identifying digital readiness, innovation culture, and integration capability as necessary mediating mechanisms between digital M&A and performance outcomes. Furthermore, the model situates these relationships within Pakistan's industrial sector—a comparatively unexplored setting—thereby extending existing theories of M&A and digital transformation to the emerging economy context. This synthesis offers a novel, integrated framework that aligns digital transformation research with M&A strategy, representing an important development in conceptual and applied research.

6.4.3 Model as Synthesis Rather Than Innovation

The proposed Digital M&A Innovation Model presents a systematic and context-dependent approach to digital transformation for post-M&A industrial firms, it largely interweaves the concepts from famous theories such as the Resource-Based View (Barney, 1991), Dynamic Capabilities Theory (Teece, 2018), and Innovation Systems Theory (Edquist, 2019). Digital readiness, integration capability, and innovation culture have each been separately discussed in earlier debates in strategic management and digital transformation literature. Thus, the model's contribution lies more in terms of context and applicability to the industrial setting of Pakistan rather than theoretical originality. It recasts existing constructs into a unified framework fitting for emerging markets but has yet to suggest an entirely original theoretical framework or mechanism that explains digital M&A results. Later studies could potentially develop this synthesis into a new theory of digital acquisition capacity, thereby reworking the framework from conceptual synthesis into theory-building.

6.4.4 Methodological Contribution

By employing a Sequential Explanatory Design (SED), this research contributes methodologically to studying complex organizational phenomena. The simultaneous use of quantitative and qualitative methods allows one to see the relationship between

digital M&A and performance. It enables a clear insight into the effect of enhanced performance on cost efficiency, resource utilization, and improved product. Using data from 300 managers and executives for regression and correlation analysis gives rise to empirical rigor. It helps with the generalisability of quantitative findings. The expert knowledge of key stakeholders will be enriched by semi-structured interviews, enabling a more comprehensive examination of the cultural, structural, and operational processes of M&A. This organizational research methodological framework provides a strong balance between breadth and depth. It also adds a repeatable model for other researchers studying techno transformation's impact through M&A in emerging economies. Through triangulation of numerical and qualitative data, this research provides a methodological tool for subsequent studies exploring innovation outcomes post-M&A.

6.4.5 Practical Contribution

This thesis is practically relevant to industrial firms, policymakers, and M&A practitioners in Pakistan and other developing countries. The research gives business leaders and managers valuable information about the essential elements that guarantee the success of digital M&A endeavors. Effective merger strategies include getting digitally ready before the merger, aligning innovation objectives, and integrating post-merger successfully. According to the research, companies that proactively undergo digital transformation and innovation will likely gain higher performance effectiveness from M&As. The Digital M&A Innovation Model of the study can allow decision-makers to assess the readiness and integration of firms that they are targeting, including their digital assets and innovation capabilities. It also discusses handling contextual problems like cultural resistance, infrastructure limitations, and regulatory barriers particularly relevant to the Pakistani industrial context. Policymakers should develop institutional support mechanisms, such as digital upskilling, innovation hubs, and reforming laws, to ease the digital transition during M&As. This research lays the foundation for designing policy frameworks to encourage responsible, innovation-led consolidation in the market as the industrial sector of Pakistan continues to navigate digitalization.

6.5 STUDY LIMITATIONS

Despite its practical and theoretical implications, this study has several limitations that should be acknowledged. The research focused exclusively on Pakistani industrial firms, which may restrict the generalizability of findings to other sectors or developing economies with different institutional dynamics. Cross-sectional design limits the possibility of witnessing long-term digital M&A impact on innovation and performance; future longitudinal studies might be in a position to provide more robust causal evidence. In spite of data triangulation, the study relied upon self-reported survey data with possible respondent bias. Fourth, sample size and missing data (46%) undermined statistical power and representativeness, particularly for small sub-sectors. Qualitative interviews with middle to senior managers were held, which may have overlooked the perspectives of technical or operational personnel who were directly involved in integration. Finally, while the model proposed has conceptual utility, it is contextually grounded rather than being universally tested. Future research must test and extend the model across different industries and countries for its theoretical generalizability to be improved.

