Personality-Driven AI Leadership: The Catalyst for AI Transformation

By

Sana Nazir

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A thesis submitted to the National University of Sciences and Technology,

Islamabad, in partial fulfillment of the requirements for the degree of

Master of Science in

Human Resource Management

Supervisor: Assoc. Prof. Dr. Mumtaz Ali Memon

School of NUST Business School

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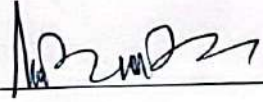
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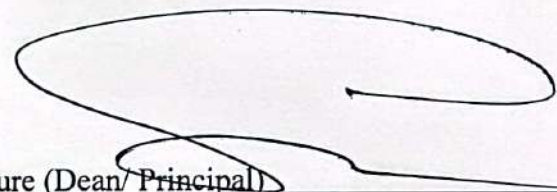
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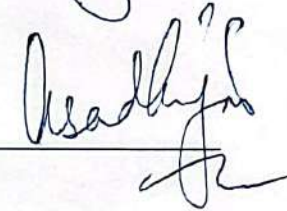Student Name: Sana Nazir   Signature _____

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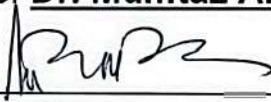
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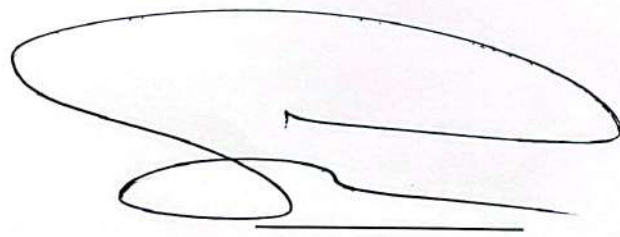
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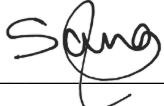
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Acknowledgment

This dissertation would not have been possible without the guidance and help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study. First and foremost, I would thank the **ALMIGHTY ALLAH** for not only allowing me to broaden my horizons but for also His divine love and protection during this learning period and my entire life. I would like to express my sincere gratitude to my supervisor **Dr. Mumtaz Ali Memon** for the continuous support, patience, motivation, and immense knowledge. I would also like to thank my seniors and batch mates for being supportive and assisting in my research work, without them this project would not have ended so smoothly.

I am correspondingly gratified to **"Personality-Driven AI Leadership: The Catalyst for AI Transformation"** at the NUST Business School, National University of Sciences and Technology welcoming me as a research student and providing the facilities to accomplish my research. I also want to thank my **Parents, Siblings, and Friends** for their continuous support and love. Their unceasing prayers have enabled me to reach the current position in my life. A special thanks to the research respondents without their contribution my research would have not been possible. Lastly, I would like to express my gratitude to the HR panel including **Dr. Asfia Obaid, Dr. Muhammad Zeeshan Mirza and Dr. Asad Amjad** for providing me with constructive feedback.

Abstract

This study aims to examine the impact of Big Five personality traits (openness, conscientiousness, agreeableness, extraversion, and neuroticism) on AI leadership capability and subsequently AI transformation. The mediating role of AI leadership capability between personality traits and AI transformation was also examined. For which, data was collected from 184 managers working in the IT sector of Pakistan. Partial least square structural equation modeling (PLS-SEM) facilitated in performing of statistical techniques to test the hypothesized relationship. The study highlights the significant association of agreeableness and conscientiousness with AI leadership capability. The research further reports a significant negative association of extraversion and openness with AI leadership capability. Conforming to expectations, AI leadership capability mediates the relationship of personality traits (extraversion, neuroticism, and conscientiousness) with AI transformation. In contrast, findings report insignificant mediation analysis between personality traits (extraversion and openness) and AI transformation. In addition, the study highlights the significant positive association of AI leadership capability with AI transformation. Pakistani IT companies should invest in training workshops to enhance these traits and equip leaders with the skills to manage AI transformation. Additionally, managerial employees should develop AI-focused strategies considering psychological traits to facilitate this transformation. To date, no research has been conducted concerning the relationship between personality traits, AI leadership capability, and AI transformation. Additionally, this study is novel introducing two constructs, AI leadership capability, and AI transformation. Thus, the present study increases our understanding of the role personality traits play in developing AI leadership that will foster AI transformation.

Keywords Personality traits, AI leadership capability, AI transformation, IT sector

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List of Abbreviations

%	:	Percentage
$	:	Dollar
=	:	Equal
AI	:	Artificial Intelligence
AVE	:	Average Variance Extracted
BFM	:	Big Five Model
BDA	:	Big Data Analytics
CEO	:	Chief Executive Officer
CFO	:	Chief Finance Officer
CI	:	Confidence Interval
COVID-19	:	Coronavirus Disease of 2019
CR	:	Composite Reliabilities
CV	:	Convergent Validity
DA	:	Data Analytics
DV	:	Discriminant Validity
e.g	:	Example
Etc	:	Et cetera
f^2	:	Effect Size
HR	:	Human Resource
HRM	:	Human Resource Management
H1-H12	:	Hypothesis 1 - Hypothesis 12
HTMT	:	Heterotrait-Monotrait Ratio
IT	:	Information Technology
LL	:	Lower Level
MS	:	Microsoft
NCAI	:	National Centre of Artificial Intelligence
NUST	:	National University of Sciences and Technology
NLP	:	National Language Processing
PLS-SEM	:	Partial Least Squares Structural Equation Modeling

RO	:	Research Objectives
RQ	:	Research Questions
R^2	:	Coefficient of Determination
SDT	:	Self-discrimination Theory
SPSS	:	Statistical Package for the Social Sciences
STDEV	:	Standard Deviation
UL	:	Upper Level
VIF	:	Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Research Background

In an era dominated by meteoric technological progressions, the emerging domain of artificial intelligence (AI) (Pradana & Mayasari, 2023) has significantly contributed to the paradigm shift in taking on the fourth industrial revolution (Schiuma et al., 2022). AI is cited as "machines performing cognitive functions usually associated with human minds, such as learning, interacting, and problem-solving" (Raisch & Krakowski, 2021, p. 192). To combat the dynamic nature of the work environment, AI footprint is crucial in providing strategic direction to organizations, irrespective of sectors and industries (Andrzejak, 2023). Such as, AI holds the power to optimize the business value chain by navigating the business processes, data valuation, decision-making, and actions which will assist organizations in achieving optimal efficiency (Gruetzemacher & Whittlestone, 2022). To explain further, AI transformation is the pivotal force in business model innovation (Newman et al., 2022), procedure transformation, and attaining a competitive edge in organizations that are aiming to become data-oriented and digitally culture-driven (Mugge et al., 2020). Concerning the prior literature, it has been reported that in the last five years, AI adoption surged by 70% (Ughulu, 2022). According to International Data Corporation's forecast, the global AI expenditure market is expected to expand from $85.3 billion in 2021 to over $204 billion in 2025, with a compound annual growth rate of 24.5% between 2021 and 2025 (Chowdhury et al., 2023). Also, the World Economic Forum projects, 97 million AI-related employment in 2025 as the integration of people, machines, and algorithms increases (Khan, 2023).

Consequently, the impact of AI transformation within an organizational setting will drastically transform the customer experience, employer-employee relationships, work nature, workforce demographics, the interaction between people and technology, and their competitive advantage within the evolving marketplace (Solanki et al., 2022). While the benefits of integrating AI transformation to revolutionize industries and societies are being explored, examined, and implemented, it is evident to acknowledge that this transition is prone to the dynamic interplay of a complex tapestry of transformational challenges (Benitez et al., 2022). As a primary point, organizations lack the expertise, and awareness to handle AI transformation (Holmstrom, 2022). AI requires a systematic approach, just like any other transitional change within an organizational

setting (Haleem et al., 2022). AI transformation is more about the individuals than the AI technology itself as AI transformation necessitates organizational changes supported by leadership and propelled by dramatic challenges to organizational culture.

The leadership paradigm appears to evolve with the introduction of new technologies and skills as leaders are required to become more agile, adaptable, and responsive to the evolving work requirements (Zarifis & Efthymiou, 2022). Existing research indeed raises the awareness of human judgment and oversight critical to strategic decision-making in a data-driven culture (Fullan et al., 2023). Similar to how digital transformation requires digital leadership to formulate, execute, and control digital transformation strategy while exploring the tools, methods, and processes to drive transformation (Lagemann, 2022), AI transformation also requires AI leadership. In context to this, such leadership is critical to the level of understanding and awareness employees require in creating an AI-focused culture that will facilitate the AI transformation. We have entered the leadership realm where leaders and AI co-exist to lead employees, envision robust strategic modifications, and translate changes through sound communicative mediums (Kim & Cruz, 2022). In a sense, leaders significantly influence how well teams function, task orientation, and change initiatives while remaining informed of the opportunities surrounding AI transformation (Ammer et al., 2023). In other words, AI leaders are critical to the decision-making and execution of AI initiatives.

Accordingly, to facilitate effective and efficient AI transformation, existing literature suggests that organizations need to invest in developing leadership capabilities, as such leaders are change agents and possess both transformative vision and futuristic perspective (Nuaimi et al., 2022), critical to AI transformation. Leadership influenced by differences in personalities, experiences, and thought processes will be significant in cultivating positive culture and innovative behaviors via the successful AI transformation within the organizational setting (Guzmán et al., 2020). Considering the AI transformation of the workplace is a novel phenomenon (Murugesan et al., 2023), leaders must be able to make proper assessments even when faced with ambiguous data (Vrontis et al., 2022). Here, the psychological makeup of employees is a vital component in developing such capabilities to facilitate transformation and successfully achieve work-related outcomes (Fan et al., 2023).

Building upon the literature on employees' mindset or personality makeup, personality traits consistently shape a wide range of intra- and inter-employee processes, attitudes, and behaviors concerning their engagement in different domains (Schepman & Rodway, 2023). The Big Five Model (BFM), is one of the renowned frameworks for mapping personality traits in developing leadership capability that will contribute to achieving change initiatives within the organization (Hong et al., 2023). This model includes five personality dimensions: extraversion, neuroticism, agreeableness, conscientiousness, and openness (Park & Woo, 2022). Extraversion refers to an individual's extroverted and social personality. Its characteristics include friendliness, assertiveness, and strong enthusiasm. It is considered a critical indication of social conduct and has been shown to improve decision-making spontaneity (Dan et al., 2021). Similarly, this trait has a favorable influence on technology that encourages social engagement (Maran et al., 2022). Agreeableness encompasses traits such as tact, friendliness, warmth, compassion, respect, and trustworthiness. Individuals with this trait tend to develop stronger social ties with organizational bodies while also positively impacting intuitive and reliant decision-making styles (Othman et al., 2020).

Conscientiousness refers to self-discipline and includes attributes such as organization, productivity, and accountability. Individuals with higher levels of this personality trait are most likely to engage in positive coping actions such as problem-focused planning and action (Kumari et al., 2022). Neuroticism refers to a person's ability to maintain stability and equilibrium and is connected with anxiety, sadness, and emotional volatility. It is observed that highly neurotic individuals are more inclined to withdraw and restrict their behavior in reaction to stimuli, making them less receptive to and willing to accept new ideas (Diller et al., 2020). They are believed to have low self-esteem and higher anxiety and should avoid leadership positions since they are unlikely to have optimistic future visions and may be too apprehensive to carry out transformational change initiatives (Schiuma et al., 2022).

Finally, open-mindedness reflects a person's willingness to consider different perspectives. Its characteristics include intellectual stimulation, aesthetic sensitivity, and imaginative ability. Individuals with a high level of openness are keener to explore new ideas and undertakings, making them more likely to embrace and use technology improvements (Zhang et al., 2019). Similarly, the openness trait plays an important role in growing leadership competence because leaders must

creatively face the state of the art and revamp models that foster technological experiences and transformation inside the organizational setting (Ayub et al., 2019). Accordingly, the importance of developing leadership capabilities is parallel to technological advancements to achieve business success while considering the role of personality traits in fostering supportive behavior toward change initiatives (Pradana & Mayasari, 2023). In essence, analyzing personality traits contributes to identifying a range of behaviors rather than a single outcome (Baruth & Cohen, 2023). Also, it plays a significant role in developing management capabilities (Lacam & Salvetat, 2023) to facilitate the changing environment (Erhan et al., 2022) such as AI transformation.

1.2 Timeliness of Investigation

AI, which is critical to the digital shift, is set for rapid global adoption, with an anticipated yearly increase of 52% by 2025, boosting company expansion (Baloch, 2023). To remain competitive, Pakistan must promote general knowledge and awareness about AI technology, while also supporting its development and implementation in critical areas to improve efficiency and cut costs organically (Tribune, 2022). Pakistan is facing challenges in transferring public and private institutions to digital interventions, including AI, with poor overall acceptance despite early measures taken in important departments (Imran & Haider, 2023). Moreover, Pakistan's 92nd rating in the Government AI Readiness Index also indicates a discrepancy between goals and accomplishments, highlighting the country's particular AI-focused challenges (Satti, 2024). It is observed that the transformational challenges include organizational adoption issues, management capability, acceptability challenges, and resistance by the bureaucratic structures, and lack of awareness and individual perception of technology (Nazir, 2023).

Pakistan needs to raise awareness and knowledge of AI technologies and their benefits and equip the workforce with the essential skills, capabilities, and expertise to engage in the AI ecosystem (Amin, 2023). Before landing on developing research labs, centers of excellence, or integrating AI technologies directly into business processes, cultivating a mindset shift in developing favorable attraction toward AI and disruptive technology (Alam, 2023). Therefore, examining the role of personality traits in developing leadership capabilities in the AI context might enrich knowledge about society's reaction to this technological intervention which will provide a broader perspective and deeper understanding of its successful execution. Our aim in the current research was to

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examine the impact of selected personal factors, in part to examine the interface between personality-driven AI leadership and AI transformation.

1.3 Contextual Analysis

1.3.1 AI in Pakistan

Like all the other passengers on this challenging journey towards the AI revolution, Pakistan aims to be at the forefront of the tech ecosystem. In terms of global AI readiness, Pakistan has an index score of 34.03 and ranks 117th out of 172 countries, according to Pakistan's AI policy (Amin, 2023). In context to the historical perspective, the following studies are conducted to investigate the AI phenomena across various sectors: The leading center for AI innovation, research, and training in Pakistan is NCAI (National Centre of Artificial Intelligence), which has its headquarters at the NUST (Umer et al., 2023). Because it promotes cooperation between academic institutions, businesses, and healthcare organizations, NCAI is essential to the integration of AI solutions in healthcare (Umer et al., 2023). Another study was conducted to investigate the application of AI on the performance of supply chains within the manufacturing sector (Nwagwu et al., 2023). Similarly, one school of thought acknowledges the impact of AI on the relationship between innovative financial processes and market share within the banking industry (Rabbani et al., 2023). Another aimed to understand the impact of AI on associating variables such as decision-making, laziness, and privacy concerns within the educational sector (Ahmad et al., 2023).

Correspondingly, one research aimed to explore the factors that might impact the acceptance of AI within the hospitality sector of Pakistan (Rasheed et al., 2023). Also, AI was explored to foster a circular economy transition to achieve sustainability within the agriculture sector (Ali et al., 2023). Other studies mainly focused on the use of cognitive technologies and machine learning concerning areas such as groundwater arsenic prediction (Iftikhar et al., 2020), optimizing school monitoring (Qureshi et al., 2019), mapping debris flow susceptibility (Qing et al., 2020), porosity estimation (Yasin et al., 2021), drought forecasting (Khan et al., 2020), stream-flow prediction (Tayyab et al., 2018), disease, and pest detection in rice crops (Burhan et al., 2020), crop disease diagnosis (Toseef & Khan, 2018), combating energy theft (Saeed et al., 2019), runoff prediction (Sibtain et al., 2020), and fake news classification (Kareem & Awan, 2019) are among the topics covered. These articles show the various applications of AI learning in Pakistan for enhancing decision-making, resource management, risk assessment, and detection procedures.

1.3.2 AI in the IT Industry

The introduction of a global digital landscape and its consistent evolution is driving the IT industry to stay on par with the exponential growth in technological innovation (Vijayakumar, 2023). Concerning the prior literature, the IT sector has acknowledged the transformational needs of clients in seeking AI-based solutions for their business optimization (Taherdoost, 2022). In the context of Pakistan's IT industry, approximately 600,000 individuals with functional expertise in AI-driven technologies are employed (Baloch, 2023). Annually, 25000 students who have received training in AI and related technologies also graduate with IT-based degrees (Sarkar, 2023). The information technology sector is the fastest growing in Pakistan and is leading the global AI revolution (Farooq et al., 2022). This industry involves re-engineering processes and systems to streamline business operations, help leverage new profit and market growth, and make use of AI technologies like machine learning and deep learning (Nazir & Gul, 2019).

AI transformation can facilitate the IT industry by developing new or upgrading its systems to achieve greater efficiency (Hassan et al., 2022). Statistics show that 48% of businesses employ AI techniques such as machine learning and data analytics (Baloch, 2023). Moreover, Pakistan is seeing a remarkable expansion in its exports of information technology (Qadir, 2019). Thus, local IT businesses can take advantage of new and varied prospects in the international market by incorporating AI transformation and developing qualified human capital (Schneider et al., 2023). The IT sector can benefit from AI transformation by creating new systems or improving existing ones to operate more effectively (Anagnostou et al., 2022). Furthermore, Pakistan's information technology exports are growing at an impressive rate (Mustafa & Hussain, 2023). Thus, by embracing AI transformation and cultivating skilled human capital, local IT enterprises can benefit from fresh and varied opportunities in the global market.

1.3.3 AI and Managers

Managers are at the vanguard of AI transformation within firms, carrying significant responsibility for negotiating its complexity (Fleming, 2020). As technology breakthroughs continue to transform sectors, managers' roles grow alongside them, needing a thorough awareness of AI's subtleties and ramifications (Baumann & Wu, 2023). At the very core of this change, there is the need for managers to develop a diverse skill set matched to the challenges presented by AI-driven ecosystems (Li, 2020). They have to not only understand the complexities of AI technology but

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also have the foresight to use them across many business areas strategically (McKendrick, 2019). This requires expertly coordinating the development, launch, and optimization of AI systems to align them with company goals and stakeholder requirements (Burkhardt et al., 2019). In the era of AI, proactive participation in decision-making procedures is necessary for strong management (He et al., 2023). Managers must use data-driven insights to spur innovation and improve operational effectiveness (Chaudhry & Chaudhry, 2023).

In addition, they have to cultivate an environment that values ongoing learning and adjustment, enabling groups to welcome new developments in AI and investigate novel opportunities for expansion and edge over competitors (Rožman et al., 2023). Moreover, managers are responsible for managing organizational resources and are crucial in directing expenditures toward AI projects that produce tangible advantages and promote long-term, sustainable growth (Vial et al., 2022). This calls for a thorough comprehension of risk management concepts and a readiness to negotiate the inherent risks in the application of AI. To ensure that AI technologies are used responsibly and following societal norms, managers play a key role in promoting openness and ethical stewardship in the adoption process (Madan & Ashok, 2023). By encouraging transparent communication and teamwork, they may reduce possible hazards and build confidence across stakeholders (Peifer et al., 2022), thereby laying the groundwork for morally good AI-driven changes. Fundamentally, the way management positions have changed in the AI era emphasizes how important it is to be flexible, always acquire knowledge, and lead with integrity. Managers can drive their businesses toward a future characterized by creativity, resilience, and sustainable growth by adopting these principles, which will help them traverse the challenges of AI transformation (Blundo et al., 2021).

1.4 Research Gaps

The present study endeavors to bridge gaps within the AI literature while seeking to open a venue for future research in creating the importance of personality-driven leadership capabilities to foster AI transformation.

1.4.1 Big Five Model and AI Literature

This study employed a widely acknowledged personality model, the Big Five Model (openness, conscientiousness, agreeableness, neuroticism, and extraversion), commonly used in mapping the personality traits of individuals across leadership effectiveness (Lee, 2022). Against the existing literature backdrop, it can be observed that this model has been studied to understand the

relationship of these personality traits with career thoughts (Coleman et al., 2023), burnout, turnover, performance and absenteeism (Angelini, 2023), guestroom technologies (Demirciftci et al., 2023), attitude towards digital work and work-life balance (Duan & Deng, 2023), open government data usage and acceptance (Schepman & Rodway, 2023), student satisfaction and online learning activities (Baruth & Cohen, 2023), entrepreneurial intention and information technology ventures (Elnadi & Gheith, 2023), emotional stability and mental health (Chen, 2023), work engagement and well-being (Chatterjee et al., 2023), internet addiction and social media addiction (Varchetta et al., 2023), information and technology usage (Bawack et al., 2021), big data orchestration (Lacam & Salvetat, 2023), technology adoption and innovativeness (Park & Woo, 2022), digital skills (Abbu et al., 2022), acceptance attitude towards AI, corporate distrust and general trust (Schepman & Rodway, 2023), internet self-efficacy, academic self-efficacy and practical performance anxiety (Hong et al., 2023), AI Chabot (Limna, 2022), ChatGPT (King, 2023), digital transformation and employee performance (Sagbas & Erdogan, 2022).

