Arab American University

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The Effect of Digital Leadership in Implementing the Digital Transformation Policy of the Palestinian Ministry of Education

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Thesis Approval

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This thesis was defended successfully on 29/02/2024 and approved by:

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Declaration

I, the author of the thesis, acknowledge that it has been submitted to the Arab American University to obtain a master's degree, and that it is the result of my own research, except for what has been indicated wherever it appears, and that this thesis or any part of it has not been submitted to obtain any higher degree for any other university or institute.

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Dedication

I dedicate this thesis to:

The souls of my father and brother, may they rest in peace, who have been a constant source of inspiration and unwavering support, lighting my path with their love.

To my dearest mother, who has been and continues to be a strong pillar in my life, propelling me towards excellence.

To my beloved family, my precious daughters, my dear son, and my cherished wife – thank you for your infinite support and encouragement throughout my academic journey.

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With sincere acknowledgment and gratitude.

Abstract

This study aims to identify the effect of digital leadership on the implementation of the digital transformation policy of the Palestinian Ministry of Education.

Using the descriptive analytical method, the study targeted 473 administrative employees working in the main branch of the Palestinian Ministry of Education. Using the questionnaire as a data collection tool, the responses of 252 participants were analyzed using SPSS v.23.

The results indicate that the evaluation of the level of digital leadership and the level of digital transformation in the Palestinian Ministry of Education was moderate. The results indicate a positive effect of digital leadership and its dimensions (digital competencies, visionary leadership, and innovation) on digital transformation.

The study revealed that there were statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the gender variable. While there are no statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation due to differences in demographic variables (age, years of experience, administrative level, academic qualification).

The study revealed that there were statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership in the Ministry of Education due to differences in demographic variables (gender and years of experience). While there are no statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership in the Ministry of

Education due to differences in demographic variables (age, administrative level, academic qualification).

The study presented a set of recommendations, the most important of which are: Allocate sufficient administrative and financial resources to support digital transformation initiatives, design and implement customized training programs for Ministry employees, increase efforts to raise the level of awareness among employees about the importance of digital transformation, encourage active participation in developing digital solutions, invest in hiring experts and specialists in the field of digital transformation.

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List of Abbreviations

Abbreviation	Full name
IT	Information Technology
ICT	Information and Communication Technology
PEI	Palestinian e-learning initiative
UNRWA	The United Nations Relief and Works Agency
NGOs	Non-Governmental Organizations
HR	Human Resources
DigComp	Digital Competence Framework Developed from European commission
CCRS	The College and Career Ready Standards

Chapter One: The General Framework of The Study

1.1 Introduction

In various sectors worldwide, radical transformations are occurring, particularly within the realm of information and communications. These changes involve the way information is transferred, digital resources are disseminated, and accessibility is streamlined. The inception of the Internet is hailed for ushering in a qualitative shift in how individuals and businesses interact, enabling swift access to local and global resources and elevating societal expectations to unprecedented levels (Khoury, 2020).

The rapid and successive advancements in information and communications technology have compelled governments and institutions to scramble to assimilate these developments. Their objective is to align these technologies with their multifaceted goals, transitioning from conventional services to advanced electronic ones (Balochi et al., 2020).

Since the advent of digital communication tools in the 2000s, consumers' expectations have changed significantly regarding response times and the availability of multiple communication channels. Businesses are starting to realize that they can interact with consumers directly through digital means, frequently in real time (Schallmo et al., 2018).

Governments now need to take on more roles and responsibilities to fulfill the demands of their societies (Salaeimi & Boshi, 2019). Despite the industry's rapid advancement in technology and the significance it holds for organizations in their journey toward digital transformation, some organizations may face obstacles to achieving a successful digital transformation. More than 80% of businesses, according to Rogers (2016), have encountered challenges when attempting to adopt digital transformation.

One of the elements assisting these institutions in achieving digital transformation is the presence of digital leadership within them. because leaders can align digital strategies with institutional goals, promote innovation, and ensure the optimal use of digital technologies by possessing the digital competencies necessary for this transformation (Abu Hayya, 2021; Al Faris & Bani Khaled, 2022; Kwon & Park, 2017; Zhong, 2016).

In the Palestinian government sector, institutions, including the Ministry of Education, are working to implement policies aimed at digitizing their services. As these initiatives gather momentum, the need for capable, visionary, and innovative digital leadership has become more evident than ever.

1.2 Study Problem

Digital transformation is vital for organizational progress, aiming to enhance efficiency in service delivery (Rabhi, 2022). Nevertheless, a substantial number of digital transformation projects, as per Morgan (2019) and , encounter failure, often due to leaders' inability to anticipate the pace of change (Morgan, 2019; Rogers, 2016; Sainger, 2018). Success in digital transformation necessitates a unique leadership style known as digital leadership (Kwon & Park, 2017).