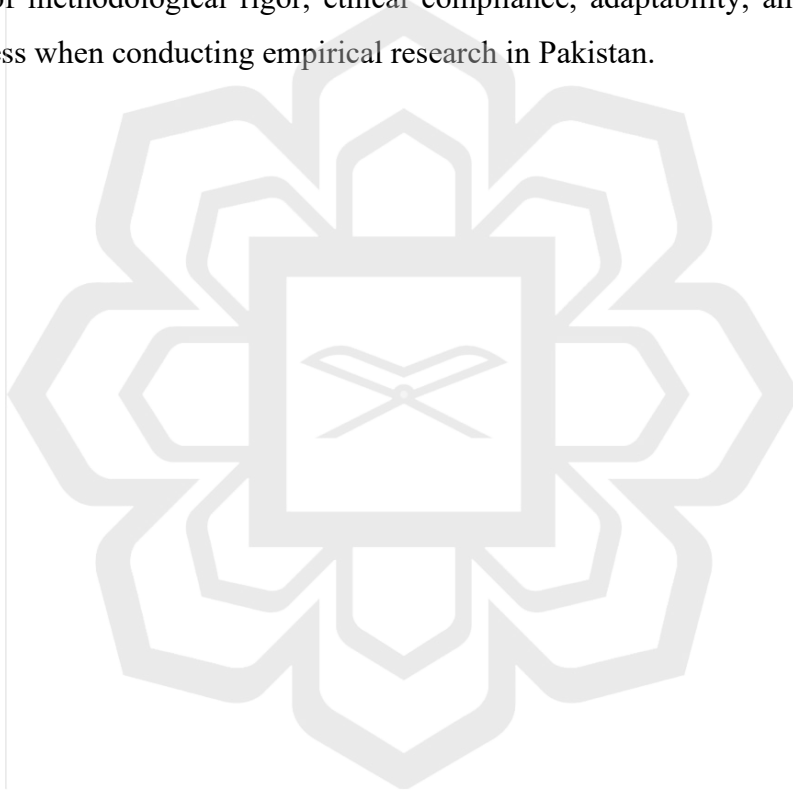
6.6 RESEARCH JOURNEY AND LESSONS LEARNED

Conducting this study of digital mergers and acquisitions in Pakistan was highly enlightening on both the research process and Pakistan's business landscape. One of the key learning points was the challenge of identification and accessing firms undertaking digital M&A, as publicly available data on Pakistani industrial firms is limited. Leaning on professional networks, industry groups, and personal interaction with top executives was critical to being able to achieve a proper sample in sectors and geographies.

Use of web dissemination for the survey also helped to highlight the necessity of secure and user-friendly platforms like [SurveyMonkey/Qualtrics] to efficiently engage participants, particularly in light of geographic dispersion of companies in Pakistan. Ethical clearances crossed and engaging with the IIUM Research Ethics Committee (IREC) further reinforced the need to stick resolutely to institutional as well as international ethical standards, even with the low-risk potential of survey research.

One of the main findings was the varied take-up of digital adoption across Pakistani businesses; larger businesses and multinational subsidiaries moved more quickly, while smaller local businesses required ongoing follow-up to become involved. This reinforced the need for flexibility in outreach strategies and persistence in establishing the trust of participants.

Finally, the study underscored the need for applying international digital M&A theory to the Pakistani business context, where regulatory frameworks, technology readiness, and organizational culture could exert powerful influences on post-merger integration and performance. Overall, this research experience served to reaffirm the merits of methodological rigor, ethical compliance, adaptability, and environmental awareness when conducting empirical research in Pakistan.



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APPENDICES

APPENDIX A: QUESTIONNAIRE SURVEY

Dear respondent,

Good day!

The undersigned is a candidate for the degree of Doctor of Philosophy in ----- at the University of ----- . Likewise, I am currently conducting a research study entitled, **“Impact of Digital Merger and Acquisition (M&A) on the Organizational Performance of Industrial Firms: Moderating Role of Digital Innovation”**.

I am cordially inviting you to participate in this study by filling up the questionnaire as accurately and frankly as possible. The information gathered through this questionnaire would be kept confidential, reported aggregately, and be used only for research purposes.

Thank you very much for your time, and your opinion is highly appreciated.

Sincerely,

Researcher

Part 1: Demographic Profile

Name (optional): _____

Name of Company: _____

Address (location): _____

Age:

☐ 25 below

☐ 26 – 35

☐ 36 – 45

☐ 46 – 55

☐ 56 – 65

☐ 66 – above

Gender:

☐ Male

☐ Female

Educational Qualification:

☐ Bachelor's Degree

☐ Master's Degree

☐ Doctoral Degree

☐ Other (Please Specify)

Length of Work Experience in the Present Company:

☐ Below 2 years

- ☐ 3 – 5
- ☐ 6 – 10
- ☐ 11 – 15
- ☐ 16 and above

For Part 2:

Instructions: Read the following and fill in the space provided with a check (/) which you feel most accurately describes your reaction to the statement. Please be honest.