Following the thorough exploration and examination of these studies, the present research is poised to bridge the gap between personality traits and AI literature. According to one stream of literature, it is important to identify other characteristics including demographics, and personality features critical to leadership while digging deeper into the specificities of AI (Almeida et al., 2022). Similarly, another study acknowledged the possibility of using the Big Five model in identifying the relationship between traits, capabilities, perceptions, and technological transformation (Zhao et al., 2023). Thus, the current research gaps revolve around the impact of personality traits on AI leadership capability and AI transformation.

1.4.2 AI Leadership Capability and AI Transformation

Further delving into the integration of personality traits and AI literature, the research gap examines the impact of AI leadership capability on AI transformation. The lack of prior research on this idea in academic studies is notable, indicating a clear gap in the corpus of literature. One stream of literature investigates the impact of digital leadership on transformative initiatives within the construction industry (Zulu & Khosrowshahi, 2021). Similarly, another research highlights the implications, challenges, and opportunities of leadership in the AI realm (Fullan et al., 2023) while another study increases the importance of leaders in the digital era to invest in both hard and soft skills (Zhang & Chen, 2023). Other studies focused on the impact of leadership on ethical

ChatGPT (Crawford et al., 2023), green talent management (Asim et al., 2023), and innovative work behavior in AI-driven culture (Rožman et al., 2023), turnover and psychological safety (Kim & Cruz, 2022), employee attitude towards AI (Basu et al., 2023), sustainable performance and AI-focused culture (Munir et al., 2023).

In light of this, the prior study encourages the role of middle and top management capabilities in supporting a smooth transition concerning AI adoption within the business models and also developing effective internal mechanisms that will assist the AI implementation (Yu et al., 2023). Generally speaking, academics have linked obstacles like inadequate top-level management actions—where management's engagement, support, and leadership capability continue to be the most important success factors—to the difficult nature of adopting complex systems (Asim et al., 2023). Building upon the existing studies, another gap this study aims to address is the impact of AI leadership capability on the AI transformation within an organization.

1.4.3 Personality Traits and AI Transformation

By investigating the impact of individual personality traits on AI transformation within organizational contexts, this study aims to close a critical research gap and advance our understanding of the personality aspects impacting the phenomena of AI. Based on one study, it is critical to delve further into the characteristics of emerging technologies and find elements that will aid in the development of a framework that successfully explains the acceptance of novel technologies (Ahn & Chen, 2022). Regarding the previous research, there is a lot of scientific discourse about digital transformation, but not many of the studies were limited to AI transformation (Ali et al., 2023). Of the 52 papers that Andersson and Torkar (2022) found, 23% address the digital transformation of AI technologies, including AI, Big Data Analytics (BDA), and Data Analytics (DA), as well as other ideas like different smart industries (e.g Industry 4.0, smart manufacturing, and agriculture).

This leads to the premise that rather than focusing solely on the effects of AI tools or organizational outcomes, more research needs to be done on the elements or precursors that can promote AI transformation across organizations (Yu et al., 2023). Furthermore, it is uncertain how firms might use individuals to maximize the benefits of digital transformation and how individuals' personality traits and features can be compatible with the digital transformation ideology (Chatterjee et al., 2022). This will result in an increased understanding of leadership capabilities that will foster

transformation initiatives successfully (Taherizadeh & Beaudry, 2023). Therefore, the present study aims to bridge the gap by examining the impact of personality traits on AI transformation.

1.5 Problem Statement

AI has the potential to completely change the world and is strategically essential for businesses to stay competitive (Prather et al., 2023). Organizations must improve their ability to use AI technologies if they are to take advantage of the opportunities it presents. Regretfully, a lot of businesses still find it difficult to successfully adapt and use smart technologies (Simoes et al., 2022). Implementing AI might be challenging due to its technical aspects and expertise needs. Substantial obstacles still exist because, just 8% of businesses successfully integrate AI into their primary business processes, and the majority of companies only implement AI on a single pilot basis (Ammer et al., 2023). The main obstacle to AI transformation is a lack of professional knowledge and expertise in the field (Rozman et al., 2023). Since AI systems do not yet possess the fundamental qualities of the human intellect, AI algorithms will not generate definitive answers but rather provisional ones (such as probability-based prediction), which call for human justification, illustration, and intervention to yield precise and worthwhile outcomes (Lu et al., 2022).

Having said that, AI transformation success hinges on human aspects, including experts, employees, leader capabilities within the firm, and so forth (Venumuddala & Kamath, 2023). The resolution of management issues, such as the restructuring of organizational capacities, human resources, and business processes, depends more on the successful AI transformation (Bharadiya & Bharadiya, 2023). This requires the support of upper management (Nuaimi et al., 2022). However, the majority of leaders are either unprepared for AI technology or lack the requisite skills, expertise, or awareness of AI transformation, which leaves them with an inadequate grasp of the potential benefits of AI transformation (Kollmann et al., 2023). It fails to endorse the AI transformation because the organization's aspirations of AI are higher than its capacity, or because closing the gap between present and necessary AI capabilities is challenging (Lu et al., 2022).

In the context of the IT sector, the ethical implications of AI technology are one of the main concerns (Varsha, 2023). This includes worries about data security and privacy, prejudice and fairness in AI systems (Gupta & Jain, 2023), and the possible effects of AI on employment and jobs (Stahl, 2021). The explication and openness of AI systems provide additional difficulties, and

policy and regulatory issues must be taken into account to guarantee the responsible development and application of AI (Robinson, 2020). Additionally, the sector is facing a skills shortage and intense competition for the best talent due to the increased need for qualified workers with expertise in AI and machine learning (Santana & Fernandez, 2023). All of these problems provide formidable obstacles for businesses trying to use AI while managing moral, legal, and personnel-related difficulties (Aguinis et al., 2024).

The IT sector could face serious repercussions if it does not adopt AI transformation. If AI's ability to solve prevalent challenges isn't made more widely known, business society might lose out on prospects for long-term development (Ajami & Karimi, 2023). Effective adoption of AI lack technology may be hampered by a lack of trained human resources and data availability for AI training (Neumann et al., 2022). This could lead to a lack of readiness for the disruption that AI would bring to conventional work practices, which could result in job losses and unstable socioeconomic conditions (Budhwar et al., 2022). If these issues are not resolved quickly, the IT sector may find it more difficult to compete globally and survive in the increasingly digitally altered environment.

Subsequently, understanding the influence of AI on business expansion as well as innovation requires research into the IT industry (Lee et al., 2023). The sector's rapid growth, particularly in nations such as Pakistan, highlights the importance of understanding how AI is employed (Nazir, 2023). Insights gained from such studies can help organizations and policymakers make strategic decisions that boost competitiveness. Furthermore, researching AI in the IT sector provides significant insights into developing trends and technologies around the globe (Hamza, 2021). Research findings may shape policy decisions, fostering an atmosphere conducive to AI implementation and innovation (Amin, 2023). Local IT enterprises must be equipped with AI technology and qualified staff to compete globally, rendering research in this field critical to generating growth and innovation (Aleezay, 2023).

1.6 Research Objectives

RO1. To examine the impact of personality trait openness on AI leadership capability in the IT industry.

RO2. To examine the impact of personality trait agreeableness on AI leadership capability in the IT industry.

RO3. To examine the impact of personality trait conscientiousness on AI leadership capability in the IT industry.

RO4. To examine the impact of personality trait extraversion on AI leadership capability in the IT industry.

RO5. To examine the impact of personality trait neuroticism on AI leadership capability in the IT industry.

RO6. To examine AI leadership capability impact on the AI transformation in the IT industry.

RO7. To examine the mediating effect of AI leadership capability on the relationship between openness and AI transformation in the IT industry.

RO8. To examine the mediating effect of AI leadership capability on the relationship between agreeableness and AI transformation in the IT industry.

RO9. To examine the mediating effect of AI leadership capability on the relationship between conscientiousness and AI transformation in the IT industry.

RO10. To examine the mediating effect of AI leadership capability on the relationship between extraversion and AI transformation in the IT industry.

RO11. To examine the mediating effect of AI leadership capability on the relationship between neuroticism and AI transformation in the IT industry.

1.7 Research Questions

RQ1. Does personality trait openness have an impact on AI leadership capability in the IT industry?

RQ2. Does personality trait agreeableness have an impact on AI leadership capability in the IT industry?

RQ3. Does personality trait conscientiousness have an impact on AI leadership capability in the IT industry?

RQ4. Does personality trait extraversion have an impact on AI leadership capability in the IT industry?

RQ5. Does personality trait neuroticism have an impact on AI leadership capability in the IT industry?

RQ6. Does AI leadership capability impact the AI transformation in the IT industry?

RQ7. Does AI leadership capability mediate the relationship between openness and AI transformation in the IT industry?

RQ8. Does AI leadership capability mediate the relationship between agreeableness and AI transformation in the IT industry?

RQ9. Does AI leadership capability mediate the relationship between conscientiousness and AI transformation in the IT industry?

RQ10. Does AI leadership capability mediate the relationship between extraversion and AI transformation in the IT industry?

RQ11. Does AI leadership capability mediate the relationship between neuroticism and AI transformation in the IT industry?

1.8 Significance of Study

The primary goal of this research was to investigate the causal relationships between personality traits (openness, agreeableness, conscientiousness, extraversion, and neuroticism), AI leadership capability and AI transformation. By doing this, the current study closes gaps in the literature on AI because, as of yet, no study has been conducted on all of the linkages mentioned in the research framework.

1.8.1 Theoretical Significance

This study introduces the operationalization of two new constructs: AI leadership capability and AI transformation. To define these constructs, the existing operationalization of digital leadership and digital transformation was considered. Ultimately, this study will make meaningful contributions to the domain of AI by opening avenues toward the integration of leadership studies with machine learning. Notably, this study examined the positive association between the two constructs, indicating the importance of AI leadership in driving successful AI transformation within organizational settings. Also, it introduces AI leadership capability as a potential mediator when studying the concept of AI through the lens of psychological studies. The present study also

highlighted that agreeableness and conscientiousness personality traits play a significant role in the development of AI leadership capability. This fusion of personality traits with AI will allow researchers, scholars, and theorists to delve deeper to understand this connection as combining technical expertise with abilities tailored through these traits will guide AI transformation to success while observing the ethical and societal implications.

1.8.2 Practical Significance

The study provides practical implications for IT companies and the government of Pakistan. Findings suggested that Pakistani IT-based companies should consider personality-driven AI leadership important if they anticipate effectively proceeding with AI initiatives. It is suggested that organizations should invest in designing leadership development programs or training workshops to enhance personality traits and equip leaders with abilities to manage AI transformation. These programs will contribute to helping managerial employees develop abilities while considering these traits to effectively navigate the dynamic nature of AI technology. Similarly, government should sponsor and fund leadership development programs to help managers develop AI leadership capabilities crucial to AI transformation. They should also invest in the R&D institutions to empower future researchers in studying psychological studies to build AI-focused cultures within the organization.

1.9 Research Scope

The research undertaken in this thesis embarks on an extensive and detailed examination of the profound impact of integrating personality-driven AI leadership on the AI transformation, with a particular emphasis on its application within the IT industry. Andersson and Torkar (2022) notes that AI is a nascent field of interdisciplinary research with vast and versatile characteristics. The primary objective of this study is to meticulously examine the impact of each trait in the development of AI leadership capability of the leaders who will be the AI advocates or change agents in promising successful AI transformation within the organizations. According to an empirical study, those with managerial or leadership positions—such as CEOs—may be more likely to have personality traits that support the AI transformation of companies (Zhu & Zhang, 2022).

The study will further delve into analyzing the existing literature to develop an understanding of the proposed relationships in the research framework. Moreover, it aims to broaden the AI

literature by raising awareness regarding the importance of examining the antecedents of AI transformation. By bridging the gap between personality-driven leadership capability and AI transformation, this study aims to offer practical and theoretical insights for leaders in navigating the evolving technological landscape of Pakistan's IT industry.

For the execution of the current study, managers were approached as they have total involvement in the company's transformational activities, and the fact that they are in a decision-making position, therefore being responsible for the strategies that the organization sets (Sow & Aborbie, 2018). In short, managers will act as AI champions or AI advocates for the successful integration of AI transformation within the IT industry.

1.10 Operationalization of Variables

1.10.1 Openness

Openness was characterized by the Big-Five Personality theory's founders as a trait involving intellectual curiosity, valuing innovation, and flexibility (Costa & McCrae, 1992). In this research, this variable was operationalized as AI leaders encapsulating a receptive attitude, a passion for innovation, and a desire for intellectual exploration, leading to AI transformation.

1.10.2 Agreeableness

Agreeableness was characterized by the Big-Five Personality theory's founders as a trait indicating individuals 'level of cooperation, affection, and civility (Costa & McCrae, 1992). In this research, this variable was operationalized as AI leaders encouraging collaborative efforts and harmonious connections crucial for furthering AI transformation.

1.10.3 Conscientiousness

Conscientiousness was characterized by the Big-Five Personality theory's founders as a trait comprising attention to detail, self-inspection, and effective organization (Costa & McCrae, 1992). In this research, this variable was operationalized as AI leaders driving AI transformation by meticulous attention to detail, continuous self-inspection and efficient administration.

1.10.4 Extraversion

Extraversion was characterized by the Big-Five Personality theory's founders as individuals encompassing outgoing and gregarious personality, the ability to hold conversations naturally, and unparalleled sensitivity to positive emotions (Costa & McCrae, 1992). In this research, this

variable was operationalized as AI leaders bringing high energy and excelling in dynamic social settings, fostering collaboration and innovation crucial for AI transformation.

1.10.5 Neuroticism

Neuroticism was characterized by the Big-Five Personality theory's founders as negative emotions including anxiety, insecurity, and dismay as well as emotional instability (Costa & McCrae, 1992). In this research, this variable was operationalized as AI leaders experiencing anxiety, insecurity, and depression, impacting their psychological stability and decision-making critical to AI transformation.

1.10.6 AI Leadership Capability

The current research defines this construct by adapting to the operationalization of digital leadership, "Digital leadership has been defined as individuals who add value to the organizations by combining the abilities of the leaders with digital technologies" (Erhan et al., 2022, p. 1527). In this study, we operationalize this construct as individuals who add value to organizations by combining the abilities of leaders with AI technologies.

1.10.7 AI Transformation

Digital transformation is defined as, "The use of digital technologies to create new or modify existing business models and processes or to support the transformation of organizational structures, resources, or relationships with internal and external actors" (Zomer et al., 2020, p. 1098). Consequently, this study defines AI transformation in light of digital transformation as the application of AI technologies to develop new and modify existing business models and processes, structures, or relationships with internal and external agents to achieve work-related outcomes.

1.11 Organization of Thesis

This thesis comprises a total of five chapters dedicated to examining the causal relationships proposed in the research framework. To begin with, *Chapter 1* served as an introduction to the thesis by covering the research background, contextual analysis, research gaps, problem statement, significance of the study, research scope, research objectives, research questions, and operationalization of the variables.

Next, *Chapter 2* covered a comprehensive analysis of existing literature by comprehensively discussing the operationalization of each variable, underpinning theory, developing eleven

hypotheses, and illustrating the conceptual framework. This chapter significantly contributed to comprehensively understanding the research variables and the causal relationships between them.

In *Chapter 3*, the focus shifts to the methodology section of the thesis. This chapter starts with the illustration of the research onion that highlights the method, strategy, horizon, philosophy, and approach used for the execution of this study. It further discusses the ideology behind employing these elements. Later in the chapter, sample size, target, data collection procedures, measures, and ethical considerations are comprehensively discussed.

Chapter 4 presents the research results by covering the demographic analysis and data analysis conducted through partial least squares structural equation modeling (PLS-SEM). The first stage entailed testing the measurement model that included internal consistency reliability, convergent validity (CV), and discriminant validity (DV), while the second stage encompassed the assessment of the structural model (hypotheses testing).

Lastly, *Chapter 5* served as the final chapter of this thesis encompassing valuable and comprehensive findings of the research while also highlighting the theoretical and managerial implications of the study. The chapter concludes by highlighting the limitations, future recommendations, and conclusion of the study.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

This section serves as a guide for understanding the intricate interplay of personality traits with the developing field of AI. The research structure, as shown in Figure 2.1, exposes the variables critical to the investigation of this study. Using the well-known Big Five Model as a guide, my work seeks to elucidate the deep impact of these traits in fostering leadership capabilities required for leading AI development across organizational landscapes. This chapter demonstrates the dedication by methodically formulating research hypotheses based on a synthesis of existing literature and empirical studies. This part methodically carves a road from genesis to definition, revealing the subtle relationships between various pieces. It delves into the conceptualization of variables and anchors them inside their underlying theories. This convergence of study conceptualization and personality exploration emerges as a nexus within the ever-evolving integration of AI, putting a light on the core elements of AI leadership capabilities and their transformational potential. Through this, we hope to learn how the different attributes of openness, neuroticism, extraversion, agreeableness, and conscientiousness impact and potentially determine the trajectory of AI transformation, with AI leadership poised as a mediator within this dynamic ecosystem.

2.2 Research Conceptualization

2.2.1 Personality Traits

Personality trait is referred to as the propensity for people to act consistently in different contexts (Harirchian et al., 2022). Although there are many personality traits that are instigated with respect to organizational effectiveness and efficiency, the five traits that are predominantly discussed in the context include: extraversion, agreeableness, conscientiousness, neuroticism, and openness (Ayub et al., 2019).

2.2.1.1 Openness

One of the fundamental characteristics of openness in personality psychology is an individual's inclination to welcome change and to venture outside their comfort zones to experience a wide range of ideas, feelings, and experiences (McCrae & Costa, 1983). Openness has been extensively researched and linked to several positive outcomes, such as increased creativity, curiosity,

adaptability, mental flexibility, and acceptance of others (Jirjahn & Ottenbacher, 2023). People with high openness tend to think creatively and are open to receiving unusual ideas, which encourages creativity and problem-solving skills (Li et al., 2014). Additionally, their mental dexterity makes it possible for them to navigate difficult and unpredictable situations with skill, which supports effective leadership characterized by openness to criticism, wise judgment, and sympathetic response to others (Knaps, 2015). One aspect of this quality is openness to experience, which shows how open a person is to change, intellectual challenge, and cultural discovery (Schwaba et al., 2018).

Moreover, individuals with high openness scores tend to be more imaginative, artistic, and creative thinkers, which promotes both personal development and career success (Nieß & Zacher, 2015). In multicultural environments, their capacity to reconcile divergent cultural beliefs and adjust to novel circumstances is especially advantageous, augmenting organizational efficiency and fostering intercultural proficiency (Chiaburu et al., 2011). For this research, Costa and McCrae's (1992) definition of openness trait was adopted who defined this trait as entailing intellectual curiosity, valuing innovation, and flexibility. Consequently, we operationalized this variable as AI leaders encapsulating a receptive attitude, a passion for innovation, and a desire for intellectual exploration, leading to AI transformation.

2.2.1.2 Extraversion

An individual's propensity for good emotional experiences and social connection is embodied in extraversion, a fundamental trait of personality (McCrae & John, 1992). Individuals with strong extraversion typically display traits like friendliness, confidence, and eagerness to interact with others (McCrae & Costa, 1987). They flourish in social environments, frequently having more expansive social networks and interacting with others with enthusiasm and optimism (McCrae & Costa, 1985). Their inclination toward friendliness and assertiveness not only determines their external appearance but also how they plan events and handle social settings with assurance and comfort (Angelini, 2023).

Additionally, research indicates that extraverted people typically feel less stressed during difficult or stressful situations, possibly because they have wider social circles and a more optimistic view on life (Leger et al., 2016; Strickhouser et al., 2017). Warmth, gregariousness, assertiveness, activity, excitement-seeking, and pleasant emotions are some of the traits that make up

extraversion, which is an externally expressive and gregarious personality type (John & Srivastava, 1999). Extraverts differ from introverts, who may have a preference for seclusion, seriousness, and task-oriented behavior, in that extroverts are more at ease in social situations and have a greater desire for stimulation and fun (Pervin et al., 2005). To put it simply, extraversion is a range of characteristics that include social interaction as well as an individual's general outlook on life, which is marked by zeal, optimism, and a preference for human connection. For this research, Costa and McCrae's (1992) definition of extraversion trait was adopted who defined this trait as individuals encompassing outgoing and gregarious personality, the ability to hold conversations naturally, and unparalleled sensitivity to positive emotions. Consequently, we operationalized this variable as AI leaders bringing high energy and excelling in dynamic social settings, fostering collaboration and innovation crucial for AI transformation.