The Palestinian Ministry of Education launched the first Initiative in this field the "Palestinian e-learning initiative, PEI" in the year 2005 (UNESCWA, 2011), and its many attempts continued until the digital transformation policy was launched at the end of 2021.

Given that the researcher holds a position within the Ministry of Education, the researcher has observed that conventional paper-based communication methods still prevail in the workplace. Furthermore, many procedures have yet to undergo re-engineering to align with the most contemporary practices in this domain. The study problem is: What is the effect of digital leadership in implementing the digital transformation policy of the Palestinian Ministry of Education?

1.3 Study Questions

The main question: What is the effect of digital leadership and its dimensions (digital competencies, visionary leadership, and innovation) on digital transformation (plans and strategies, technology and infrastructure, organizational culture, human resources) in the Palestinian Ministry of Education?

sub-questions:

1. What is the effect of digital leadership on digital transformation in the Palestinian Ministry of Education?
2. What is the effect of digital competencies on digital transformation in the Palestinian Ministry of Education?
3. What is the effect of visionary leadership on digital transformation in the Palestinian Ministry of Education?
4. What is the effect of innovation on digital transformation in the Palestinian Ministry of Education?
5. Are there statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, academic qualification).
6. Are there statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, academic qualification).

1.4 Study Objectives

The main objective: To examine the effect of digital leadership and its dimensions (digital competencies, visionary leadership, and innovation) on digital transformation (plans and strategies, technology and infrastructure, organizational culture, human resources) in the Palestinian Ministry of Education.

sub-objectives:

1. To examine the effect of digital leadership on digital transformation in the Palestinian Ministry of Education.
2. To examine the effect of digital competencies on digital transformation in the Palestinian Ministry of Education.
3. To examine the effect of visionary leadership on digital transformation in the Palestinian Ministry of Education.
4. To examine the effect of innovation on digital transformation in the Palestinian Ministry of Education.
5. To determine whether there are statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation at the Ministry of Education due to the different demographic variables (gender, years of experience, administrative level, academic level, age).
6. To determine whether there are statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, years of experience, administrative level, academic level, age).

1.5 Study hypotheses

The researcher formulated hypotheses based on the null hypothesis and evaluated the hypotheses at a significance level ($\alpha \leq 0.05$).

Main hypothesis: There is no statistically significant effect of digital leadership and its dimensions (digital competence, visionary leader, innovation) on the digital transformation in the Ministry of Education in Palestine.

Sub-Hypotheses:

1. There is no statistically significant effect of digital leadership on digital transformation in the Ministry of Education in Palestine.
2. There is no statistically significant effect of digital competences on digital transformation in the Ministry of Education in Palestine.
3. There is no statistically significant effect of visionary leadership on digital transformation in the Ministry of Education in Palestine.
4. There is no statistically significant effect of innovation on digital transformation in the Ministry of Education in Palestine.
5. There are no statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, academic qualification).
6. There are no statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, academic qualification).

1.6 The Study Significance and Justification

The importance of this study stems from the importance of the topic it covered because organizations in the current era give top strategic priority to digital transformation. Similarly, the topic of digital leadership has become one of the main topics for organizations all over the world(Ismail et al., 2017). As is the case in the State of Palestine in general and the Ministry of Education in particular. Digital leadership and its effect in implementing the digital transformation policy carries importance in both scientific and practical aspects.

On the scientific side, previous studies emphasized the necessity of conducting more research in this field, to provide more information that links the digital leader to digital transformation in theory and on the ground (Rabhi, 2022). In addition to the recommendation of many studies to conduct more future studies on the reality of digital leadership in various vital sectors (Abu Hayya, 2021; Al Faris & Bani Khaled, 2022; Zhong, 2016). The study may be regarded as a contribution to the field, paving the way for further scientific investigations and research. Therefore, we hope that this study will represent a distinctive addition to the literature on digital transformation and digital leadership in general, and to international, Arab, and Palestinian libraries.

As for the practical side, the results of this study may help decision-makers in the Ministry of Education —this vital sector— identify the effect of leaders in implementing the digital transformation policy. The study may provide valuable insights to policymakers and stakeholders in the Palestinian Ministry of Education on the importance of developing strong digital leadership for the successful implementation of digital transformation policy. The study may provide a chance to offer actionable suggestions based on the findings, allowing Ministry of Education leaders to enhance digital transformation and

improve their strategies. Leaders and policymakers in the Ministry of Education and perhaps other institutions can use the research as a basis for practical decisions about how important it is to support and enhance digital transformation in institutions to improve sustainability and crisis and emergency preparedness.

The researcher summarizes the justifications for choosing the topic of the study as follows:

- The importance and modernity of the topic of digital transformation and digital leadership. Digital transformation is considered a vital necessity for institutions and governments in our current era, as it contributes to improving services, modernizing operations, and enhancing effectiveness and efficiency. Given the importance of digital transformation, studying the impact of digital leadership in this context is important for investigating how to implement this transformation successfully.
- Contributing to the development of strong leadership supportive of digital transformation efforts. Digital transformation is a major challenge for leaders in the government sector, as it requires them to adapt to rapid technological developments and effectively guide organizations towards the future. Therefore, the current study sought to explore the impact of digital leadership on this transformation to develop leaders qualified for this purpose.
- Contributing to improving government services, especially in the context of the Palestinian Ministry of Education.
- Contributing to national development by improving government administration and developing digital services.
- The researcher's desire to research a topic that touches on new developments.