Use the following descriptive scale:

- 5 – Strongly Agree
- 4 – Agree
- 3 – Moderately Agree
- 2 – Disagree
- 1 – Strongly Disagree

Part 2: Addressing the Research Objectives

Table A.1 Mapped Research Objectives

Problem Statement Element	Research Questions	Research Objectives
Limited research on factors influencing digital M&A and innovation impact.	How factors such as cultural resistance, poor planning, and infrastructure limitations impact digital M&A efforts in driving digital innovation within industrial firms in Pakistan?	To identify and analyze the impact of cultural resistance, planning deficiencies, and infrastructure limitations on digital M&A initiatives promoting digital innovation in Pakistani industrial firms.

Lack of a tailored digital M&A innovation model for Pakistan's industrial firms.	What key elements should be incorporated into a digital M&A innovation model to overcome challenges like cultural resistance, inadequate planning, and infrastructure gaps in industrial firms in Pakistan?	To develop a digital M&A innovation model that addresses challenges related to culture, planning, and infrastructure specific to industrial firms in Pakistan.
No conclusive evidence on how digital M&A-driven innovation improves firm performance and business models.	How the impact of digital M&A on digital innovation be effectively evaluated, considering the influence of organizational culture, planning quality, and infrastructure readiness in Pakistani industrial firms?	To evaluate the impact of digital M&A on digital innovation while factoring in organizational culture, planning effectiveness, and infrastructure readiness within Pakistani industrial firms.

A. Digital Merger and Acquisition

Please provide your opinion to exhibit the extent to which you show agreement or disagreement with the factors that influence digital M&A in your company. Utilize the

provided scales to record your response in terms of agreement or disagreement with the given statements.

A. (iO) Pre-M&A Information

It entails decision pertaining to information necessary to acquire the firm.

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
Pre-M&A Information	PI1	Strategic relatedness between our company and target company is determined						Grigorios (2018), Fatima and Shehzad (2014)
	PI2	Target firms' property locations of market involved is determined						
	PI3	Trend of target firm's overall performance is identified						
	PI4	Compatibility of target's compatibility and relatedness with our company's information systems is identified						
	PI5	Target firm's capital structure and cost of capital is identified						

Other relevant comments/concerns: _____

A. (ii) M&A Approach

It entails decision pertaining to the form and content of the acquisition deal.

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
M&A Approach	MA1	Mode of acquisition is given importance						Grigorios (2018), Fatima and Shehzad (2014)
	MA2	Method of payment is fixed (i.e., cash, stock, etc.)						
	MA3	Bidding method is given due importance (i.e., contested bid)						
	MA4	Due diligence is done before acquiring target firm						
	MA5	Assistance is taken from investment banks for guidance						

Other relevant comments/concerns: _____

B. Organizational Performance

Please provide your opinion to exhibit the extent to which you show agreement or disagreement with impact on organizational performance post- digital M&A. Utilize the provided scales to record your response in terms of agreement or disagreement with the given statements.

B(ii): Non-Financial Performance

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
Non-Financial Performance	OP1	Relationship with suppliers is good and reliable.						Sharma (2018), Njoroge (2007)
	OP2	The firm has long-term supplier relationships						
	OP3	Employee retention has improved after merger.						
	OP4	Employee productivity has increased after merger.						
	OP5	Digital innovative culture has grown after merger in the company.						
	OP6	Trust about leadership has grown among employees						

Other relevant comments/concerns: _____

C. Digital Innovation

Please provide your opinion to exhibit the extent to which you show agreement or disagreement with the fact digital innovation plays a moderating role in improving the impact of digital merger and acquisition on organizational performance. Utilize the provided scales to record your response in terms of agreement or disagreement with the given statements.

C(i): Product and service (technical) innovation

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
Product and service (technical) innovation	PS1	The IT products and services of acquired firm are mostly first-to-market.						Alegre, Chiva, and Lapiedra (2009), Njoroge (2007), Zheng, Wei, Zhang, and Yang (2016), Dezi, Battisti, Ferraris, and Papa (2018)
	PS2	The products and services of acquired firm are novel in the IT industry.						
	PS3	The products and services of acquired firm often take our company up against competitors.						
	PS4	Digital innovativeness post-merger in products has helped improve the service design.						
	PS5	The software product convenience and usability is improved through innovations.						