2.2.1.3 Neuroticism

Neuroticism, often synonymous with emotional instability, has a big impact on how people react to stressors, and this is especially true when faced with obstacles and unknowns (Widiger & Oltmanns, 2017). High neuroticism makes a person more susceptible to threat cues, which makes them more likely to worry excessively and dwell on past events (Regzedmaa et al., 2024). Lack of control over one's psychological condition is how this trait shows up, which leads to emotional instability and unhealthy coping techniques (Pervin et al., 2005). These people struggle to successfully control their negative emotions and exhibit elevated levels of anxiety, anger, despair, and self-pity (Zaki et al., 2024). An individual's susceptibility to stress disorders and emotional reactivity is influenced by a variety of traits that make up neuroticism, including anxiety, anger, despair, self-consciousness, impulsiveness, and vulnerability (Jirjahn & Ottenbacher, 2023).

Conversely, individuals with lower levels of neuroticism exhibit greater emotional resilience and adaptability to stressors (Pervin et al., 2005). They tend to maintain a calmer demeanor, experience less emotional volatility, and demonstrate a greater sense of self-assurance and contentment (Pervin et al., 2005). This contrast in neuroticism levels underscores differing responses to perceived threats, with individuals scoring lower on this trait typically exhibiting a more relaxed and stable emotional disposition (Zaki et al., 2024). Understanding the role of neuroticism in shaping individuals' anxiety responses provides insights into tailoring interventions and support systems to mitigate the adverse effects of stressors, particularly during challenging times

(Regzedmaa et al., 2024). For this research, Costa and McCrae's (1992) definition of neuroticism trait was adopted who defined this trait as negative emotions including anxiety, insecurity, and dismay as well as emotional instability. Consequently, we operationalized this variable as AI leaders experiencing anxiety, insecurity, and depression, impacting their psychological stability and decision-making critical to AI transformation.

2.2.1.4 Agreeableness

Within the framework of the Big Five paradigm, agreeableness is a key personality trait that includes a variety of aspects, including warmth, friendliness, altruism, trust, and goodness (McCrae & John, 1992). It distinguishes between people's pro-social inclinations, collaboration, empathy, and desire for interpersonal harmony (Costa & McCrae, 1992; Goldberg, 1990). Individuals that score high in agreeableness tend to be warm, gregarious, trustworthy, and cooperative, and tend toward acceptance, generosity, and politeness (Costa et al., 1995). This characteristic shows a desire to fit in with others, placing a high value on preserving harmonious relationships and restraining aggressive actions (Butrus & Witenberg, 2013). Additionally, these individuals demonstrate better perspective-taking skills, which allow them to view situations from the viewpoints of others (Chopik et al., 2017), and they are more likely to show emotions that are directed toward other people and pay attention to others with empathy (Graziano et al., 2007).

Moreover, agreeableness has been linked to advantages for mental and physical health, promoting positive interpersonal interactions and increased flexibility (Zhao et al. 2022). Its focus on pro-social conduct and interpersonal harmony points to its significance in fostering favorable social relationships and reducing conflict, both of which improve general well-being (Butrus & Witenberg, 2013). This trait emphasizes how important it is to promote cooperative and sympathetic attitudes in social situations, as these attitudes eventually shape people's social behaviors and interpersonal dynamics (Feng et al., 2024). For this research, Costa and McCrae's (1992) definition of agreeableness trait was adopted who defined this trait as indicating individuals 'level of cooperation, affection, and civility. Consequently, this variable was operationalized as AI leaders encouraging collaborative efforts and harmonious connections crucial for furthering AI transformation.

2.2.1.5 Conscientiousness

Conscientiousness, a key element of the Big Five personality paradigm, refers to traits like diligence, self-control, and dependability that foster greater efficacy and productivity at work (Costa et al., 1991). It also includes a person's organizational strategy, resiliency, and drive for success (Barrick et al., 2002; Roberts et al., 2005). Achievement orientation, which stresses personal advancement and career aspirations (Chae et al., 2019), and duty orientation, which places a focus on social responsibility and accountability to others, are two ways in which this trait is expressed (Becker, 1998).

Highly conscientious people prefer to obey rules and regulations and pay great attention to detail (Barrick and Mount, 1991). Along with demonstrating self-control, self-motivation, and efficient resource allocation to achieve preset goals (Ocampo et al., 2020), these people also frequently show higher goal commitment (Barrick et al., 1993). They are compelled to adapt to organizational changes, such as the introduction of new technology, by their intrinsic need for self-control and perfection (Mateo et al., 2024). On the other hand, individuals who possess high levels of conscientiousness contribute to the achievement of organizational goals by maintaining emotional stability, enhancing productivity, and fostering a sense of commitment and purpose (Costa et al., 1991).

Conscious people are great assets in the workplace because they are driven to continuously improve their knowledge and abilities (Li et al., 2024). Nevertheless, recent studies have highlighted potential drawbacks of high conscientiousness, such as increased stress from negative feedback and worsened mental health, suggesting a deeper comprehension of its effects on individual experiences and outcomes (LePine et al., 2000; Li et al., 2024). For this research, Costa and McCrae's (1992) definition of conscientiousness trait was adopted who defined this trait as comprising attention to detail, self-inspection, and effective organization (Costa & McCrae, 1992). Consequently, this variable was operationalized as AI leaders driving AI transformation by meticulous attention to detail, continuous self-inspection and efficient administration.

2.2.1.6 AI Leadership Capability

Taherizadeh and Beaudry (2023), define leadership capability in the context of AI-driven digital processes as the ability to explicitly engage and coordinate with employees to execute transformational initiatives, as well as visionary guidance and commitment to

foster a learning culture including eagerness to learn, change management, collaboration, and consistent growth. Similarly, Svetlana et al. (2022) study suggests that the integration of AI and humans will contribute to greater results as the task nature might require creativity and interpersonal and intuitive capabilities of leadership. Furthermore, the integration of AI and leader capability is characterized to foster organizational growth, and competitiveness, while providing the capacity to achieve business optimization and effectively mitigating the risks of the AI ecosystem (Allioui & Mourdi, 2023).

In any case, such AI-focused leadership capabilities play a pivotal role in bringing about the transformation because they are the change agents with a transformative vision (Ellström et al., 2022) and a proactive perspective which is essential for driving change in volatile circumstances (Konopik et al., 2022). While researchers primarily agree on the relevance of AI capabilities, the present literature does not provide a comprehensive understanding of what they include (Sjödin et al., 2021). The current research defines this construct by adapting to the operationalization of digital leadership, "Digital leadership has been defined as individuals who add value to the organizations by combining the abilities of the leaders with digital technologies" (Erhan et al., 2022, p. 1527). The current study operationalizes this construct as individuals' ability to strategically combine AI tools with their leadership capabilities to add value to their organization.

2.2.1.7 AI Transformation

With the emergence of innovative digital technologies (e.g., AI and big data analytics), organizational change has regained traction under the umbrella of digital transformation (Cegarra et al., 2020). Digital transformation is defined as, "The use of digital technologies to create new or modify existing business models and processes or to support the transformation of organizational structures, resources, or relationships with internal and external actors" (Zomer et al., 2020, p. 1098). AI transformation is considered the fundamental constituent of digital transformation (Okunlaya et al., 2022; Saurabh et al., 2022), so this study defines AI transformation as the application of AI technologies to transform existing business models and processes, structures, or relationships with internal and external agents to achieve work-related outcomes. AI technologies are broadly categorized as machine learning, computer vision, natural language processing (NLP), deep learning, and context-sensitive processing, which can be integrated to create answers for a variety of business concerns (Mannuru et al., 2023). AI technologies are characterized to help

organizations become more efficient, productive, and cost-effective while also improving the quality of their goods and services (Choung et al., 2022). With the evolution of processing speed and communication bandwidth increase, hardware and storage costs have decreased; AI Transformation has become vital for companies to adapt to the new domain to remain competitive and effectively manage the associated risks (Vijayakumar, 2023). Consequently, AI technology focuses primarily on two areas: company operation refinement through progressive optimization and the use of AI transformation to revolutionize business models, produce innovative organizational strategies and cultures, build business partnerships, and so on (Lu et al., 2022).

2.3 Underpinning Theory

2.3.1 Big Five Model

The Big Five model, which comprises five dimensions—extroversion, agreeableness, openness, conscientiousness, and neuroticism—was first proposed by McCrae and Costa (1987) and is the most popular and well-validated taxonomy of personality traits (Lee, 2022). This model is considered one of the universally accepted models to study and assess an individual's distinct personality (Diller et al., 2020). Based on their distinctive actions, ideas, and feelings, individuals can be categorized along a continuum represented by each trait (Becker et al., 2023). Social psychology research has shown that personality traits can impact an individual's feelings, ideas, and behaviors as well as shape their beliefs and conduct in a variety of contexts, including sociocultural, familial, social, and geographical aspects of life (Gokoglan & Bekar, 2021).

In our study, this model was incorporated to investigate the role of these five universally accepted traits in the development of AI leadership capabilities that facilitate AI transformation within the organization. An individual entailing the personality trait of openness indicates frequent engagement in and seeking novel experiences and information (Park & Woo, 2022). Thus, employees high in this personality trait will develop capabilities to embrace technological innovation (Abbate et al., 2022). In contrast, people high in neuroticism appear to be stressed when exposed to new experiences (Park & Woo, 2022), thus inhibiting the capability of leadership to execute successful AI transformation. However, employees who appear to be extroverts place greater value on interpersonal relationships, which are considered rewarding and associated with positive emotions (Harirchian et al., 2022). It can be deduced that this personality trait will result

in the development of capabilities that associate positive emotional reactions with AI transformation (Jarrahi et al., 2022).

Similarly, individuals high in agreeableness will feel more motivated to not only maintain positive relations with others but also respond proactively to conflicted situations (Park & Woo, 2022). Although conflicting arguments have been proposed concerning the role of this trait in developing leadership capability, we propose it positively contributes to the development of AI leadership capability when technology is perceived as useful or as a way to achieve behaviours that are crucial for sustainability and profitability. Lastly, individuals high in conscientiousness have a greater need for achievement (Krzeminska & Rzeznik, 2021). This will contribute towards greater AI-focused capabilities that contribute to AI transformation within the organization.

2.3.2 Self-Determination Theory - SDT

To explain the current research framework, this study employed a supporting theory that is widely used in management and organizational studies. Self-determination theory (SDT) is defined as a characteristic of human behavior that includes a sense of choice (Deci & Ryan, 1985). The theory assumes that individuals are naturally curious, seek coherence, and enjoy productivity (Vreede et al., 2021). According to Deci and Ryan (1985), all individuals regardless of cultural or contextual influences appear to possess three core and universally recognized psychological needs: autonomy, competence, and relatedness. Autonomy is defined as an individual's capability to regulate their behaviors and actions (Deci et al., 1989). Similarly, competency is defined as an individual's belief in their capabilities to thrive when engaged in tasks within their expertise (Deci & Ryan, 1985). Moreover, relatedness is defined as an individual's sense of identity and connection to others who share similar principles (Deci et al., 1991). Although these psychological needs are interconnected and complimentary, they can also exist separately and impact individuals differently (Vreede et al., 2021).

SDT is commonly employed in human-computer interaction studies to enhance user interactions with technology (Bingley et al., 2023). In context to the current research framework, the relationship between the five personality traits, AI leadership capability, and AI transformation is examined through the lens of SDT. While openness may largely encourage curiosity and exploration (Raya et al., 2023), which might coincide with a desire for autonomy, it also promotes competence by pushing people to learn new things and skills, developing a sense of mastery (Ryan

& Ryan, 2019). In context to this, managers with a high level of openness are more likely to be intrinsically motivated (Tan et al., 2016) by the possibility of engaging with emerging AI technologies and approaches, considering their passion for new ideas and readiness to experiment with novel techniques. Similarly, leaders with a high level of openness can use these characteristics to drive AI transformation by supporting experimentation with novel solutions (Tzouganatou, 2021), boosting innovation, and pushing all stakeholders to try unconventional methods for resolving issues (Cui et al., 2022). Ultimately, they promote autonomy by allowing team members to investigate AI technologies and solutions that correspond with their expertise and capabilities.

Conscientious individuals, who are known for their thoroughness, organization, and attention to detail, foster a sense of competence (Fan et al., 2023), as well as competence within SDT by striving to reach high standards and achieve their goals (Moore et al., 2020). So conscientious managers will play an important role in AI transformation by making sure that endeavors are meticulously planned, effectively implemented, and follow ethical guidelines. By offering organized direction and resources (Mateo et al., 2024), they will enable team members to excel at AI-related jobs while also supporting autonomy by defining clear expectations, and allowing employees to take responsibility for their participation in AI initiatives.

Similarly, extraversion, defined as friendliness, determination, and enthusiasm (Rodrigues et al., 2024), is correlated with meeting the desire for relatedness according to SDT. Extraverted managers will use these traits to effectively communicate the vision and advantages of AI transformation to all the stakeholders including employees. They increase relatedness and teamwork by creating an empowering and inclusive workplace, hence increasing motivation (Xia et al., 2022) and involvement in AI activities. They also provide possibilities for social engagement and collaborative problem-solving, which promotes team members' autonomy and competency (Bergdahl et al., 2023).

Agreeableness, which is defined by attributes including cooperation, empathy, and compassion (Zaki et al., 2024), meets the demand for relatedness in the context of SDT. Agreeable managers use this quality to foster the collaborative and supportive atmosphere (Pisanu et al., 2024) required for effective AI transformation. They encourage teamwork, respect differing perspectives, and develop a feeling of belonging, all of which promote affiliation among team members (Feng et al.,

2024). Thus, they will encourage and promote stakeholders who will lend their unique abilities and insights to AI initiatives, promoting autonomy and competence.

Lastly, neuroticism, defined by emotional instability and a proclivity to experience negative emotions such as anxiety and tension, can impede the fulfillment of psychological requirements (Regzedmaa et al., 2024). So managers with low neuroticism show endurance and emotional stability, which are essential for managing the complex tapestry of AI transformation. They reduce stress and anxiety by creating an encouraging and supportive work atmosphere (Caci et al., 2020), while also increasing autonomy, competence, and relatedness among employees.

2.4 Hypotheses Development

2.4.1 Openness and AI Leadership Capability

Empirical study suggests that individuals who tend to display a high level of openness are more eager to explore new ideas and endeavors, making them more susceptible to embracing and utilizing technological advancements (Zhang et al., 2019). Additionally, they enjoy speculating and solving challenging and unusual situations and tend to collect, analyze, and apply information that differs from their preconceived notions (Robinson, 2020). In essence, individuals with this personality trait are more capable of recognizing and accepting these emerging phenomena or developments as valuable (Maran et al., 2022). Similarly, the existing literature also acknowledges the role of openness in developing leadership capability as leaders are required to creatively confront the state of the art and revamp models that will promote technological experiences and transformation within the organizational setting (Ayub et al., 2019). Previous studies suggest that leaders with unique traits, mindsets, and competence are required to facilitate the application of new processes and methods to initiate sustainable changes and build relationships to foresee key shifts in technological evolution (Sun & Shang 2019). Put simply, openness is crucial for adapting to changing technological landscapes by seeking unconventional solutions, fostering collaboration, and driving innovation.

From the Big Five model perspective, it can be inferred that openness, defined by curiosity and adaptability, plays a significant role in the development of AI leadership capability. This trait may stimulate the development of AI leadership by instilling a desire to seek new ideas, embrace change, and learn different perspectives. Ultimately, in the AI realm, leaders with this personality trait are more likely to encourage innovative problem-solving, successfully adapt AI-focused

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strategies, and steer the entire organization to achieve successful AI outcomes. Therefore, we anticipate that this personality trait will favorably contribute to the development of AI leadership capabilities since those with high openness are encouraged to explore novel pursuits and demonstrate greater trust in unfamiliar agents. Similarly, the openness trait appears to address all of the outlined psychological needs in SDT, as managers high in openness trait will establish environments in which all stakeholders are empowered and can participate in AI initiatives independently, continually enhance their capabilities, and collaborate effectively, resulting in successful AI transformation.

H1. Managers with higher levels of openness trait will demonstrate greater AI leadership capabilities.

2.4.2 Neuroticism and AI Leadership Capability

Empirical evidence suggests that negative emotions are usually attributed to neuroticism, and those who exhibit this personality trait are more vulnerable to danger and punishment than others (Bandera & Passerini, 2020). Subsequently, highly neurotic individuals are more likely to retreat and restrict their behavior in response to stimuli, making them less open to and less willing to accept new ideas (Diller et al., 2020). Simply put, they are seen through the world's pessimistic lens and seem to be opting to operate in environments that foster detrimental consequences (Diller et al., 2020). In line with this, highly neurotic individuals, known to have low self-esteem and higher anxiety, should avoid leadership roles, as they are unlikely to hold optimistic future perspectives and might be too anxious to execute transformational change initiatives (Schiuma et al., 2022). In contrast, low neurotic leaders are less prone to anxiety about upholding safety as they they view novel initiatives more favorably and experience less stress when confronting challenging settings (Diller et al., 2020). Building on this premise, it can be assumed that this personality trait can inhibit the development of leadership capability by applying more stress, impetuous decision-making, and failure to control emotions. Subsequently, low-neurotic leaders can effectively handle pressure and take calculated risks, both of which are crucial for effective leadership administration.

According to the Big Five personality traits model, the neuroticism personality trait, defined as emotional instability, appears to adversely impact AI leadership by exposing AI leaders to stress and inconsistencies. It can be assumed that AI leaders high in neuroticism result in greater stress levels and inhibit decision-making in the volatile AI ecosystem. Conversely, it can be assumed

that AI leaders with low neuroticism can exhibit resilient behaviors to change initiatives and, despite facing setbacks, show commitment to organizational goals. Similarly, low levels of neurotic traits promote AI leadership capabilities by supporting autonomy, competence, and relatedness, as described by SDT. Managers with low neurotic traits are proficient in overcoming problems, maintaining confidence and resilience, and developing healthy relationships among employees, resulting in successful AI adoption. Therefore, we anticipate that low-neurotic leaders will be more favorable for the development of AI leadership capabilities.

H2. Managers with lower levels of neurotic traits will demonstrate greater AI leadership capabilities.

2.4.3 Extraversion and AI Leadership Capability

According to earlier studies, extroverted people are substantially more likely to be persuaded by favorable information than by unfavorable information and are eager to take the lead (Simic et al., 2022). High extroverts are better equipped to weigh the benefits and drawbacks of a particular situation (Othman et al., 2020). Simply put, extraversion is the key indicator of social behavior and has a positive effect on the spontaneity of decision-making. (Tao et al., 2020). About leadership studies, the extraversion trait appears to be frequently studied across numerous leadership criteria, as the ideal leadership profile includes an open and relationship-oriented leader, who is extraverted, has proficiency in social skills, is change-oriented, and has minimal traces of anxiety (Dan et al., 2021). Existing literature acknowledges the association of this trait with positive emotions and also informs about extraverts taking on more leadership roles while feeling more secure in social settings (Aydogmus et al., 2018). Researchers in the field of AI development assume that high extroverts often place significant value on interpersonal connections since they consider themselves to be valuable and are inclined to feel positive emotions (Krzeminska & Rzeznik, 2021). Similarly, this trait has a favorable influence on technology that encourages social engagement (Maran et al., 2022). In other words, the extraversion trait fosters leadership development by prioritizing collaboration, networking, navigating social factors, and motivating and engaging stakeholders in organizational transformational initiatives.

In context to the Big Five model, the extraversion trait will contribute to the development of AI leadership capability as extraverted AI leaders are more adept in articulating the complexity of AI concepts to organizational entities while gaining support and endorsement for AI initiatives.

Moreover, their extroverted personalities promote agile participation which is essential for grouping skill-diverse individuals for AI development. Essentially, the extraversion trait equips AI leaders to forge a vibrant ecosystem that advances AI-based technology while successfully pursuing social and corporate objectives. In brief, extraversion, a sociable and strong personality trait (Li et al., 2024), will allow extraverted managers to create an environment that meets the psychological needs relevant to autonomy, competence, and relatedness aspects of SDT. Their innate proclivity to interact with others, creates a collaborative and engaged workforce culture (Andrapuri et al., 2023), which is critical for successful AI endeavors. Thus, we anticipate the impact of extraversion to be positive on the development of AI leadership capabilities.

H3. Managers with higher levels of extraversion trait will demonstrate greater AI leadership capabilities.

2.4.4 Agreeableness and AI Leadership Capability

A previous study suggests that individuals with this personality trait are cooperative, warm, and kind, thus they are successful in having satisfying and pleasant relationships with others (Khan et al., 2021). Moreover, they tend to drive people to produce positive organizational and employee outcomes (Ayub et al., 2019). Similarly, agreeable individuals develop stronger social ties with organizational bodies while also positively impacting the intuitive and reliant decision-making styles (Othman et al., 2020). Concerning leadership perspective, one stream of literature considers the agreeableness trait rather irrelevant to leadership capability, and thus the role of this trait is still unclear concerning business transformation (Diller et al., 2020). In contrast, a school of thought acknowledges the positive role of agreeableness to be observed when systems are designed in a way that compliments collaboration with others rather than pursuing individual agendas (Park & Woo, 2022). Taking into account the limited information about the relationship between the agreeableness trait and leadership, this personality trait can contribute to leadership development as leaders with the agreeableness trait are skilled at creating inclusive and productive work environments, to maintain relationships and confront disagreements that might hinder the success of organizational goals.

About the Big Five Model, the agreeableness trait will contribute to the development of AI leadership capability as AI leaders high in agreeableness thrive in developing and maintaining relationships with stakeholders, essential for the execution of transformative initiatives. Moreover,

this trait will assist in promoting and acceptance of perspectives about AI-based technology while prioritizing ethical considerations to ensure the alignment between AI initiatives and organizational values. Ultimately, AI leaders will navigate the complexities of AI-based technology by fostering positive relationships, sustainable innovation, and a participative work environment, all essential for overall organizational success. Agreeableness, defined as cooperation and empathy (Blake et al., 2022), addresses the requirements outlined in SDT by fostering an empowering and collaborative culture. This trait contributes to meeting the relatedness requirement of SDT by establishing team collaboration, which is critical for AI initiatives. To demonstrate greater AI leadership capabilities, it is necessary to strike a balance between agreeability and decisiveness. Therefore, we propose a positive impact of the agreeableness trait on the development of AI leadership capability.

H4. Managers with higher levels of agreeableness trait will demonstrate greater AI leadership capabilities.

2.4.5 Conscientiousness and AI Leadership Capability

Previous studies suggest that individuals with the conscientiousness trait have a propensity for precision and organization and are more capable of assessing the advantages and disadvantages of a particular situation (Babalola et al., 2019). Similarly, they analyze innovation in a systematic, knowledgeable, and effective manner (Evans et al., 2021). Likewise, they base their decisions on reliable and accurate information. In other words, individuals with high conscientiousness traits plan and organize their duties actively, acting with responsibility and tenacity (Guay et al., 2019). Concerning the leadership literature, leaders frequently reflect on the degree to which their actions are morally appropriate, which stems from their capacity to pay careful attention to detail, make deliberate rather than chaotic decisions, have a profound awareness of moral obligation, and act on their conscience (Babalola et al., 2019). Similarly, leaders with higher levels of this personality trait are most likely to engage in positive coping actions such as problem-focused planning and action (Kumari et al., 2022). In brief, conscientious leaders aim to achieve corporate goals with precision, dependability, and accountability while sustaining organizational operational excellence.

Regarding the Big Five model, the present study suggests that the conscientiousness trait will contribute to the development of AI leadership capability as AI leaders with such personality traits

will exhibit meticulous planning, and precise execution, and ensure rigorous adherence to quality standards throughout AI initiatives. Existing literature acknowledges that individuals who possess high conscientiousness have an intense desire for accomplishment (Maran et al., 2022) and are thus, more likely to develop capabilities that support AI adoption if they believe it to be competent and efficient. Within the SDT framework, the conscientiousness trait contributes to effectively achieving objectives, paying attention to detail, and mitigating risks that support the competence need (Jia & Hou, 2024). Managers need to create a working environment that supports autonomy, competence, and relatedness while striking a balance between their methodical character and the flexibility required by AI transformation (Quaquebeke & Gerpott, 2023). Simply put, this trait supports the organization's AI initiatives, instills a culture of precision, and upholds ethical principles, driving responsible and successful AI leadership. Therefore, we foresee that conscientiousness will play a favorable and important role in developing AI leadership capability.

H5. Managers with higher levels of conscientiousness trait will demonstrate greater AI leadership capabilities.

2.4.6 AI Leadership Capability and AI Transformation

Prior research has linked AI-focused culture to process innovation, which catalyzes subsequent breakthroughs, necessitating leaders with a capacity and drive for learning, accepting change, and propelling progress - all with a feeling of urgency. These leaders are critical in building an organizational culture of constant development and flexibility. Similarly, one body of literature acknowledges the importance of individual managers and company leadership in ushering in a wave of digital culture in companies, which will likely encourage the adoption of technology-driven transformation (Chatterjee et al., 2022). Empirical research suggests that organizations should leverage digital leadership capability to ensure the successful implementation of digital transformation. Digital leadership is crucial to an organization's and its business ecosystem's strategic success in digitalization. In conformity with this, it can be concluded that AI leadership will play a significant role in fostering successful AI transformation within organizations. Empirical study suggest that a substantially successful AI transformation would necessitate a company's effort to concentrate on both crafting technology-related capabilities (adaptable infrastructures, real-time automated processes, and AI-savvy employee talent) and supplementary soft capabilities including effective leadership and AI mindset (Zulu & Khosrowshahi, 2021).

Likewise, the capacity to steer an organization toward AI transformation while striving to become more agile in ever-evolving social and AI ecosystems is closely associated with AI leadership capability. In other words, AI leaders should facilitate organizations in successfully executing transformative initiatives (Sagbas & Erdogan, 2022), and it must ensure that all employees are boarding the AI transformational journey (Tuschner et al., 2022). In context to the present study, AI leadership capability is critical for AI transformation because AI leaders will inspire teams, integrate AI efforts with organizational goals, and manage the difficulties of AI implementation, expediting effective and responsible AI transformation. In the context of SDT, AI leadership capabilities can further accelerate AI transformation by fostering relatedness by enhancing teamwork, and autonomy by allowing managers to concentrate on strategic tasks, and competence through data-driven choices while managing ethical issues is necessary to uphold confidence and meet psychological demands (Ryan & Deci, 2020). Subsequently, we propose that the AI leadership capability will impact the AI transformation.

H6. There is a positive effect of AI leadership capability on AI transformation.

2.4.7 AI Leadership as a Mediator

In line with prior studies, for successful digital transformation, the role of leadership capability is crucial in overcoming resistive forces (e.g. threat perception, job insecurity, learning inability). AI transformation requires enterprises to act at a faster pace to explore new opportunities afforded by enhanced digitalization. Moreover, organizations must prioritize the generation of creative ideas that add value (Mugge et al., 2020), the rapid development of AI-enabled services employing modern technology, and the development of organizational capabilities to offer such services to satisfy business expectations (Antonopoulou et al., 2020). This needs a leader who can influence the actions of others to achieve the desired and effective performance (Kane et al., 2019). Considering the AI transformation of the workplace is a novel phenomenon, leaders must be able to make legitimate assessments even when presented with ambiguous information (Chowdhury et al., 2023). As a result, AI leadership capability is thought to have an impact on the association between personality traits and AI transformation. The technological revolution in an organization has an impact on every aspect of the organization as a whole (Goralski & Tan, 2020), including organizational capital, human resources, managerial techniques, product creation, operations, process engineering, and management decisions (Ellström et al., 2022). The goal of AI

transformation is to strengthen and expand organizational capacities for value creation by acquiring technology and consuming AI knowledge (He et al., 2023). To consider employees' and organizations' capabilities (Haefner et al., 2021), it is crucial to analyze successful Al transformation programs, while closely investigating the association of personality traits in developing AI leadership to facilitate the AI initiative.

Accordingly, AI leadership capability will mediate the relationship between personality traits (openness, conscientiousness, agreeableness, extraversion, and neuroticism) and AI transformation as AI leaders will adeptly leverage these traits to foster an environment where AI transformation complexities can be navigated. Extraversion-driven AI leaders, for instance, will encourage collaboration, speeding up interdisciplinary AI initiatives while developing a dynamic AI ecosystem; agreeableness-driven AI leaders will nurture ethical AI development, establishing stakeholder trust as they oversee AI transformation; and low neuroticism-driven AI leaders will face AI challenges resiliently, directing the organization through AI transformation with solidity. Agreeableness-driven AI leaders will also drive innovation, maneuver rapid AI adoption, and pursue revolutionary AI technologies. In light of SDT, AI leadership capabilities will act as a mediator between personality traits and AI transformation by impacting how managers meet the psychological requirements of both individuals and teams, including relatedness, competence, and autonomy. Personality-driven AI leadership capabilities will help managers to use AI tools to improve decision-making (competence), automate repetitive operations (autonomy), and promote relatedness (relatedness). Thus, the following hypotheses have been developed:

H7-H11. AI leadership capability mediates the relationship between Big Five Personality traits (openness, conscientiousness, agreeableness, extraversion, and neuroticism) and AI transformation.

2.5 Research Framework
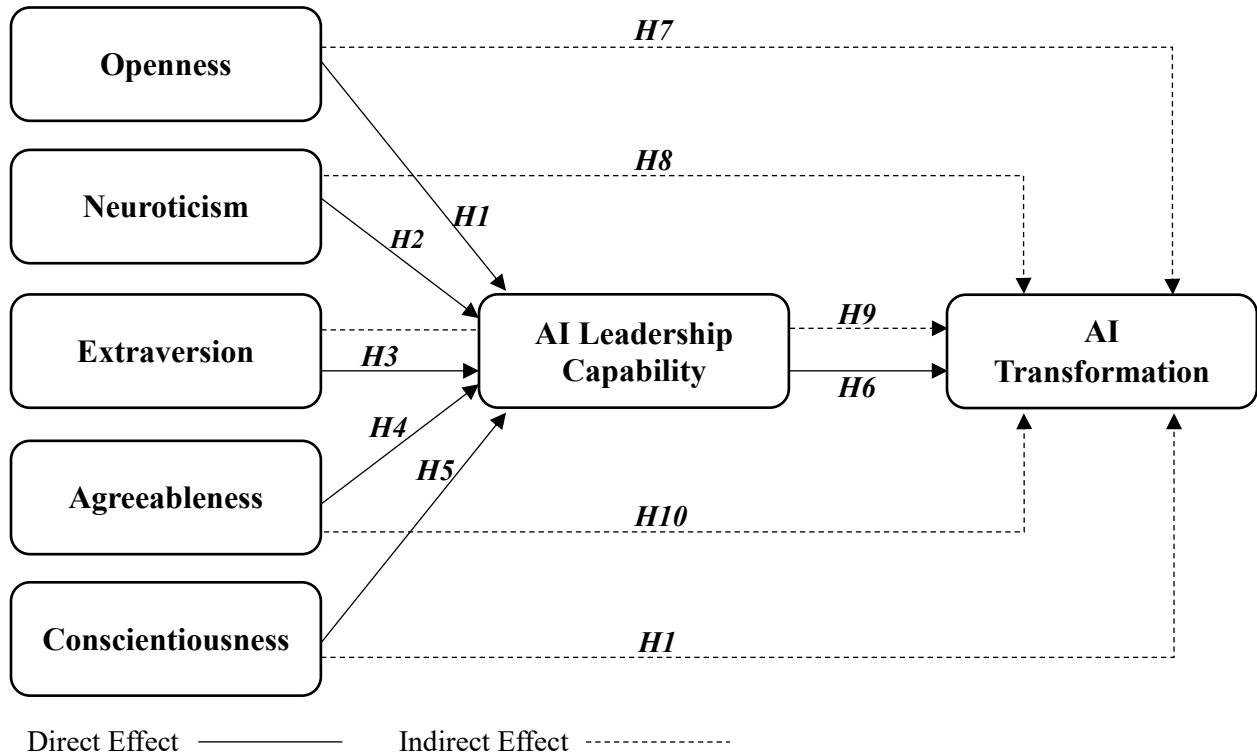
Figure 2.1 Research Framework

2.6 Chapter Summary

Extraversion, agreeableness, conscientiousness, neuroticism, and openness are all personality qualities that might influence job behavior and success. Understanding and addressing these attributes can help organizations improve employee performance and impact change initiatives. Leadership in AI-driven digital processes is critical, requiring vision, commitment, and a learning culture. Integrating AI with human capabilities promotes organizational growth, competitiveness, and business optimization. AI leaders play a critical role in promoting change by combining the ability of leaders with digital technologies. Machine learning and big data analytics, for example, have transformed company operations by increasing efficiency, productivity, and cost-effectiveness. AI transformation is becoming increasingly important for businesses to remain competitive and manage risks as processing speed and communication bandwidth rise. The Big

Five model, which includes extrovert, agreeableness, openness, conscientiousness, and neuroticism, is used to research personality traits.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This section acts as a beacon illuminating the approaches essential to the execution of this study as it navigates the varied terrain of this research endeavor. The emphasis points are the determination of sample size, the meticulous data collection methodologies used, and the creation of an instrument carved from the bedrock of existing literature. In this tale, we briefly discuss the ethical concerns that must be addressed while compiling and interpreting survey results. The intention to use a descriptive research strategy, peeling back the layers of the research onion (Saunders et al., 2019), as illustrated in Figure 3.1, serves as the fulcrum for this dissertation's objectives. This tour takes you across the areas of research philosophy, approach, strategy, participants, and procedures. The sampling strategy is crucial to the process, as it deliberates on both size and target, ensuring a solid foundation for our inquiries. The description of the boundaries of the data collection processes and the measures behind the inquiry into personality traits, AI leadership aptitude, and the resulting influence on AI transformation with scrupulous consideration. A consistent commitment to ethical considerations underpins these techniques, realizing the responsibility inherent in acquiring and analyzing this essential data.

Research Philosophy: Positivism

Research Approach: Deductive

Research Method: Quantitative

Research Strategy: Survey

Research Horizon: Cross Sectional

Research Technique: Purposive
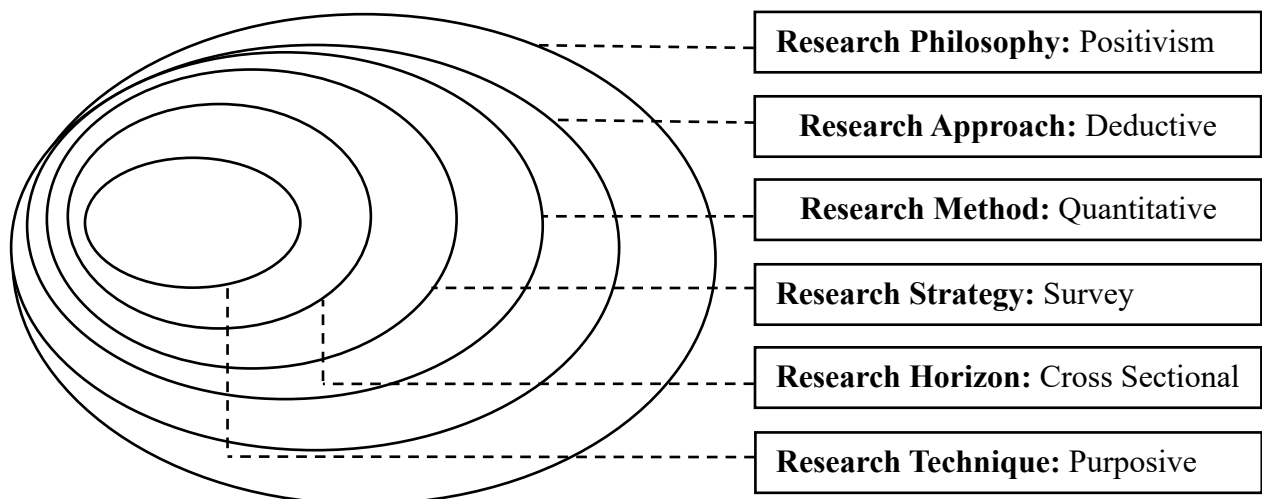
Figure 3.1 The Research Onion

3.2 Research Design

For the present explanatory study, we have employed a quantitative research design as we examine the relationships present in the conceptual framework. According to Saunders et al. (2019), explanatory research is defined as research that demonstrates causal linkages between variables where the focus is on analyzing a scenario or issue to explain the correlations between variables. In a similar vein, quantitative studies concentrate on the correlations between variables that are quantified and examined through a variety of statistical and graphical methods (Saunders et al., 2019). This type of inquiry is predicated on the same presumptions as qualitative research, such as the ability to test ideas deductively, incorporate bias prevention measures, adjust for competing explanations, and generalize and replicate the results (Creswel, 2014). A conceptual framework is linked with the concepts, empirical research, and important theories used in promoting and systemizing the knowledge espoused by the researcher (Peshkin, 1993). It is the researcher's explanation of how the research problem would be explored (Liehr & Smith, 1999). According to Peshkin (1993), a conceptual framework is associated with the theories, concepts, and empirical studies that assist in systematizing and advancing the knowledge that the researcher advocates.

3.2.1 Research Philosophy and Approach

According to the current study's ontological and epistemological assumptions, there is a single reality that governs the exposition, and knowledge can be defined and retrieved from the senses (Brown & Duenas, 2023). Thus, this study aims to employ a positivistic approach in which deductive reasoning is considered during the formulation and testing of research hypotheses. Saunders et al. (2019) state that quantitative research is typically linked to positivism and a deductive approach, where the emphasis is on using data to evaluate the theory. This is particularly true when using preset and highly structured data collection methodologies (Saunders et al., 2019). The philosophical position of natural scientists is associated with positivism. In doing so, one must work with observable social reality, and the result may be generalizations that resemble laws, much like those found in the physical and scientific sciences (Saunders et al., 2019). Besides, Robson (2002) outlines how cross-sectional studies often consider a positivistic approach and the significance of literature in hypothesis formulation. Cross-sectional studies, according to Saunders et al. (2019), entail examining a specific phenomenon at a specific time because most research projects completed for academic courses are inherently time-constrained.

3.2.2 Research Strategy

For this quantitative study, we will be using a survey strategy that includes questionnaires as a means of data collection (Karim & Nadeem, 2019). According to Saunders et al. (2019), it is a popular strategy in business and management research and is most frequently used to answer 'what', 'who', 'where', 'how much', and 'how many' type questions. Questionnaire-based survey strategies are preferred because they make it affordable to collect uniform data from a substantial number of respondents, allowing for easy comparison (Saunders et al., 2019). In addition, people generally regard them as authoritative, and they are relatively straightforward to communicate and understand (Saunders et al., 2019). For this study, self-completed questionnaires were designed that were distributed to the research respondents through the Internet and physically delivered and collected. In context to Saunders et al. (2019), online surveys sent via a hyperlink in an email provide more control since most individuals read and reply to their own emails, which increases data reliability.

3.3 Research Participants and Procedures

3.3.1 Sampling Technique

A sample technique is often important for acquiring data from an extensive sample (Kumar et al., 2013; Sekaran, 2003). For the execution of this cross-sectional study, purposive sampling under non-probability sampling was used for data collection. A previous study claims that the likelihood of getting chosen is unknown when a non-probability sampling technique is employed (Memon et al., 2017). Accordingly, purposeful selection, chance, or professional judgment may be taken into account when determining inclusion (Burns et al., 2008). As Bryman and Bell (2015) have shown, non-probability sampling is more commonly used and probably appropriate in field research. In particular, random samples are less common in research involving individuals (Polit & Beck, 2010). Against this backdrop, this kind of sampling technique gives the researcher the freedom to utilize judgment in selecting the respondents who will best enable them to answer the research questions. Saunders et al. (2019) also acknowledge the importance of selecting cases for purposive sampling to be dependent on the research questions and objectives. For this research, we approached managers working in the IT industry of Pakistan and those who were using AI tools or technologies to achieve their work-related tasks. Moreover, this study was AI leadership focused so managers who are also the change champions were approached. Based on this inclusion criteria, purposive sampling supported are personality-driven AI leadership-focused study.

3.3.2 Sample Size

For the present study, the intended sample size was 200-300 respondents. The sample size refers to the portion of the population needed to guarantee that there is enough data to make inferences (Sekaran & Bougie, 2013). According to Saunders et al. (2019), issues about sample size when employing non-probability sampling are ambiguous and not subject to any rules. The sample size is solely dependent on the research questions and objectives of the study under investigation (Saunders et al., 2019). Memon et al. (2020) suggested that for the application of statistical tests, the sample size should be between 160 and 300 valid observations as this range is neither small nor large and is, therefore, less inclined to have an impact on the findings of the research (e.g., Type I and Type II errors). Similarly, simple regression analysis requires a minimum of 50 samples and, in general, 100 samples for the majority of research, as stated by Hair et al. (2018). Accordingly, analysis was ran over 184 samples out of a total of 261 samples.

3.3.3 Unit of Analysis

The unit of analysis of this study was managers who used AI-based technology within the IT sector of Pakistan. The empirical study informs that the sample size is also influenced by the unit of analysis (Memon et al., 2020). Similarly, Memon et al. (2020) also highlighted that research conducted at the organizational level, for instance, with senior executives such as CEOs, CFOs, Managers, etc. as respondents, could have a more limited sample than a study conducted at the individual level with workers, clients, etc. In organizations, managerial-level employees have total involvement in the company's transformational activities and the fact that they are in a decision-making position, therefore being responsible for the strategies that the organization sets (Sow & Aborbie, 2018). Therefore, managers working in the IT industry of Pakistan were approached to generate the findings of this study.