Other relevant comments/concerns: _____

C(ii): Administrative innovation

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
Administrative innovation	AI1	New digital channels for software products offered by the target firm are effective.						Zheng et al. (2016), Homburg and Bucerius (2005), Dao, Strobl, Bauer, and Tarba (2017), Dezi, Battisti, Ferraris, and Papa (2018)
	AI2	The company have online framework for considering customers' suggestions or complaints.						
	AI3	Company have better marketing innovations than competitors.						
	AI4	New computer-based innovations introduced for managerial purpose.						
	AI5	The administration						

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
		use latest management software (e.g., cloud-based).						

Other relevant comments/concerns: _____

C(iii): Digital Innovation Culture

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
Digital innovation culture	DC1	Digital innovation suggestions are welcomed in the company						Dao, Strobl, Bauer, and Tarba (2017), Dezi et al. (2018)
	DC2	The company management seeks and supports digital innovation ideas						
	DC3	New digital innovations are not perceived as too risky and are not promoted.						
	DC4	Employees are not discouraged for the failure of their digital innovation ideas.						

Construct	Items	Measurements	1	2	3	4	5	Sources/adapted from
	DC5	Project managers actively promote digital innovative ideas and experiment them.						

Other relevant comments/concerns: _____



APPENDIX B: DATA TRIANGULATION OF THE QUALITATIVE DATA GAINED FROM THE INTERVIEWS

Key Themes/Terms	Key studies from the literature	Understanding from interviews/excerpts from responses	Frequency of terms interviews
Digital M&A	Gharagozloo et al. (2022), Riedel and Asghari (2020), Moeini Gharagozloo et al. (2022)	<i>Yes, surely. I understand the concept of M&A. It's when companies use digital technologies to combine or buy each other. – participant 1</i> <i>...M&A refers to the consolidation of companies. – participant 3</i>	6
Organizational performance	Pachulia (2018), Hanelt et al. (2021), Gomes et al. (2020), Tanriverdi and Uysal (2011)	<i>It (digital M&A) can impact a firm's organization performance, expand market reach & enhance market valuation. – Participant 3</i>	3
Digital innovation	He et al. (2020), Xue et al. (2021), Ahammad et al. (2017)	<i>I feel digital innovation is like using new and better ways of doing things with technology. – participant 2</i>	5
Post-merger integration	Chang et al. (2014), Lodh and Battaggion	<i>I've seen innovations like cloud computing during post-merger integration. They enhance</i>	4

	(2015), Tanriverdi and Uysal (2011)	<i>communication and streamline operations. – participant 1</i>	
Risk Management	Dezi et al. (2018), Tarba et al. (2019), Abdul-Ramon and Ayorinde (2021)	<i>I think, we can do it through strategic planning, risk management, communication, agile adaptation... – participant 3</i>	3
Technology integration	Henningsson et al. (2018), Chang et al. (2017), Tanriverdi and Uysal (2011)	<i>I feel we can achieve this through technology integration, cultural alignment, and a commitment to continuous innovation for technology. – participant 3</i> <i>Some cool digital innovations I've seen are data analytics tool such as Tableau which can help in technology integration... – participant 2</i>	2
Digital systems	Rennings et al. (2022)	<i>Getting new digital systems to work together, dealing with differences in how companies do things,... – participant 2</i> <i>They could be integrating different digital systems,...– participant 1</i>	4

Interview Question:

Digital Capability Acquisition and Organizational Performance in Pakistani Industrial Firms: An Innovation Framework

Participant 1:

1. Do you understand the concept of digital merger and acquisition (M&A)?

Yes, surely. I understand the concept of M&A. It's when companies use digital technologies to combine or buy each other.

2. What are some potential advantages of digital M&A for your firm's organizational performance?

Improved our performance by bringing in new technologies, skills, and expanding our market.

3. In your opinion, how does digital M&A impact the overall financial performance of your firms?

I believe digital M&A can increase revenue streams, reducing costs through digital efficiencies.

4. Can you share any potential challenges associated with digital M&A and how they might affect your firm?

They could be integrating different digital systems, cultural differences between merging companies, and potential resistance from employees to new technologies, etc.