3.3.4 Data Collection Procedures

3.3.4.1 Research Instrument

As part of this study's focus, all 24 items were adopted and adapted while required to respond on a five-point Likert-type scale: (1) strongly disagree to 5 (strongly agree). A 15-item scale of *Big Five personality traits* was adopted from Gerliz & Schupp (2005) to measure openness, conscientiousness, agreeableness, extraversion, and neuroticism. A 6-item scale of AI leadership capability and 3-item scale for AI transformation was adapted from the existing scale of digital

leadership and digital transformation scales respectively. The questionnaire was divided into two segments: The first section entailed questions regarding demographics & work-related characteristics and the second section encompassed questions about personality traits, AI leadership capability, and AI transformation. Besides, a cover letter was also attached to the questionnaire so that the participants could gain an overview of the research project along with credentials. Furthermore, the language employed in the questionnaire's design was explicit, intelligible, and directed towards the intended audience.

3.3.4.2 Identification of Target Companies

To identify companies in Pakistan's IT sector, company information was first acquired from the Chambers of Commerce and Industry's member directory, which is available on their website. Furthermore, extensive searches were carried out on legitimate web venues such as TechBehemoths and The Manifest. The company profiles were then collected into an Excel file for methodical arrangement. Next, each company's websites and LinkedIn pages were thoroughly investigated to acquire further information. Companies were aggressively contacted via email, LinkedIn, personal contacts, and referrals to learn about whether those companies were using AI tools. While the majority of organizations stated that they used AI technology, a minority acknowledged that they did not, which helped to maintain data quality. Following the shortlisting of IT companies, professional contacts, and personal connections were used to promote survey participation. Efforts were undertaken to contact individuals through various channels, providing an overview of the study and its significance. After acknowledging their participation, the questionnaire was distributed to them for completion.

3.3.4.3 Pretesting

To guarantee the quality of data collected via questionnaires, researchers need to craft research items that are consistently and readily understood by respondents in the manner in which the researchers intend (Collins, 2003; Fowler, 1995). The underlying premise of this reasoning is that, in comparison to research items that are difficult to understand or answer for other factors, those that are simple to comprehend and cause few other cognitive issues for participant's present smaller measurement errors (Groves et al., 2004). The pre-evaluation of new research instruments or items is now widely accepted as a necessary step before their distribution for data collection (Neuert & Lenzner, 2015). In short, pretesting is done to make sure the participant can

and will respond to the questions, and that the questions accurately represent the information the investigator seeks (Grimm, 2010). So before data collection, the questionnaire was pretested to address all the related possible issues. For the pre-testing, a total of four managers working in different IT companies who used AI tools were approached through personal referral and LinkedIn connection. Once they acknowledged their participation, survey link was mailed and direct messaged. Upon their feedback, it was concluded that the research items were clear, easy to comprehend, and aligned with the relevance of the study. Accordingly, the research instrument was distributed for the data collection as no major issues emerged during the pretesting session.

3.3.4.4 Online Data Collection

Online data collecting was critical in obtaining perspectives from a wide spectrum of IT managers during this research. Tiersma et al. (2022) emphasize utilizing online or electronic data collection as it highly contributes to reaching a wider audience, data collection efficiency, is technology-driven so considered user-friendly and will allow immediate data analysis if required. So we managed to efficiently acquire quantitative data in the IT industry of Pakistan by administering digital surveys via platforms such as Google Forms. Hsu and Wang (2017) acknowledges the use of Google Forms both in data collection and analysis procedure. Also, the use of social networking platforms such as LinkedIn and WhatsApp aided in the widespread transmission of survey invites, ensuring broad participation from diverse parts of the IT sector. Personalization of emails and reminders, combined with promises of confidentiality and anonymity, increased the involvement of participants and responses.

3.3.4.5 Physical Data Collection

Participants received hard copies of the survey as part of the data-gathering process. This entailed physically handing the copies of the printed questionnaire to the target audience. We hoped to get tangible answers and insights by distributing printed copies. Furthermore, delivering tangible copies allowed for face-to-face engagement, which may have resulted in greater response rates and easier clarification of any survey ambiguity.

3.3.4.6 Engagement with Personal Contacts

Similarly, Personal contacts were used to collect the survey data. Using our network of acquaintances, peers, and business connections, we timely contacted individuals relevant to the research findings. These personal ties provided a sense of trust and familiarity, which can lead to

increased response rates. Using personal contacts allowed us to adapt our outreach efforts to target groups, resulting in a more focused and efficient data collection approach.

3.3.4.7 Utilization of LinkedIn Connection

To collect data for this study, a varied pool of relevant participants was contacted using LinkedIn connections. Survey invites were distributed through existing contacts to ensure extensive distribution of the questionnaire. Concurrently, the network increased by connecting with new professionals who were relevant to the study. This strategy made it easier to gather an array of data by fusing proactive networking with already-established connections, which enhanced the dataset.

3.3.4.8 Data Analysis

After receiving the responses, the raw data of 264 samples was accumulated with the help of Microsoft Excel (MS Excel). Once the data was arranged, it was further analyzed through Statistical Package for Social Sciences (SPSS) software. It helped in generating valid observations and eliminating any outliers present in the data. Subsequently, 184 samples were scrutinized to generate the research findings. The descriptive statistics were run to achieve demographic analysis and simultaneously prepare the data for measurement and structural analysis. Partial least squares structural equation modeling (PLS-SEM) was used to study the causal relationship between the variables, validity, and reliability of the research items as well. This will be further explained in Chapter 4 of the thesis. Microsoft Word (MS Word) was used to compile the entire thesis while MS PowerPoint was used to present the research to the respective thesis defense panel members and examiners.

3.4 Measures

The research items were validated through the implementation of tests such as internal consistency reliability and convergent validity. The test demonstrated high level of the measurements' internal consistency and achieved satisfactory AVE. These tests are further explained in Chapter 4 of the thesis.

3.4.1 Personality Traits

A 15-item scale of *Big Five personality traits* was adopted from Gerlitz and Schupp (2005) to measure openness, conscientiousness, agreeableness, extraversion, and neuroticism.

3.4.1.1 Openness

Openness was characterized by the Big Five Personality theory's founders as a trait involving intellectual curiosity, valuing innovation, and flexibility (Costa & McCrae, 1992). A sample item includes, 'I see myself as someone who is original, comes up with new ideas'. Gerlitz and Schupp (2005) reported the composite reliability (CR) of the constructs as 0.74.

3.4.1.2 Agreeableness

Agreeableness was characterized by the Big-Five Personality theory's founders as a trait indicating individuals 'level of cooperation, affection, and civility (Costa & McCrae, 1992). A sample item includes 'I see myself as someone who is sometimes somewhat rude to others'. Gerlitz and Schupp (2005) reported the composite reliability (CR) of the constructs as 0.62.

3.4.1.3 Conscientiousness

Conscientiousness was characterized by the Big-Five Personality theory's founders as a trait comprising attention to detail, self-inspection, and effective organization (Costa & McCrae, 1992). A sample item includes, 'I see myself as someone who does things effectively and efficiently'. Gerlitz and Schupp (2005) reported the composite reliability (CR) of the constructs as 0.72.

3.4.1.4 Extraversion

Extraversion was characterized by the Big-Five Personality theory's founders as individuals encompassing outgoing and gregarious personalities, the ability to hold conversations naturally, and unparalleled sensitivity to positive emotions (Costa & McCrae, 1992). A sample item includes, 'I see myself as someone who is communicative, talkative'. Gerlitz and Schupp (2005) reported the composite reliability (CR) of the constructs as 0.53.

3.4.1.5 Neuroticism

Neuroticism was characterized by the Big-Five Personality theory's founders as negative emotions including anxiety, insecurity, and dismay as well as emotional instability (Costa & McCrae, 1992). A sample item includes, 'I see myself as someone who is relaxed, handles stress well'. Gerlitz and Schupp (2005) reported the composite reliability (CR) of the constructs as 0.57.

Even though the conventional reliability is 0.80 (John et al., 1999), these values of the coefficients do not necessarily report the unreliability of the shorter version. As Mueller and Plug (2006) and Heineck and Anger (2010) mention the alpha reliability coefficients increase with the number of

items. The ratios found are satisfactory because each personality trait in the measure has three items (Dehne & Schupp, 2007).

3.4.2 AI Leadership Capability

The current research defines this construct by adapting to the operationalization of digital leadership, "Digital leadership has been defined as individuals who add value to the organizations by combining the abilities of the leaders with digital technologies" (Erhan et al., 2022, p. 1527). The current study operationalizes this construct as individuals' ability to strategically combine AI tools with their leadership capabilities to add value to their organization. A 6-item scale of AI leadership capability was adapted from an existing digital leadership instrument (Zhu et al., 2022). A sample item includes 'I have a clear idea of the structures and processes that are needed for the AI transformation'. The reliability value of AI leadership capability has been reported as 0.85 (Zhu et al., 2022).

3.4.3 AI Transformation

For the current research, the definition of digital transformation was adapted to operationalize AI transformation. Digital transformation is defined as, "The use of digital technologies to create new or modify existing business models and processes or to support the transformation of organizational structures, resources, or relationships with internal and external actors" (Zomer et al., 2020, p. 1098). AI transformation is considered the fundamental constituent of digital transformation (Okunlaya et al., 2022; Saurabh et al., 2022), so this study defines AI transformation as the application of AI technologies to develop new and modify existing business models and processes, structures, or relationships with internal and external agents to achieve work-related outcomes. A 3-item scale of AI transformation was adapted from the existing digital transformation scale (Fachrunnisa et al., 2020). A sample item includes, 'In my organization, business operations are shifting toward making use of AI-based technologies'. The reliability value of AI leadership capability has been reported as 0.77 (Fachrunnisa et al., 2020).

Table 3.1 Research Items

Construct	Author	Items	Reliability
Openness		3	0.74
Consciousness		3	0.72
Extraversion	Gerlitz and Schupp (2005)	3	0.53
Agreeableness		3	0.62
Neuroticism		3	0.57
AI-Leadership Capability	Zhu et al. (2022)	6	0.85
AI Transformation	Fachrunnisa et al. (2020)	3	0.77

3.5 Ethical Consideration

Ethics in the context of research refers to the moral principles that govern your behavior regarding the rights of people who are either the subjects of your study or have an impact on it (Saunders et al., 2019).

3.5.1 Voluntary Participation

Participants were notified that their participation was fully voluntary and that they could withdraw at any moment without consequence. Before participating, individuals provided informed consent, confirming that they understood the research's aims, objectives, and participant rights. This technique adhered to ethical principles, respecting individuals' freedom of choice through the data collection process.

3.5.2 Participant Withdrawal

Participants are guaranteed that they have the choice to resign from completing the questionnaire at any time during the data collection process, without being forced to continue. Moreover, participants were not be pressured into disclosing their reasons for withdrawing from data collection.

3.5.3 Informed Consent

In accordance with ethical guidelines, participants were given a consent form before the study began. This form included detailed information on the research topic, presented honestly and transparently. Participants were told about the objectives of the study, the projected time required to complete the questionnaire, and the credentials of the research supervisor and institution. Importantly, participants had the option to withdraw their information from the research project at

any point by approaching the research supervisor. This approach guaranteed that participants receive accurate information and have authority over their participation in the study.

3.5.4 Confidentiality and Anonymity

In this investigation, maintaining a sufficient level of confidentiality and anonymity is crucial. To protect the confidentiality of respondents, the names of responders and organizations were not requested on the surveys. Also, access to the obtained data was limited to only the researcher and the research supervisor. In addition, to improve privacy protection, Google Questionnaire was used, guaranteeing participants' responses are secured.

3.5.5 Appropriate Questionnaire Language

It is critical to establish a courteous and inclusive environment throughout this research. As a result, any offensive, discriminating, or undesirable language was prevented in the development of questionnaires. This made sure respondents felt respected and comfortable when submitting their responses, resulting in a positive research experience for everyone involved.

3.5.6 Research Integrity

When compiling research findings, it is critical to maintain ethical standards by preventing plagiarism and research misconduct. All efforts were taken to guarantee that the analytic process was carried out with integrity and transparency while respecting stakeholders' intellectual property rights and following research ethics rules.

3.5.7 Recognition of Contributors

Following ethical norms, proper recognition of the effort and contributions of others shall be acknowledged when it is due. This includes recognizing any associations or partnerships that have helped the study process in any way.

3.6 Chapter Summary

This section of the thesis recapitulates the research methodology exercised for the conduction of research analysis. Prior researchers' item-scale has been consulted for the formation of the research instrument. To achieve the objectives of this quantitative study, we aim to employ an explanatory research design to investigate the impact of personality-driven AI leadership on AI transformation. Additionally, the target sample included managerial and above-level employees working in the IT industry of Pakistan. For data collection, the study used a questionnaire-based survey technique,

which improves reliability and control over respondents. All the variables were required to be rated on a 5 point Likert scale ranging from strongly disagree to strongly agree. The results were collected from 184 samples. Lastly, it also illustrated the tools such as MS Office, SPSS, and PLS-SEM that were required for the compilation of the research findings and the ethical concerns that needed to be addressed while carrying out the research.

CHAPTER 4

RESULTS

4.1 Introduction

This section serves as the apex of my research, presenting the foundation of the findings, precisely created from hypotheses obtained from the research objectives. This chapter digs into the outcomes of reliabilities and statistical tests, unfurling a tapestry of insights embedded in the research methodology by leveraging the power of PLS-SEM. Throughout this revealing, the demographics of the respondents—gender, age, and working tenure—paint a contextual backdrop that enriches the comprehension of the research landscape. Beyond the numbers and figures, this research goes into a thorough assessment of these findings, hoping to glean important insights that will enhance understanding and strengthen the research analysis. Furthermore, the investigation goes beyond basic findings to reveal the extent to which the research paradigm reveals itself inside organizational settings. This journey is anchored by key studies that include demographic insights, data analysis approaches, the measurement model's integrity, reliability and validity issues, and structural model investigation.

4.2 Demographic Analysis

The demographic composition of the sample in terms of gender, age, qualification, and experience, utilizing AI-based technology and current placement was as follows: A majority of the respondents were males (88.6%), which is not surprising given that the IT or Telecom industry is largely male-dominated (Ayaz, 2023). All of the respondents (100%) used AI-based technology in the IT or Telecom industry. The respondents had a bachelor's degree as their minimum qualification. Moreover, a majority of the respondents (78.8%) belonged to the age group 25 to 40 years, followed by 18 to 25 years (14.7%) and 41 to 60 years (6%). Respondents had different levels of experience, ranging from 1 to 4 years to 5 to 8 years, as shown in Table 4.1 below.

4.3 Data Analysis

To assess the research hypotheses, partial least squares structural equation modeling (PLS-SEM) was employed. PLS-SEM is considered a widely applied analytical technique due to its dependability (Penga & Lai, 2012). This software assisted in investigating the predictability of dependent variables (Roldán & Sánchez-Franco, 2012), and also to study the indirect effect of the research variable (Hair et al., 2014; Nitzl et al., 2016; Richter et al., 2016).

A two-stage analytical technique was used, as proposed by Andersen and Gerbing (1988). The first stage entails testing the measurement model that includes internal consistency reliability, convergent validity (CV), and discriminant validity (DV), while the second stage encompasses the assessment of the structural model (hypotheses testing).

Table 4.1 Demographic Information (n = 184)

Variable	Category	Frequency	Percent
	Male	163	88.6%
Gender	Female	21	11.4%
	Prefer not to say	0	0.0%
	18 to 25 years	27	14.7%
Age	25 to 40 years	145	78.8%
	41 to 60 years	11	6.0%
	Above 60 years	1	0.5%
	High school diploma/Equivalent	0	0.0%
	Associate degree	4	2.2%
Qualification	Bachelor's degree	111	60.3%
	Master's degree	69	37.5%
	Other	0	0.0%
	Less than 1 year	0	0.0%
	1 to 4 years	131	71.2%
Experience	5 to 8 years	34	18.5%
	9 years or above	19	10.3%
Utilizing AI-Based Technology	Yes	184	100.0%
	No	0	0.0%
Working in IT/Telecom	Yes	184	100.0%
Company	No	0	0.0%

4.3.1 Measurement Model

4.3.1.1 Internal Consistency Reliability

Internal consistency reliability assesses how well the items measure the latent constructs (Hair et al., 2014; Ramayah et al., 2016). As a gauge of internal consistency, composite reliability was assessed (Hair et al., 2017). For each construct, composite reliability above the conventional standard value of 0.7, is deemed satisfactory (Nunnally, 1978; Nunnally & Bernstein, 1994; Richter et al., 2016). The results depicted that composite reliability for all the variables surpasses the cut-off value of 0.7 – agreeableness (0.871), conscientiousness (0.851), extraversion (0.877), neuroticism (0.806), openness (0.837), AI transformation (0.818) and AI leadership capability (0.897) – thereby demonstrating the high level of the measurements' internal consistency.

4.3.1.2 Convergent Validity

CV is defined as "the extent to which a measure correlates positively with alternative measures of the same construct" (Hair et al., 2017, p. 102). By examining the item's outer loading and calculating the average variance extracted (AVE), CV was evaluated. In general, an AVE score of 0.5 is regarded as satisfactory, and outer loadings should paint a value of 0.708 or higher (Avkiran, 2017). Likewise, the acceptance of items having outer loading of 0.6 is also a possibility (Chin et al., 1997). According to Hair et al. (2017), indicators with weaker factor loadings should be detained if other indicators with higher loadings can account for at least 50 percent of the variance (AVE=0.50). All of the constructs, including agreeableness (0.575), conscientiousness (0.740), extraversion (0.781), neuroticism (0.592), openness (0.634), AI transformation (0.600), and AI leadership capabilities (0.744), achieved satisfactory AVE. This confirmed the CV of the constructs. Table 4.2 illustrates the results of the internal consistency reliability and CV.

4.3.1.3 Discriminant Validity

DV measures how different a construct is from other constructs within the model (Hair et al., 2014). For the assessment of DV, Heterotrait-Monotrait Ratio (HTMT) criterion was used (Henseler et al., 2015). It is defined as the "ratio of the between-trait correlations to the within-trait correlation" (Hairet al., 2017, p. 118). The HTMT criteria results were established at $HTMT_{0.85}$, showing that the current study did not deviate from the DV considerations (Clark and Watson, 1995; Kline, 2011), as shown in Table 4.3. The trait ratio of AI leadership capability with other constructs is as follow: AI transformation (0.604), Agreeableness (0.329), Conscientiousness (0.359) Extraversion, (0.184) Neuroticism, (0.354) and Openness (0.355). The trait ratio of AI transformation with other constructs is as follow: Agreeableness (0.171), Conscientiousness (0.182) Extraversion, (0.117) Neuroticism, (0.234) and Openness (0.244). The trait ratio of Agreeableness with other constructs is as follow: Conscientiousness (0.274) Extraversion, (0.152) Neuroticism, (0.272) and Openness (0.297). The trait ratio of Conscientiousness with other constructs is as follow: Extraversion, (0.189) Neuroticism, (0.425) and Openness (0.505). The trait ratio of Extraversion with other constructs is as follow: Neuroticism, (0.305) and Openness (0.360). The trait ratio of Neuroticism with other construct is as follow: Openness (0.540). It can be observed that all the constructs successfully passed the HTMT criteria: $HTMT_{0.85}$ (Clark and Watson, 1995) and $HTMT_{0.90}$ (Kline, 2011). Recapitulating the measurement model results, adequate internal consistency reliability, CV, and DV were achieved.

Table 4.2 Assessment of Internal Consistency Reliability and Convergent Validity

Construct	Items	Loadings	AVE	CR
Openness	O1	0.821		
	O2	0.876	0.634	0.837
	O3	0.679		
Neuroticism	N1_R	0.522		
	N2	0.928	0.592	0.806
	N3	0.802		
Extraversion	E1	0.947		
	E2	0.815	0.781	0.877
	E3_R	Item deleted[a]		
Agreeableness	A1	0.744		
	A2	0.801	0.575	0.871
	A3_R	0.777		
Conscientiousness	C1	0.819		
	C2	0.900	0.740	0.851
	C3_R	Item deleted[b]		
AI leadership capability	AIL2	0.744		
	AIL3	0.776		
	AIL4	0.816	0.744	0.897
	AIL5	0.683		
	AIL6	0.766		
AI transformation	AIT1	0.870		
	AIT2	0.910	0.600	0.818
	AIT3	0.804		

Notes: CR, composite reliability, AVE, variance extracted. [a]E3_R and [b]C3_R were deleted due to low loading.

Table 4.3 Assessment of Discriminant Validity

Reflective construct	1	2	3	4	5	6	7
1. AI leadership capability							
2. AI transformation	0.604						
3. Agreeableness	0.329	0.171					
4. Conscientiousness	0.359	0.182	0.274				
5. Extraversion	0.184	0.117	0.152	0.189			
6. Neuroticism	0.354	0.234	0.272	0.425	0.305		
7. Openness	0.355	0.244	0.297	0.505	0.360	0.540	

Notes: DV is established at HTMT.85 (Kline, 2011)

4.3.1.4 Multicollinearity

Besides carrying out reliability and validity, the variance inflation factor (VIF) must be calculated, before the analysis of the structural model. Multicollinearity is indicated by a VIF of more than

10.0 by Hair et al. (2014), in contrast, advocate a cut-off value of 5.0 for multicollinearity. The VIF value for the constructs as follow: Agreeableness (1.069), Conscientiousness (1.188) Extraversion, (1.102) Neuroticism, (1.202) and Openness (1.298). Table 4.4 shows that the VIF scores for each construct were less than 5.0, indicating that collinearity issues within the constructs were absent in this research.

Table 4.4 Assessment of Higher Order Construct

Construct	VIF
Agreeableness	1.069
Conscientiousness	1.188
Extraversion	1.102
Neuroticism	1.202
Openness	1.298
Notes: VIF = variance inflation factor	

4.4 Structural Model

The causal linkages between the constructs are tested through the structural model analysis (Sang et al., 2010). Hair et al. (2017) recommend that, in addition to reporting the significance of the relationships, researchers include the coefficient of determination (R^2) and effect size (f^2). The value of R^2 is defined as the explanatory power of the independent variable(s) about the associated dependent variable(s) (Hair et al., 2014). Figure 4.1 illustrates the structural model findings of the research framework.

The value of R^2 in Table 4.5 shows that Big Five personality traits (openness, conscientiousness, agreeableness, extraversion, and neuroticism) explain 1.7 percent of AI leadership capability (R^2 = 0.172). Likewise, AI leadership capability exhibits 2.4 percent of AI transformation. Following, f^2 represents the effect size or the proportion of an independent variable's contribution to the dependent variable's R^2. Cohen (1988) suggested the cut-off values for determining the effect size: f^2 = 0.02, 0.15, and 0.35, indicative of small, medium, and large effect sizes, respectively. The results of f^2 indicate that openness (f^2 = 0.013), conscientiousness (f^2 = 0.019), and extraversion (f^2 = 0.002) have a small impact on AI leadership capability. In contrast, agreeableness (f^2 = 0.034) and neuroticism (f^2 = 0.032) have a medium impact on AI leadership capability. Subsequently, AI leadership capability (f^2 = 0.329) has a medium effect on AI transformation as shown in Table 4.6.

Table 4.5 R^2 of Endogenous Constructs

Predictor construct	Target construct	R^2	Predictive accuracy
Openness, Neuroticism, Extraversion, Agreeableness, Conscientiousness	AI leadership capability	0.172	Moderate
AI leadership capability	AI transformation	0.248	Moderate

To determine the statistical significance of the proposed mode, the bootstrapping technique with resampling (5,000 resamples) was used (Hair et al., 2017). As presented in Table 4.7, the results indicated that Big Five personality traits including neuroticism (H2, β = -0.179, t = 2.435, p = 0.007), agreeableness (H4, β = 0.175, t = 2.584 p = 0.005) and conscientiousness (H5, β = 0.138, t = 2.163, p = 0.015), has a significant positive association with AI leadership capability. In contrast, openness (H1, β = 0.116, t = 1.368, p = 0.086) and extraversion (H3, β = 0.040, t = 0.547, p = 0.292) have an insignificant association with AI leadership capability. The result of the direct effect portrayed that AI leadership capability positively impacted AI transformation (H6, β = 0.498, t = 8.569, p = 0.000). Therefore H2, H4, H5, and H6 were supported while H1 and H3 were rejected.

Table 4.6 f^2 Values of the Path Model

Predictor construct	Target construct	f^2	Effect size
Openness	AI leadership capability	0.013	Small
Neuroticism	AI leadership capability	0.032	Medium
Extraversion	AI leadership capability	0.002	Small
Agreeableness	AI leadership capability	0.034	Medium
Conscientiousness	AI leadership capability	0.019	Small
AI leadership capability	AI transformation	0.329	Medium

Table 4.7 Results of Hypotheses Testing (Direct Effect)

Construct	Beta	STDEV	t value	p-value	LL (5%)	UL (95%)	Decision
H1: OP → AIL	0.116	0.085	1.368	0.086	-0.029	0.249	Not supported
H2: NT → AIL	-0.179	0.074	2.435	0.007	-0.289	-0.047	Supported
H3: EV → AIL	0.040	0.073	0.547	0.292	-0.103	0.146	Not supported
H4: AA → AIL	0.175	0.068	2.584	0.005	0.06	0.281	Supported
H5: CT → AIL	0.138	0.064	2.163	0.015	0.034	0.244	Supported
H6: AIL → AIT	0.498	0.058	8.569	0.000	0.390	0.584	Supported

Notes: LL, lower level; UL, Upper Level; STDEV, Standard Deviation; OP, Openness; AIL, AI Leadership Capability; NT, Neuroticism; EV, Extraversion; AA, Agreeableness; CT, Conscientiousness; AIT, AI Transformation

Mediation analysis was conducted to test H7, H8, H9, H10, and H11, which hypothesized the mediating effect of AI leadership capability in the relationship between Big Five personality traits (openness, conscientiousness, agreeableness, extraversion, and neuroticism) and AI transformation. We have employed an indirect effect approach to assess the mediating effect between the constructs (Preacher & Hayes 2008). The accepted results of indirect effect are as follows: neuroticism (β = -0.089, t = 2.230, p = 0.026, confidence interval (CI): lower level (LL) = -0.166, upper level (UL) = -0.013), agreeableness (β = 0.087, t = 2.496, p = 0.013, CI: LL = 0.020, UL = 0.155) and conscientiousness (β = 0.069, t = 2.105, p = 0.035, CI: LL = 0.005, UL = 0.133) (Table 4.8).

On the contrary, AI leadership capability did not mediate the relationship between openness and AI transformation (H7, β = 0.058, t = 1.310, p = 0.190) and extraversion and AI transformation (H9, β = 0.020, t = 0.538, p = 0.591). In summary, seven hypotheses (H2, H4, H5, H6, H8, H10, H11) were accepted and four hypotheses were rejected (H1, H3, H7, H9).

Table 4.8 Mediating Effect Analysis

Hypothesis	Beta	STDEV	t value	p-value	LL (5%)	UL (95%)	Decision
H7:OP→AIL→AIT	0.058	0.044	1.310	0.190	-0.027	0.143	Not supported
H8:NT→AIL→AIT	-0.089	0.040	2.230	0.026	-0.166	-0.013	Supported
H9:EV→AIL→AIT	0.020	0.037	0.538	0.591	-0.070	0.086	Not supported
H10:AA→AIL→AIT	0.087	0.035	2.496	0.013	0.020	0.155	Supported
H11:CT→AIL→AIT	0.069	0.033	2.105	0.035	0.005	0.133	Supported

Notes: LL, lower level; UL, Upper Level; STDEV, Standard Deviation; OP, Openness; AIL, AI Leadership Capability; NT, Neuroticism; EV, Extraversion; AA, Agreeableness; CT, Conscientiousness; AIT, AI transformation

4.5 Chapter Summary

This section aided in the development of the research findings of the eleven research hypotheses. It was observed that all variables' reliabilities were above the conventional standard, thus, all were accepted. The study reveals that openness, conscientiousness, and extraversion have small impacts on AI leadership capability, while agreeableness and neuroticism have medium impacts, indicating a medium effect on AI transformation. Through a correlation analysis test, varying levels of positive correlation among the variables that detected.
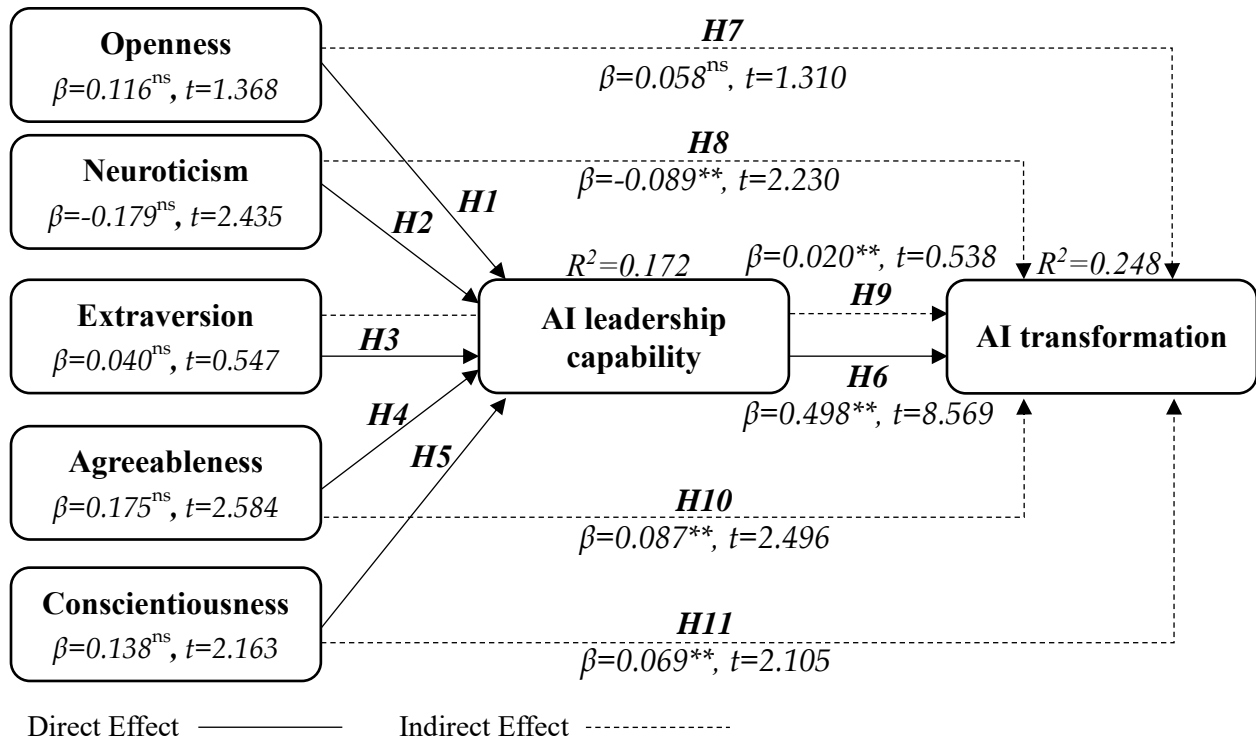
Figure 4.1 Structural Model

The study assessed constructs agreeableness, conscientiousness, extraversion, neuroticism, openness, AI transformation, and AI leadership capabilities using AVE and HTMT, confirming their CV and validity. The study found that Big Five personality traits, including neuroticism, agreeableness, and conscientiousness, significantly positively influence AI leadership capability, thereby positively impacting AI transformation. Besides, regression analysis test results aided in the acceptance of seven hypotheses (H2, H4, H5, H6, H8, H10, H11) and rejection of rest (H1, H3, H7, H9).

CHAPTER 5

5.1 DISCUSSION

5.1 Introduction

According to the findings, both openness and neuroticism have a detrimental impact on AI leadership skills, with openness impeding strategic thinking and implementation and neuroticism impeding adaptability to the dynamic AI ecosystem. According to the third hypothesis, extraversion has a beneficial impact on AI leadership, although extrovert AI leaders may struggle with team dynamics. According to the fourth hypothesis, agreeableness has a good impact on AI leadership by encouraging collaboration and decision-making. Conscientiousness improves AI leadership capacities by encouraging morality, decision-making, and AI acceptance. This characteristic improves productivity, security, and accessibility, allowing AI transformation and managing challenges in a digitally driven environment. The study finds that AI leadership capability and neuroticism can stymie successful AI transformation in Pakistan, emphasizing the importance of a thorough grasp of AI-based technology. Despite potential negative views, AI leadership competence mediates the extraversion-agreeableness relationship, improving decision-making, adaptability, and communication, and boosting cooperative relationships and teamwork in AI transformation. According to the eleventh hypothesis, conscientiousness-driven AI leadership can accelerate AI transformation by motivating leaders to use AI, and boosting proactive planning, creativity, and problem-solving, all of which are necessary for successful AI deployment.

5.2 Discussion

5.2.1 Openness and AI Leadership Capability

The first hypothesis (H1) was, *"Managers with higher levels of openness trait will demonstrate greater AI leadership capabilities"*. Contrary to our expectations, H1 which proposed that managers with a greater level of openness trait will demonstrate greater AI leadership was rejected. This contradicted the existing study, which acknowledged the role of this personality trait in the development of leadership capability as openness-driven leaders are required to confront the status quo innovatively (Zhang et al., 2019) by remodeling existing and introducing new methods and processes which will eventually facilitate the technological experiences, transformation, and stakeholder relationships within the organizational setting (Diller et al., 2020).

An organization that embraces digitalization and has a manager with this personality trait-driven capability can proactively react to the dynamic global network of cultures and foster a culture of perpetual change, preparing staff members for new experiences at work every day (Litvinenko, 2020). Managers as change champions must be adaptable to new technological developments and capable of evaluating from a variety of creative perspectives to satisfy the demands of all stakeholders (Erhan et al., 2022). Yet, they might experience suffocation or be burdened when achieving their needs concerning novelty and a variety of perspectives (Maran et al., 2022).

Furthermore, in situations where environments are changing quickly, managers with high degrees of openness may find it challenging to stay focused on long-term strategic objectives due to the abundance of options and ideas (Dulebohn et al., 2012). This could result in instability or ineffective plan execution in digital environments where adaptability is essential (Carsten et al., 2019). These findings highlight how crucial it is for effective leadership in AI-focused environments to strike a balance between openness and strategic thinking as well as focused implementation. Simply put, this personality trait which provides managers with the ability to be risk-takers and confront environmental uncertainties through the exaggerating exploration of novelty within the AI landscape can shadow the associating ethical concerns.

According to the National Artificial Intelligence policy provided by the Ministry of IT & Telecom of Pakistan, the risks voiced by stakeholders about AI adoption included: invasion of privacy, data pollution, and data model theft. Likewise, prioritizing the search for novel solutions and mechanisms while ignoring their practical application for external and internal organizational bodies can hinder the successful application of AI initiatives. Managers with openness traits might develop AI leadership capability that values consistent learning and adapts to the ever-evolving AI dynamic while ignoring the organizational capability towards the change and might fail to align the AI initiatives with the organization's overall strategic direction. To summarize, managers might realize that the openness trait does not greatly result in the development of AI leadership capabilities. This is because AI executives under their leadership may struggle to strike a balance between encouraging the development of novel concepts and complying with practical implications.

5.2.2 Neuroticism & AI Leadership Capability

The second hypothesis (H2) was, *"Managers with lower levels of neuroticism trait will demonstrate greater AI leadership capabilities"*. As expected, H2 results report that managers with low levels of neurotic traits will demonstrate greater AI leadership capabilities. Consistent with the prior findings, low neurotic leaders are less prone to being anxious about upholding safety as they view novel initiatives more favorably and experience less stress when confronting challenging settings (Bandera & Passerini, 2020). In contrast, highly neurotic leaders carry low self-esteem and exhibit higher levels of anxiety which will hinder the implementation of transformational initiatives (Diller et al., 2020). Moreover, it will result in irregularities while applying digital technologies as well as when processing, interpreting, and, ultimately, determining the worth of its implementation (Lacam & Salvetat, 2023).

Managers will behave in this way because their highly neurotic personality often appears resistive to (new) technical innovations, especially AI-focused ones (Sindermann et al., 2022). This is because their unstable mindset will create erratic involvement and support patterns that impede the successful implementation of big data technology within the company (Holden et al., 2016). Also, neurotic leaders exhibit difficulty navigating uncertainty and a greater intolerance for it (Bajcar & Babiak, 2020). They will therefore use defensive strategies to deal with circumstances that they believe to be unknown or unfavorable (Schiuma et al., 2022). Similarly, they will be more inclined to withdraw and limit their behaviors when confronted with stimuli as they appear to be more resistant and less responsive to new developments (Barnett et al., 2015). They are concerned about emerging forms of technology-mediated interaction (Stein et al., 2019), and individuals with high neuroticism, who are sensitive to risks and nervous about novel situations, may have more unfavorable attitudes regarding AI than those with lower neuroticism (Park & Woo, 2022). In simple terms, managers with lower levels of neurotic traits appear motivated to persevere, seek alternate solutions, and cope well with critique and unexpected setbacks (Bandera & Passerini, 2020).

Furthermore, their lack of self-confidence in overcoming unidentified challenges translates to the challenge of employing digital gadgets and technologies in novel ways (Guenzi and Nijssen, 2021). They might decline to develop or adopt unique solutions or even seek to prevent the organization from accomplishing so due to the absence of compliance (Pletzer et al., 2019). This

divergence, on the other hand, is comprehensible (Maran et al., 2022). Employees may be stressed throughout the execution of a digital transformation, particularly if they are unsure about the utility of the novel tools (Zoltners et al., 2021).

In context to above empirical insights, low levels of neurotic traits, defined as emotional instability (Gruda et al., 2023), tend to empower managers to embrace leadership roles and responsibilities. This emotional stability will allow them to make informed rather impulsive decisions when exposed to challenges and drawbacks. Likewise, low neurotic managers would be able to strive in a dynamic AI ecosystem as such individuals will successfully manage anxiety or stress levels. In addition, managers as change agents are required to handle disagreements between external and internal stakeholders to maintain relationships and proceed towards successful AI implementation which is likely to be executed by low neurotic managers. Accordingly, lower levels of neurotic traits will demonstrate greater association to AI leadership capabilities in managers as they will be successful in keeping up with the dynamics of AI and respond optimistically towards the changing work demographic.

5.2.3 Extraversion and AI Leadership Capability

The third hypothesis (H3) was, *"Managers with higher levels of extraversion trait will demonstrate greater AI leadership capabilities"*. Unexpectedly, H3, which proposed a positive impact of extraversion on AI leadership capability was rejected. Regarding the existing literature, the trait of extraversion appears to be frequently studied across a variety of leadership standards, as the ideal leadership persona includes a forthcoming and relationship-based leader who is extraverted, has strong social skills, is change-oriented, and exhibits little anxiety (Dan et al., 2021). Likewise, this personality attribute also has a positive impact on social engagement-promoting technologies (Maran et al., 2022).

In contrast, the role of extraversion is defined by both dominance and positive emotionality, which implies that an increased focus on dominance may lead extraverted leaders to pay less importance to others and make meaningful relationships (Deinert et al., 2015). It can be perceived that the dominant aspect of extraversion might overshadow the empathy of such managers as it will not only impact team dynamics but will significantly ignore the human aspect that is important for successful technological transformation (e.g. AI). It is also observed that what increases extraverts'

positive affect, in general, may be lacking in the particular setting of utilizing and engaging with AI (Barnett et al., 2015).

It appears that the individualized nature of technological transformations, which hinders social connection, may explain the detrimental consequences (Barnett et al., 2015). So managers with higher levels of extraversion trait have a negative attitude toward the functionality component while not in the sociality component (Park & Woo, 2022). Interpersonal interaction and incentive motivation are two fundamental elements of extraversion, although extraversion's sociability fails to account for good emotional experiences (Lucas et al., 2008). The reward sensitivity aspect of extraversion, rather than the 'active social engagement' nature, may explain extraverts' adverse emotions and poor judgment of AI's usefulness (Park & Woo, 2022). Extraversion characteristics could encourage managers to perceive technological innovations as an avenue for social engagement and status, rather than as a replacement for human interaction (Correa et al., 2010), and these perspectives are unlikely to drive adverse reactions concerning the sociality factor of AI (Park & Woo, 2022). However, the functionality component of AI, which has the potential to outperform human performance and contradicts the current incentive system, may increase managers' negative attitudes about the dimension (Park & Woo, 2022).

Simply put, extrovert managers will fail to strike a balance between social interactions and the complexities of AI-based technology. Another aspect that might hinder the development of AI leadership capability would be, managing team dynamics where periodically individual-focused work is prioritized. Thus, it might clash with the dynamics of managers who value social interaction while handling all affairs. Similarly, they are required to be optimistic and informed while making decisions to achieve the AI initiatives which in the case of their extroverted personality might fall short as they are quick in asserting their perspectives. While extroverted managers often excel in social situations and thrive on human interactions, AI-focused critical tasks, such as technical analysis and strategic planning, can be challenging. Regardless of their communication and relationship-building capabilities, extroverted managers may consider the cognitive requirements and analytical nature of AI implementation challenging or exhausting.