5. How does digital innovation play a role in the performance of your firm?

It is all about using new technologies to improve products, services, and processes, making us more competitive.

6. What specific digital innovations have you observed that positively impact the post-merger integration process and overall performance of your firm?

I've seen digital innovations like cloud computing in post-merger integration. They enhance communication and streamline operations.

7. How can your firm leverage digital innovation during the post-merger phase to enhance performance?

Invest in employee training, create a culture that embraces change, and actively seek out new technologies with improved digital systems.

8. Have you come across any cases (not your firm) where digital M&A improved the organizational performance of an industrial firm?

I can't speak about other firms. But I've heard of cases where digital M&A surely helped companies.

9. In your opinion, what strategies can your firm adopt to mitigate potential risks and maximize the benefits of digital M&A?

Thorough due diligence, communicate effectively with employees, and have a solid integration of risk management plan.

10. In your opinion, what are the key success factors for industrial firms to achieve improved organizational performance through digital M&A?

Strong leadership support, clear communication and plans

Participant 2:

1. Do you understand the concept of digital merger and acquisition (M&A)?

Yes, of course. It's about buying a new company by another larger one.

2. What are some potential advantages of digital M&A for your firm's organizational performance?

Bringing in new technologies, skills, and helping us reach more customers.

3. In your opinion, how does digital M&A impact the overall financial performance of your firms?

By increasing our sales, making operations more efficient with digital tools.

4. Can you share any potential challenges associated with digital M&A and how they might affect your firm?

Getting new digital systems to work together, dealing with differences in how companies do things, and making sure everyone is on board with the changes.

5. How does digital innovation play a role in the performance of your firm?

I feel digital innovation is like using new and better ways of doing things with technology.

6. What specific digital innovations have you observed that positively impact the post-merger integration process and overall performance of your firm?

Some cool digital innovations I've seen are data analytics tool such as Tableau after post-merger integration. They are amazing to use.

7. How can your firm leverage digital innovation during the post-merger phase to enhance performance?

Train employees on new technologies and encourage a culture of trying out new things can surely help in post-merger integration.

8. Have you come across any cases (not your firm) where digital M&A improved the organizational performance of an industrial firm?

Yes, I've heard of other companies where digital M&A worked out well post-merger integration. In a few cases, it did not but they are not Pakistan-based. I remember about eBay and Skype merger which failed.

9. In your opinion, what strategies can your firm adopt to mitigate potential risks and maximize the benefits of digital M&A?

Talk with everyone involved, and have a good risk management plan for how things will come together.

10. In your opinion, what are the key success factors for industrial firms to achieve improved organizational performance through digital M&A?

Good leadership, making sure everyone knows what's happening, planning well for how things will come together, and making sure everyone feels good.

Participant 3:

1. Do you understand the concept of digital merger and acquisition (M&A)?

Yes, I understand the concept of digital mergers and acquisitions (M&A). M&A refers to the consolidation of companies.

2. What are some potential advantages of digital M&A for your firm's organizational performance?

It can provide the firm with access to advanced digital systems, help the firm to expand its market presence, reach new customer segments, and strengthen its competitive position.

3. In your opinion, how does digital M&A impact the overall financial performance of your firms?

It can impact a firm's financial performance, expand market reach & enhance market valuation.

4. Can you share any potential challenges associated with digital M&A and how they might affect your firm?

Integration complexities, cultural differences between merging teams, data security concerns, etc.

5. How does digital innovation play a role in the performance of your firm?

It has enhanced the performance of the firm there has also improvement in operational efficiency

6. What specific digital innovations have you observed that positively impact the post-merger integration process and overall performance of your firm?

I have seen the use of cloud-based platforms facilitating seamless collaboration among diverse teams, and advanced project management software to streamline and monitor integration processes.

7. How can your firm leverage digital innovation during the post-merger phase to enhance performance?

By implementing new digital innovations like Cloud platforms and different management tools.

8. Have you come across any cases (not your firm) where digital M&A improved the organizational performance of an industrial firm?

No

9. In your opinion, what strategies can your firm adopt to mitigate potential risks and maximize the benefits of digital M&A?

Thorough Strategic Planning, Risk Management, Communication, Agile Adaptation, Technology Integration

10. In your opinion, what are the key success factors for industrial firms to achieve improved organizational performance through digital M&A?
11. Through strategic technology integration, cultural alignment, agile adaptation, and a commitment to continuous digital innovation no communication gap.