5.2.4 Agreeableness and AI Leadership Capability

The fourth hypothesis (H4) was, "*Managers with higher levels of agreeableness trait will demonstrate greater AI leadership capabilities*". The result for H4 indicated that managers with higher agreeableness traits demonstrated greater AI leadership capability. The findings are consistent with the existing literature that acknowledges the positive association between this personality trait and leaders' attitudes toward change (Diller et al., 2020). Similarly, this trait is important within the system where the focus is on pursuing collaborative work agendas (Park & Woo, 2022). Managers with such traits will be more capable of making meaningful judgments through their usage of big data, since it will help to unite all of the resources surrounding the procedure, while sustaining excellent relationships with the individuals that gather and analyze the data (Lacam & Salvetat, 2023). This leadership personality feature appears to be consistent with the open system of AI technology (Lacam & Salvetat, 2023), which drives a company into much more collaborative interactions with its environment (Chen et al., 2012). Manager's inclination to employ new and collaborative technologies is positively impacted by agreeableness since it promotes communication, cooperation, and information sharing (Duan & Deng, 2023). Similarly, it allows managers to operate into a positive work environment, allowing for the successful implementation of technological transformations (Pradana & Mayasari, 2023).

Against this backdrop, it may be deduced that this personality trait will assist in building a collaborative environment, encouraging teamwork, and effective communication among varied experts (Park & Woo, 2022), thus increasing the likelihood of successful AI adoption. Moreover, managers with such traits fosters positive connections and cooperation, as well as plays an important role in encouraging people to task performance and promoting knowledge sharing and the exchange of tacit information in organizational settings, which is critical for transformational initiatives (Ayub et al., 2019). Given this scenario, it is possible to conclude that the agreeableness attribute in managers promotes information sharing, which is critical for successfully demonstrating AI leadership capability, dependent on cultivating positive relationships and constructive teamwork. Concurrently, agreeableness influences both intuitive and pragmatic decision-making approaches (Dan et al., 2021). So agreeableness driven managers will demonstrate greater AI leadership capability because it makes intuitive decision-making easier and ensures more dependable and inclusive strategies—which are crucial for successfully traversing complicated AI environments.

Correspondingly, the agreeableness trait plays a significant role in determining a person's likelihood of being accepted by social groups and their capacity to uphold the kind of social and professional connections that are essential to the success of innovative or technological initiatives (Ali et al., 2018). In this view, agreeableness plays a critical role in demonstrating AI leadership capability because it builds strong social connections and helps managers retain the relationships that are essential to creativity and the success of technological endeavors. Simply put, managers with the agreeableness trait are better able to build inclusive and productive work environments, maintain relationships, and deal with conflicts that could threaten the achievement of organizational goals. This personality trait equips them with the capabilities to create a participative environment while facilitating the external and internal stakeholders throughout the transition, critical to AI initiatives.

5.2.5 Conscientiousness and AI Leadership Capability

The fifth hypothesis (H5) was, *"Managers with higher levels of* conscientiousness *trait will demonstrate greater AI leadership capabilities"*. As conjectured, H5 reported that managers with higher levels of conscientiousness trait indeed demonstrate greater AI leadership capabilities. Drawing on the leadership literature, effective leaders regularly evaluate how morally appropriate their actions are. This is accomplished by paying close attention to detail, making deliberate rather than impulsive decisions, feeling strongly about their moral obligations, and acting according to their conscience (Kumari et al., 2022). Likewise, this goes for managers who exhibit higher levels of this personality trait as they are more likely to take proactive steps to deal with problems, like problem-focused planning and action (Babalola et al., 2019).

Similarly, managers that possess the conscientiousness trait will be better able to codify and structure their data management in a way that will benefit the progress of their company (Lacam & Salvetat, 2023). Also, this trait aligns with the qualities needed for digital work, such as being self-driven, self-disciplined, and structured (Xiaoxia, 2023). Thus, the conscientiousness trait will support managers in developing capabilities to drive organized approaches, overseeing intricate projects, and making sure that every aspect is carefully considered when navigating the complexities of AI initiatives. Comparably, it is observed that conscientiousness focused managers promote the need for success and predicts that individuals would accept AI if they believed it to be competent and effective (Miyoung, 2020). Given this, it can be concluded that this trait

encourages managers to succeed in adopting AI which would result in proactive AI integration and optimization within leadership strategies, improving total technological capabilities.

Accordingly, Individuals who possess this trait also have a propensity to impart a lot of information because they see knowledge distribution as one of their responsibilities (Ayub et al., 2019). From this perspective, managers high in this trait will demonstrate greater AI leadership capabilities that will include integrating information, encouraging creativity, and enhancing problem-solving—all of which are essential for successful AI integration. Also, conscientiousness—which is defined as purposefulness, perseverance, and obligation—embodies a methodical, orderly, and conscientious attitude along with a robust work ethic (Maran et al., 2022). Also, conscientiousness is linked to motivation to learn because managers who possess this trait set clear objectives and demonstrate success-oriented behaviors, which aligns with a focus on learning goals suggestive of prioritizing skill and knowledge development (Dan et al., 2021).

Moreover, conscientiousness is linked to the implementation of intentions about technology adoption, indicating that people with high conscientiousness first carefully consider if technology can improve their efficacy at work before implementing it (Barnett et al., 2014). By encouraging a thorough technological analysis and enabling informed decision-making that aligns technology adoption with transformational initiatives, conscientiousness enhances leadership capability. Simply put, conscientiousness plays a significant role in the development of AI leadership capability. Managers are required to carry out reliable analysis, scrutinize information for robust and effective strategic decisions, and meticulously eye the alignment between AI initiatives and ethical considerations while redesigning the systems to minimize the AI-focused risks voiced by the stakeholders. This can be successfully achieved with the presence of the conscientiousness trait as it equips managers with the capability to achieve AI initiatives successfully.

5.2.6 AI leadership Capability and AI transformation

The sixth hypothesis was, *"There is a positive effect of AI leadership capability on AI transformation"*. Unsurprisingly, results for H6 stated a positive association between AI leadership capability and AI transformation. It is indeed consistent with the existing literature that acknowledges the role of leadership capabilities in facilitating successful AI transformation (Zulu & Khosrowshahi, 2021). In essence, managers must ensure that all staff members are embarking

on the transformational journey (Tuschner et al., 2022) and assist enterprises in successfully implementing transformative initiatives (Sagbaş & Erdogan, 2022). It has been observed that transformational energy from leadership enables businesses to become digital and, consequently, effective with AI transformation (Brock, 2019). It is imperative that managers comprehend the current state of AI technologies and how they might contribute to organizational transformation by enhancing productivity, security, and accessibility to business services (Chen et al., 2019). In light of this, it would seem that leadership capabilities have a significant impact on organizational procedures and can help AI-based organizational transformation initiatives generate value (Taguimdje et al., 2020).

Additionally, these capabilities help managers succeed by promoting a digital mindset, keeping an eye on new technological developments, formulating investment plans, skillfully leading teams through quick and accurate changes, building cooperative networks, and gaining digital competencies that are essential for smooth transformational endeavors (Nuaimi et al., 2022). From this perspective, to successfully navigate adaptive challenges through experimentation and difficult adjustments for sustainable growth and success, managers need the mindset and capabilities to wisely embrace the prospects and difficulties provided by new technologies, especially AI transformation (Goralski & Tan, 2020).

Put differently, the success of such transformations within businesses depends on technological investments and leadership capabilities, while managers play a critical role in building a data-driven culture (Heavin & Power, 2018). This is because the ability to visualize, interpret, and compare data are capabilities critical for fostering data-based decision-making (Wiljer & Hakim, 2019). It can be inferred that it will assist in complex dataset analysis, the derivation of significant patterns, and the making of informed decisions, all of which are necessary for effectively employing AI transformation within the organization. Similarly, transformation depends more on the manager's perception within the organization's digitally driven and evolving environments and acting strategically instead of focusing only on introducing AI tools, data management, or any other digital technology in the organization (Jones et al., 2021).

Simply put, AI leadership capability is significant for managers to effectively and efficiently integrate AI-based technologies within organizational settings. Naturally, AI transformation like

other phenomena requires the execution of AI-focused strategies, models, and technologies that facilitate organizational efficiency, innovation, and strategic direction. Here, managers with AI leadership capability are the guiding force to ensure successful AI transformation within the organization. In its totality, AI leadership capability is essential for managers in coordinating AI transformation with organizational objectives, fostering cultural change, efficiently allocating resources, and ensuring that AI-based technologies provide the firm with substantial value.

5.2.7 AI Leadership Capability Mediator: Openness and AI Transformation

The seventh hypothesis (H7) was, *"AI leadership capability mediates the relationship between openness and AI transformation"*. The result of this mediation analysis painted a different image as AI leadership capability failed to mediate the relationship between openness and AI transformation. Leaders with high degrees of openness may find it difficult to maintain focus on long-term strategic objectives in environments that are constantly shifting because there are so many options and ideas available to them (Dulebohn et al., 2012). According to this viewpoint, a strong propensity for experimentation and novelty may introduce needless risks or distractions, creating obstacles to the strategic and methodical approach of managers, required for successful AI transformation. Also, the role of managers with such personality-driven leadership capability in contributing to greater levels of instability or ineffective plan execution in digital environments where adaptability is essential (Carsten et al., 2019). Although this trait allows managers to fosters leadership capability that psychologically secures work environment (Ozbag, 2016), their never-ending search for new ideas and experiences resulting in frequent adjustments to tactics or technologies, which creates instability and confusion within the team and ultimately lower the likelihood of a successful AI transformation.

Simply put, this personality trait indeed holds a tendency to equip managers to generate novel ideas, however, it might not necessarily mean that it will assist in the practical execution of AI transformation. Likewise, being open and embracing the new phenomena does not mean that managers would not show resistance to particular change initiatives that might hinder their ability to effectively implement AI transformation. Pakistan is still in the initial phases of marking its footprint in the AI revolution. Expectedly, managers are and will require a comprehensive understanding of the dynamic complexities of using AI-based technologies. Thus, it can be

concluded that openness to other personality traits is lacking in building technical expertise to navigate the AI transformation.

5.2.8 AI Leadership Capability Mediator: Neuroticism and AI Transformation

The eighth hypothesis (H8) was, "*AI leadership capability mediates the relationship between neuroticism and AI transformation*". The research findings for H8 declared that indeed managers with lower neurotic traits will demonstrate greater AI leadership capabilities that will prove to be catalysts of AI transformation within the organization. The picture of neuroticism is fairly clear. It goes without saying that managers who are anxious frequently have a fear of change and novelty. This suggests that even more disgruntled managers would try to stop digitization and hinder the growth of their companies. Furthermore, because they are never drawn to or inspired by an unsure leader, staff members may grow annoyed or frustrated with them. Neuroticism seems to be a clear barrier to digitization (Diller et al., 2020).

Anxiety, which is implied by neuroticism, should clearly impede change, adaptability, and corporate advancement (Pradana & Mayasari, 2023). It follows that a neurotic manager's fear could make them reluctant to adopt AI, which would impede the critical decision-making needed for its effective application. This is because high neurotic managers might perceive technological evolution or transformation as a risky and challenging endeavor (Iqbal et al., 2021). Moreover, they not only fail to prevent people from developing an aversion to change, but they also persistently erode trust in the ability to interact with digital technologies (Maran et al., 2022). Also, it is challenging for neurotic managers to participate in knowledge-creation activities because they often feel negative emotions and find it difficult to share information, especially implicit knowledge (Ayub et al., 2019). From this perspective, such leadership appears to be ineffective due to experiencing psychological ailments (Chandrakumara et al., 2020), as a result hindering AI transformation through ineffectiveness and observing psychological challenges that will impact crucial decision-making.

Simply put, AI transformation requires vigorous adaptation to new models, technologies, and processes. However, it is a pure nightmare for managers with high levels of neuroticism as it would be challenging to adapt to such ambiguity and change which is ruling the AI ecosystem. This is given that neurotic leaders tend to be prudent and anxious, which makes them appear less proactive

(Andolšek & Salkić, 2023). In contrast, for low neurotic managers, it is a different story as they appear to be less resistant to change initiatives and are prepared to tackle technological uncertainties.

5.2.9 AI Leadership Capability Mediator: Extraversion and AI Transformation

The ninth hypothesis (H9) was, "*AI leadership capability mediates the relationship between extraversion and AI transformation*". Unexpectedly, H9 which proposed a mediation analysis was rejected. Extraversion is defined by both dominance and positive emotionality, which implies that an increased focus on dominance may lead extraverted leaders to pay less importance to others and make meaningful relationships (Deinert, 2015). It can be perceived that the dominant aspect of extraversion might overshadow the empathy of such managers as it will not only impact team dynamics but will significantly ignore the human aspect that is important for successful AI.

Also, what might increase extraverts' positive affect, in general, may be lacking in the particular setting of utilizing and engaging with AI (Barnett et al., 2015). Researchers believe that the individualized nature of technological transformations, which hinders social connection, may explain the detrimental consequences (Barnett et al., 2015). Extraverted traits may lead managers to view technology as a means of achieving social status and engagement rather than as a substitute for interpersonal communication (Correa et al., 2010). These viewpoints are unlikely to elicit negative responses regarding the sociality factor of artificial intelligence (Park & Woo, 2022). However, extroverted managers' negative perceptions of the dimension may grow due to the functionality component of AI, which has the ability to surpass human performance and defies the current incentive structure (Park & Woo, 2022).

Simply put, managers, who enjoy thriving in social settings, tend to prioritize social connections and communication above all the other aspects, crucial for developing effective leadership. As they are closely connected to the social aspect, they might not have in-depth knowledge of AI leadership perspectives that aim to foster AI transformation. Similarly, AI leadership requires in-depth examination, analytical thinking, and problem-solving, necessary for effective AI leadership. In this scenario, clashes of perspectives might arise as extraverted managers will promote extraverted behavior when introverted behavior (e.g. attention to detail) is necessary for AI transformation.

5.2.10 AI Leadership Capability Mediator: Agreeableness and AI Transformation

The tenth hypothesis (H10) was, "*AI leadership capability mediates the relationship between agreeableness and AI transformation*". The result for H10 indicates that AI leadership capability mediates the proposed relationship. This aligns with the empirical research that recognizes this personality trait's significance in bolstering intuitive and reliant decision-making approaches. (Dan et al., 2021). These approaches will improve adaptability and efficient communication, assisting in the success of organizational transformation projects. Also, agreeable driven managers are more capable of making meaningful judgments through big data usage as it will help in unifying resources surrounding the procedure while sustaining relationships with entities responsible for gathering and analyzing the data (Lacam & Salvetat, 2023).

In brief, this manager's personality-driven AI leadership capability contributes to addressing the differing perspectives of the stakeholders and fostering a culture of collaboration and effective communication which is crucial for driving AI transformation. Moreover, such managers are compatible with the open system of AI technology (Lacam & Salvetat, 2023), which encourages a business to engage in far more cooperative interactions with its surroundings (Chen et al., 2012). Comparably, this trait supports managers'' function to shift into one that is supportive of employees, which makes it possible for technology changes to be implemented successfully (Pradana & Mayasari, 2023). Given this context, it can be inferred that this feature will help foster a cooperative atmosphere, promote teamwork, and facilitate efficient communication among diverse experts (Park & Woo, 2022). This will raise the possibility that AI transformation will be successful.

Simply put, managers known for being cooperative and relationship-focused, are essential for creating a positive team environment and facilitating efficient communication—two critical components of AI endeavors. This is consistent with the knowledge that cooperative efforts and transparent channels of communication are essential to the success of the AI transformation. Thus, the attribute of agreeableness forms the basis for developing leadership skills suited to AI problems. Managers, who place a strong emphasis on developing relationships and interpersonal skills, are in a good position to successfully negotiate the complexities of the AI transformation.

5.2.11 AI Leadership Capability Mediator: Conscientiousness and AI Transformation

The eleventh hypothesis (H11) was, "*AI leadership capability mediates the relationship between conscientiousness and AI transformation*". The result of H11 was in favor of the proposed research assumption. As per Miyoung's (2020) empirical study, managers are more likely to accept AI if they perceive it to be competent and effective. This suggests that managers with conscientiousness-driven leadership capability support the need for success. Given, it can be said that this may motivate successful managers to use AI, which would most likely lead to proactive AI transformation and optimization within leadership tactics, enhancing overall technological capabilities. They are more likely to take proactive steps to deal with problems, like problem-focused planning and action (Babalola et al., 2019), critical to successful AI transformation.

Similarly, managers will be perceived by their peers as more motivating and stimulating which will contribute to guiding their company and employees toward a new, digitized business (Diller et al., 2020). In other words, this leadership capability supports company initiatives toward successful technological transformation (Hamamoto et al., 2023). Likewise, managers possessing this trait also have a propensity to impart a lot of information because they see knowledge distribution as one of their responsibilities (Ayub et al., 2019). From this perspective, this trait will demonstrate AI leadership capabilities through integrating information, encouraging creativity, and enhancing problem-solving - all of which are essential for successful AI transformation.

Simply put, this conscientiousness-driven AI leadership capability will assist managers in conducting reliable analysis, scrutinizing information for sound and effective strategic decisions, and meticulously monitoring the alignment of AI initiatives and ethical considerations while redesigning systems to mitigate the AI-related risks raised by stakeholders. This is possible with the presence of the conscientiousness trait, which provides managers with such AI leadership capability to successfully implement AI initiatives.

5.3 Theoretical Implications

The main aim of this study is to examine the causal relationship between personality traits (openness, agreeableness, conscientiousness, extraversion & neuroticism), AI leadership capability and AI transformation. In doing so, the current research bridges gaps and makes several

contributions to the AI literature in the context of organizational-focused outcomes. To date, no research has been conducted about all the relationships proposed in the research framework.

5.3.1 Operationalization of Constructs

This study introduces the operationalization of two new constructs: AI leadership capability and AI transformation. To define these constructs, the existing operationalization of digital leadership and digital transformation was considered. Ultimately, this study will make meaningful contributions to the domain of AI by opening avenues toward the integration of leadership studies with machine learning.

5.3.2 AI leadership Capability as Mediator

The current study introduces AI leadership capability as a potential mediator when studying the concept of AI through the lens of psychological studies. This provides theoretical confirmation of AI leadership capability being dependent on the potential of personality traits to foster successful AI transformation within IT organizations. It means that, while specific personality traits may incline managers to be more receptive in embracing AI, the AI leadership capability ultimately decides the effective application and integration of AI transformation within an organization. Therefore, AI leadership capability is a crucial component in converting managers' personality traits into successful organizational change. Managers with such capabilities are able to take advantage of their conscientiousness and agreeable personality traits to create an atmosphere that is favorable to AI transformation. In order to drive innovation and preserve a competitive edge in the digital age (Wamba et al., 2024), this mediating role suggests that AI leadership capability is not just a supporting catalyst but rather a crucial element that is capable of navigating the complexities of AI transformation. Thus, theoretical models could be improved to incorporate AI leadership capability as a crucial component for forecasting successful execution of AI transformation.

In brief, introduction of this mediator raises, firstly, both the awareness of re-conceptualizing leadership capability in the digital era (Fatima & Maqsood, 2024) and examining the possible antecedents (personality traits) that will demonstrate greater AI leadership capabilities critical to AI transformation. Secondly, this will encourage cross-disciplinary research opportunities by combining and considering the insights generated from psychology, management, organizational,

information technology and human-computer behavioral studies (Taguimdje et al., 2020). Lastly, this provides a novel perspective of how the variations in personality traits of managers can impact AI transformation through the existence of trait-developed AI leadership capability, ultimately shaping the current and future research perspectives.

5.3.3 Personality Traits and AI Leadership Capability

The present study highlights the importance of psychological makeup or personality traits in the development of AI-focused leadership which can foster AI initiatives in line with organizational values. This increases the importance of studying personality traits to confront the complexities and uncertainties when dealing with AI-based technologies. This fusion of personality traits with AI will allow researchers, scholars, and theorists to delve deeper to understand this connection as combining technical expertise with abilities tailored through these traits will guide AI transformation to success while observing the ethical and societal implications. Ultimately, informing us about the personality traits crucial for effective AI leadership and increasing awareness regarding the development of personality models that will foster AI leadership.

5.3.3.1 Agreeableness, Conscientiousness and Neuroticism

In context to research findings, it was found that managers with higher levels of agreeableness, conscientiousness and lower levels of neurotic traits will demonstrate greater AI leadership capabilities. Agreeableness, which includes attributes like cooperativeness, affection, and compassion, can help managers communicate, collaborate, and resolve conflicts more effectively (He et al., 2023). This, in turn, will result in a more unified and engaged workforce that is open to AI-driven transformation. Furthermore, agreeable managers are efficient in building a positive company culture that encourages creativity and continual learning (Cramarenco et al., 2023) which are critical to successful AI transformation. Similarly, conscientiousness, defined as diligence, precision, and a strong sense of duty, leads to more methodical and comprehensive integration of AI transformation (Jia & Hou 2024). This will lead to improved strategic planning, risk control (Dwivedi et al., 2021) and consistent implementation of AI endeavors. Also, conscientious managers will proactively upskill their employees, to ensure that the change initiatives prior to AI transformation are met by minimal resistance. Lastly, lower neuroticism, which is related to greater emotional stability, may allow managers to approach AI transformation more carefully and strategically. This feature promotes good stress management, rational decision-making, and the

preservation of a positive work setting (Rice et al., 2022), all of which are necessary for driving AI transformation. In principle, psychologically sound managers will establish an environment that encourages creativity and continual learning that leads to more successful AI transformation.

5.3.3.2 Openness and Extraversion

The relationship of openness trait and AI leadership capabilities imply that managers with a higher level of openness do not demonstrate greater AI leadership capabilities. While openness is often linked with creativity and adaptability (Raya et al., 2023), both of which are beneficial for AI leadership capability—other traits may play a more important role in this context. It indicates that abilities including technical expertise and strategic vision demonstrated by specific personality traits (Cui et al., 2022) are more important in determining AI leadership capabilities. This could call into question the widely held belief that openness alone is adequate for developing leadership capabilities in AI focused culture, leading to a more comprehensive knowledge of the other personality traits required for AI transformation within the IT industry.

The relationship of extraversion trait and AI leadership capabilities imply that managers with a higher level of extraversion trait do not demonstrate greater AI leadership capabilities. It implies that the traditional concept of extraversion as an indicator of leadership capability may not apply in the context of AI focused leadership capabilities. The emerging perspective questions the existing premises that extraversion is systematically favorable to leadership in an array of settings. It could also imply that the complexities of AI leadership necessitate a unique set of interpersonal capabilities that cannot be covered solely by extraversion. This viewpoint is consistent with research indicating that, while extraversion can provide some benefits in traditional leadership situations, its influence may differ depending on the job role and nature of the work involved (Landis et al., 2022).

5.3.4 AI Leadership Capability and AI Transformation

This study examined the positive association between the two constructs, indicating the importance of AI leadership capability in driving successful AI transformation within organizational settings. The relationship between AI leadership capability and AI transformation makes an important contribution to the realm of organizational management. This relationship highlights the critical role of AI-savvy managers in driving transformative processes to remodel traditional business

models through the efficient and effective integration of AI (Fleming, 2020). It further places the importance of these capabilities in effective decision making, operational efficiency and fostering innovation (Heukamp, 2020). As a result, this relationship provides a comprehensive understanding about leveraging AI leadership capabilities in achieving AI transformation throughout the business processes.

5.3.5 Methodological Advantage

For the execution of this research, purposive sampling was considered for data collection. In context to the inclusive criteria, data was collected only from employees in managerial roles or above and were using AI-based technology. For which filter questions were incorporated in the research instrument and before the data collection, respondents were asked about the usage of any AI tools. As AI is an umbrella term and includes various tools and technologies for this research we did not specify the level or type of usage. Accordingly, this opens an opportunity for future research involving specific levels of usage or types of AI-based technology to perhaps overcome the limitation of data collection.

5.4 Managerial Implications

Although AI is consistently shaping the work dynamics and providing limitless opportunities to businesses across a global footprint. Yet such technologies may appear intimidating if you lack awareness concerning their implementation or if there is an absence of experts who can smoothly employ such technological innovations in the organizational bodies. Therefore, this study aims to provide a few implications for practitioners to successfully execute AI transformation within their companies.

5.4.1 Personality traits and AI leadership Capability

Research findings focus on the importance of personality traits in the development of AI leadership capability. Our findings suggested that managers with higher levels of agreeableness and conscientiousness traits will demonstrate greater AI leadership capability. Also, the findings proposed that managers with lower levels of neurotic trait will demonstrate greater AI leadership capabilities within the IT sector Pakistan. In contrast, the findings suggested that managers with higher levels of openness and extraversion trait will not demonstrate greater AI leadership capabilities.

5.4.1.1 Agreeableness and AI Leadership Capability

The IT organizations should aim towards introducing new and improving the current personality assessment tests when hiring manager-level employees. Looking for applicants who demonstrate characteristics including empathy, cooperation, and teamwork, are critical to the development of AI leadership capabilities that will help in achieving AI initiatives. Moreover, they should focus on fostering a participative, collaborative and mutually respective culture within the IT companies. This will empower the employees in taking accountability and work towards experimenting with novel ideas, critical to AI-focused strategy and implementation. Similarly, the organizations can invest in conflict resolution training as it will equip the managers with skill, tools and capabilities to not only manage disagreements related to AI integration but also enforce positive relationship among all the stakeholders, ultimately minimizing the resistance against AI. Also, such managers should be encourage in leveraging their capabilities as it will allow them to manage team dynamics which will prove to be crucial for the AI adoption.

It appears as no surprise that the role of Pakistan's government in introducing and sponsoring the AI landscape within the business processes of the IT industry is imperative. Firstly, the government can invest in developing and executing policies that will support institutions and educational programs aiming towards the enhancement of future IT leaders' both social skills and agreeableness. Secondly, the government should prioritize the concept of incentivizing personality driven capabilities to achieve organizational goals. So, the governing body can invest in Government-sponsored training or educational programs that will emphasize the development of personality-driven capabilities, including conflict resolution, communication, and empathy. These abilities are essential for managers to handle challenging team dynamics in AI initiatives. One impactful endeavor initiated by a visible governing body has the potential to propagate swiftly, instilling comparable behaviors and strengthening the vision and implementation of that endeavor. Consequently, the public body should acknowledge and incentivize the IT companies who are prioritizing AI leadership capabilities supported by agreeable work cultures to embrace the phenomena of AI.

5.4.1.2 Conscientiousness and AI Leadership Capability

The IT companies can work on redesigning their performance metrics by employing performance measures that incentivize diligent and detail-oriented conduct, which are critical for overseeing

intricate AI systems. Moreover, the training and development department of IT companies should invest in providing managers with leadership development opportunities that foster conscientiousness, equipping them with AI leadership capabilities, critical to AI transformation. Similarly, IT businesses should prioritize quality control processes and regulatory compliance throughout the AI research lifecycle. Managers with a high level of conscientiousness are inclined to prioritize these issues, lowering the possibility of AI system faults or ethical breaches. Also, employing robust project management methods, such as thorough preparation, risk assessment, and observing, can help AI initiatives succeed. Conscientious managers tend to embrace and uphold these methods within their teams, creating pathway towards successful AI adoption.

The government should develop regulatory structures to enable responsible AI implementation, with a focus on ethical considerations and implications for the future. Also, allocate resources for study on the effect of conscientiousness on both the development of managers' AI leadership capabilities and supporting transformational initiatives while increasing the understanding and promotion of the best practices to manage the complexities of AI systems. In short, government can also impose regulations and standards governing data confidentiality, privacy, and ethical AI practices. Managers with high levels of conscientiousness trait are more likely to follow these standards strictly, lowering the likelihood of unethical AI implementations. So, setting priorities for building infrastructure, particularly in the areas of technology and cybersecurity, can help responsible managers ensure the integrity and stability of AI systems employed by IT businesses.

5.4.1.3 Neuroticism and AI Leadership Capability

IT companies should invest in managers' emotional intelligence training, highlighting the value of self-awareness, self-control, and empathy. Managers with lower levels of neurotic trait are more likely to demonstrate greater emotional regulation, which is critical for overcoming the obstacles of AI transformation. Simultaneously, they should consider the implementation of stress management initiatives such as employee wellness programs, relaxation strategies and offering flexible working arrangements which will help in maintaining the mental and physical well-being while managing the complex tapestry of AI transformation. Ultimately, improving the decision-making processes, enjoying innovation, and overall leadership capability. Also, establishing a company culture which prioritizes resiliency and stability will help in attracting or developing managers with lower neuroticism, which are consistent with the ideal AI leadership

capabilities. For which IT companies should work on the introduction and implementation of policies that fosters open communication, provides feedback platforms, and also promotes work promote work-life balance.

The government should recognize the significance of psychological well-being in leadership, the government can enact regulations that promote wellness initiatives at the workplace. This includes programs like counseling sessions, yoga session, leisure activities, stress management training, and equip with resources to deal work stress. Moreover, they should provide funding to the research and development centers so that the future theorists can further investigate the relationship of managers' personality traits in demonstrating AI leadership capabilities while furthering the validation and refinement of these findings. The government can also introduce stress management curriculum in the existing education policies that will assist in developing managers who will be the future AI champions. Consequently, AI leaders of tomorrow would be selected and developed.

5.4.1.4 Openness and AI Leadership Capability

The findings suggest that openness trait does not contribute to the development of AI leadership capabilities. IT companies can concentrate on forming multidisciplinary teams consisting of individuals with a variety of personality types, particularly those with higher levels of openness and complementary features. This will balance the possible constraints of managers who are less open to driving AI efforts, resulting in a more comprehensive approach to problem resolution and development. Similarly, establishing an innovative culture within the firm that promotes experimentation, continual learning, and information sharing can help mitigate for low levels of Openness in leadership. Companies can build venues for idea generating, innovation labs, and incentive schemes to foster an innovative culture at all levels of the firm.

The government should invest in leadership development programs that emphasize strategic thinking, agility, and creativity. These programs ought to strive in improving the leadership capabilities for those with low openness trait, allowing them to successfully manage AI transformation in spite of their shortcomings in innovation and risk-taking. Moreover, policies and endeavors to encourage variety of beliefs and perspective inside companies might help compensate for lower levels of openness in leadership capabilities. By creating an environment in which diverse perspectives are recognized and promoted, the government can help managers make

informed decisions and effectively drive AI transformation. Lastly, the public body can provide funding for future studies on the examining the relationship of personality traits and AI system to identify the best traits that can strive in AI ecosystem.

5.4.1.5 Extraversion and AI Leadership Capability

The communication preference and approaches of managers with lower extroversion trait can be catered to by IT organizations through the implementation of communication techniques. This could entail offering training in efficient virtual communication techniques, utilizing technology for online interaction, and creating opportunities for written communication. Also, systematic networking opportunities, coaching programs, and career growth initiatives can assist managers with lower extraverted characteristics in establishing and maintaining contacts within this IT industry. Companies should make it easier for employees to attend professional gatherings, forums, and conferences in order to expand their networks and gain access to important resources and opportunities of AI transformation.

The government can invest in developing collaborative decision-making methods which provide for input from a variety of stakeholders can help to overcome the potential disadvantages of demonstrating low extraversion traits in leadership capabilities. Thus, government can encourage collaboration in decision-making procedures, advisory boards, and feedback channels to bring in various perspectives to ensure successful integration of AI transformation. Similarly, government can establish guidelines that support the growth of various skills and traits within the IT workforce while acknowledging that not all characteristics are equally important for AI leadership. Simultaneously, raising awareness of the significance of aligning traits to job responsibilities in order to facilitate the installation and administration of AI more successfully.

5.4.2 AI Leadership Capability and AI Transformation

The findings highlight the positive impact of AI leadership capability on AI transformation. It tends to enhance our awareness regarding the important role of AI leadership in driving AI transformation within the company. IT companies should invest in creating a culture that fosters creativity, diversity, and cooperation is critical for capitalizing on personality-driven AI leadership capabilities. IT firms should foster an inclusive workplace culture in which employees feel free to share concepts, experiment with AI technologies, and welcome change. Aligning company values

with the desirable traits of managers will help in fostering culture that is favorable to AI transformation initiatives. Moreover, IT companies can introduce performance metrics to measure the effectiveness of AI leadership on the transformational goals of the company. IT firms ought to prioritize recruiting and training of managers whose personality traits are compatible in demonstrating AI leadership capabilities. This includes integrating personality tests into the hiring procedure, as well as giving training and mentoring to improve AI focused AI leadership capabilities. It can be more beneficial and thorough to use personality tests in conjunction with other performance indicators and evaluation instruments (Shahzad, 2020).

The government can launch leadership evaluation programs to find managers with the personality traits required to drive AI change. These personality assessments will aid in the selection and development of leaders who possess vital traits such as innovation, adaptability, and strategic vision. Investing in leadership training courses designed to improve the personality traits related to demonstrating greater AI leadership capabilities can result in a pool of skilled managers ready to drive AI transformation initiatives across IT industry. Also, government should invest in public-private partnerships to boost AI transformation initiatives. The government need to work with IT companies to develop collaborative strategies, pool resources, and harness expertise to speed up AI adoption and innovation. These collaborations may also include academics, research institutes, and global organizational bodies to leverage diverse perspectives and capabilities, crucial for AI transformation.

5.4.3 AI Leadership Capability as Mediator

In context to the research findings, AI leadership capability mediates the relationship between personality traits and AI transformation. IT businesses should place a high priority on funding leadership development and training initiatives that enhance AI leadership potential. This entails giving leaders the chance to improve their capabilities in fields like team management, communication, and strategic thinking. IT businesses can enable managers to effectively traverse the intricacies of AI transformation, despite their unique personality traits, by building a culture of continual learning and career advancement. IT organizations should foster a culture in which managers are able to capitalize on the team members' capabilities to spur innovation and change, and where all opinions are valued and heard. Within the company, inclusive leadership practices

can be promoted by putting initiatives like diversity training, collaborative learning forums, and mentoring programs into action.

The government can prepare funding for initiatives aimed towards the development of AI leadership capabilities such as leadership developmental programs. Regardless of their unique personality traits, these programs should provide managers with the abilities and information required to effectively coordinate AI transformation initiatives. Through training in areas - change management, strategic planning, and stakeholder engagement, government bodies may enable managers to leverage their strengths and optimize their capabilities to manager AI transformation complexities. It is also important for government to make policies or SOPs to support leadership developmental programs and effectively handle talent management initiatives that will foster AI leadership capabilities within the IT industry of Pakistan. This could entail offering monetary rewards to firms' practicing leadership development and training programs, as well as encouraging cooperation between business, academic, and governmental organizations so best practices, policies and resources can be communicated.

5.5 Limitations and Future Recommendations

Although this is the first study to examine the BFM with AI leadership capability and AI transformation, as well as pioneering the proposed relationships in the conceptual framework, it has some limitations, as does all research. Firstly, the data were cross-sectional so the constraint timeline bounded us with limited time to invest in data collection. Thus, when conducting this research again, a large sample should be considered and sufficient time should be allotted to data collection and research analysis. Several limitations must be considered when interpreting the results presented in this article. Secondly, as the methodology for this research is quantitative, it is static (Lacam & Salvetat, 2023). A qualitative investigation aimed at delineating the mechanisms and preconditions underlying personality's impact on AI transformation and leadership growth would be intriguing. Third, our research is intended to be original, thus it is still in progression phase, as it presently just demonstrates the theoretical and empirical link between personality-driven AI leadership and AI transformation in the IT sector. As such, not every facet of the phenomenon is covered by our approach. For instance, only the effects of BFM components are covered by the conceptual framework. Potential avenues for future investigation include exploring the connection between several facets of AI transformation (such employee resistance,

organizational and technological challenges, self-esteem, narcissism, and core self-evaluation) and other characteristics of personality. Last but not least, due to a dearth of prior research in this field, we had certain difficulties in developing our layout for this study. Future researchers can further explore the relationship between personality traits and AI leadership in other sectors that are in the initial phase of transition.

5.6 Conclusion

The primary objective of this research was to investigate the impact of the Big Five model on AI leadership capability and the impact of AI leadership capability on AI transformation. This study was successful in pioneering the concept of AI leadership capability and AI transformation. Moreover, this study examined the mediating effect of AI leadership capability on the relationship between Big Five personality traits and AI transformation. The findings of this research revealed that managers with higher levels of traits like agreeableness and conscientiousness while lower levels of neurotics result in demonstrating greater AI leadership capabilities. This is because managers with low levels of neurotic traits will be able to strive in a dynamic AI ecosystem as such individuals lack the ability to manage anxiety or stress levels. In addition, Managers as change agents are required to handle disagreements between external and internal stakeholders to maintain relationships and proceed towards successful AI implementation which is unlikely to be executed by highly neurotic leaders.

In contrast, despite the paucity of research on the subject, leaders with the agreeableness trait are better able to build inclusive and productive work environments, maintain relationships, and deal with conflicts that could threaten the achievement of organizational goals. In other words, managers with this trait will have capabilities that will facilitate them in leading AI initiatives. Similarly, conscientiousness traits equip managers in carrying out reliable analysis, scrutinize information for robust and effective strategic decisions, and meticulously eye the alignment between AI initiatives and ethical considerations while redesigning the systems to minimize the AI-focused risks voiced by the stakeholders, all aimed towards successful AI transformation.

Conversely, openness and extraversion did not exhibit a positive association within the proposed relationship. Openness-driven managers may value consistent learning and adapt to the ever-evolving AI dynamic while ignoring the organizational capability towards the change and might

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fail to align the AI initiatives with the organization's overall strategic direction. In the case of extraversion, managers are required to be optimistic and informed while making decisions to achieve the AI initiatives which in the case of extroverts might fall short as they are quick in asserting their perspectives. Although extroverted managers prosper in social situations, the dynamic roles of AI leaders, such as technical analysis and strategic planning, may be too exhausting for such leaders. Moreover, the findings reported the indirect effect of AI leadership capabilities on AI transformation. The agreeableness trait contributes to addressing the differing perspectives of the stakeholders and fostering a culture of collaboration and effective communication which is crucial for driving AI transformation. Likewise, conscientiousness traits help AI leaders be meticulous and well-organized. Similarly, AI transformation requires vigorous adaptation to new models, technologies, and processes.

Consequently, these research findings contributed to formulating research implications. This study makes meaningful contributions to the domain of AI by opening avenues toward the integration of leadership studies with machine learning. Also, it introduces AI leadership capability as a potential mediator when studying the concept of AI through the lens of psychological studies. Practitioners should invest in designing leadership development or training workshops to enhance the impact of personality traits and equip leaders with abilities to manage AI transformation. Conclusively, even though this study has provided insightful information, it is important to recognize its limitations. These limitations provide opportunities for future studies to fill in knowledge gaps, improve methods, and investigate novel perspectives. Accepting these obstacles can advance the field by encouraging ongoing development and increased understanding in the pursuit of knowledge.

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Appendix

Research Instrument

Section A: Demographic Information

1.	What is your gender?	□ Male □ Female □ Prefer not to say
2.	What is your age?	□ less than 25 □ 25 to 40 □ 41 to 60 □ Above 60
3.	How long have you been employed with your current organization?	□ less than 1 year □ l to 3 years □ 4 to 6 years □ 7 to 9 years □ 10 or above years
4.	Industry/Sector *E.g., IT*	_____
5.	Job Position*(Please Specify)* *E.g., manager, IT professional*	_____
6.	Do you work in IT company?	_____

If you have answered "yes" to the previous question, please proceed with the rest of the questionnaire. If your answer was "no", then you may stop right here. Thank you for showing interest in our study.

Section B: For each statement below please circle the appropriate responses:

1 = Strongly Disagree (SDA), 2 = Disagree (DA), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

	Openness	SDA	DA	N	A	SA
1.	I see myself as someone who is original, comes up with new ideas.	1	2	3	4	5
2.	I see myself as someone who has an active imagination.	1	2	3	4	5
3.	I see myself as someone who values artistic experiences.	1	2	3	4	5

	Extraversion	SDA	DA	N	A	SA
4.	I see myself as someone who is communicative, talkative.	1	2	3	4	5
5.	I see myself as someone who is outgoing, sociable.	1	2	3	4	5
6.	I see myself as someone who is reserved.	1	2	3	4	5

Consciousness	SDA	DA	N	A	SA
7.	I see myself as someone who does a thorough job.	1	2	3	4	5
8.	I see myself as someone who does things effectively and efficiently.	1	2	3	4	5
9.	I see myself as someone who tends to be lazy.	1	2	3	4	5

Agreeableness	SDA	DA	N	A	SA
10.	I see myself as someone who has a forgiving nature.	1	2	3	4	5
11.	I see myself as someone who is considerate and kind to others.	1	2	3	4	5
12.	I see myself as someone who is sometimes somewhat rude to others.	1	2	3	4	5

Neuroticism	SDA	DA	N	A	SA
13.	I see myself as someone who is relaxed, handles stress well.	1	2	3	4	5
14.	I see myself as someone who gets nervous easily.	1	2	3	4	5
15.	I see myself as someone who worries a lot.	1	2	3	4	5

AI leadership capability	SDA	DA	N	A	SA
16.	I think using AI tools is fun.	1	2	3	4	5
17	I am an AI expert.	1	2	3	4	5
18.	When it comes to AI knowledge, I am always up to date.	1	2	3	4	5
19.	I am driving the AI transformation forward proactively in my department.	1	2	3	4	5
20.	I can make others enthusiastic about the AI transformation.	1	2	3	4	5
21.	I have a clear idea of the structures and processes that are needed for the AI transformation.	1	2	3	4	5

	AI transformation	SDA	DA	N	A	SA
22.	In my organization new business processes are built on AI based technologies.	**1**	**2**	**3**	**4**	**5**
23.	In my organization AI based technologies are integrated to drive change.	**1**	**2**	**3**	**4**	**5**
24.	In my organization, business operations are shifting toward making use of AI based technologies.	**1**	**2**	**3**	**4**	**5**