1.7 The study Scope

- Objective scope: The current study focuses on examining the effect of digital leadership (digital competency; innovation; and visionary leadership) on the implementation of the digital transformation policy.
- Organizational scope: This research was conducted among administrative staff employed at the main branch of the Palestinian Ministry of Education.
- Geographical scope: The study focused on administrative employees in the main branch of the Palestinian Ministry of Education in the cities of Ramallah and Al-Bireh.
- Temporal scope: The study was conducted within the academic year 2023.

1.8 Research Design

To achieve the research objectives and to examine the effect of digital leadership in implementing digital transformation in the Palestinian Ministry of Education, the researcher prepared the theoretical aspect of the study by collecting and analyzing information from previous studies, research, and literature related to the subject of the study.

Regarding the practical dimension, information about the study variables, namely digital leadership, and digital transformation, was gathered through a questionnaire administered to employees at the main branch of the Ministry of Education. This choice was made due to their role as the sector responsible for educational planning in Palestine. There are five chapters in the study, each of which has a specific function.

- Chapter One: Includes consisting of (introduction, problem, objectives, questions, hypotheses, importance, scope, and design of the study).

- Chapter Two: Includes two main topics, the first is the theoretical framework and defines the conceptual framework for digital transformation and digital leadership, and the second is previous studies and defines a review of the literature related to the research topic and comments on it.
- Chapter Three: Includes the study methodology and procedures.
- Chapter Four: Includes the results of data analysis and comments on the sample members' responses.
- Chapter Five: Includes the results of the study, discussing, and the recommendations reached by the researcher based on these results.

Chapter Two: Literature Review

2.1 Introduction

In today's rapidly developing business landscape, the emergence of digital technologies has brought changes and challenges to enterprises. To effectively navigate this digital age, leaders need to embrace the concept of digital leadership and understand the complexities of digital transformation. This literature review aims to explore the theoretical framework surrounding digital leadership and digital transformation, highlighting the concepts, importance, and dimensions of digital leadership and digital transformation.

In the first part of the course, organizational leadership concepts and the different leadership theories and styles that developed over time will recognized. After that, the focus will shift toward digital leadership, exploring its definitions, importance, and dimensions.

In the second part, we will turn to the topic of digital transformation we will explore the definition, requirements, importance, and dimensions of digital transformation.

2.2 Leadership Concepts

For a long time, academics have been attempting to define and understand what leadership all is about. starting with Plato's groundbreaking work in "The Republic" more than 2,000 years ago (Grint, 1997). In his sixteenth-century work "The Prince," Niccol Machiavelli emphasized the pivotal role that leaders play in shaping societal dynamics.

Researchers have offered different definitions of leadership, viewing it as a matter of individual traits, specific behaviors, power relationships, processes, or a combination of these variables. Examples of these definitions include the following:

- “Interaction between specific traits of one person and other traits of the many, in such a way that the course of action of the many is changed by the one” (Bogardus, 1934, p.3).
- “Leadership may be defined as the behavior of an individual while he [sic] is involved in directing group activities” (Hemphill & Coons, 1957, p. 7).
- “Leadership is the reciprocal process of mobilizing by persons with certain motives and values, various economic, political, and other resources, in a context of competition and conflict, to realize goals independently or mutually held by both leaders and followers” (Burns, 1978, p. 425).
- “Leadership as the process of influencing an organized group toward achieving its goals” (Hughes et al., 2015, p. 35).
- Bratton (2020, p. 81) defined organizational leadership as “Organizational leadership is a process of influencing within an employment relationship involving ongoing human interaction with others wherein those others consent to achieve a goal.”

Based on the information presented, the researcher believes that the quest to understand leadership is a continuous journey that has spanned thousands of years. Its development has been linked to historical events, economic transformations, and societal demands. While researchers have made great strides in unraveling the multifaceted nature of leadership, it remains a complex and elusive concept, making it difficult to provide a complete and definitive definition of it, despite its apparent simplicity.

2.3 Leadership Theories

As social and cultural contexts, along with various variables, continue to change, leadership theories also evolve. Understanding these theories contributes to developing leadership skills and improving the performance of leaders in various fields, whether those fields are in organizations or daily life.

2.3.1 The Great-Man Theory

According to Nawaz and Khan (2016, p. 2), Thomas Carlyle proposed this theory in 1847, asserting that only individuals with innate heroic qualities could become leaders. Carlyle believed that history was shaped by great men, and their exceptional abilities were predetermined. Sidney Hook expanded on this point of view by distinguishing between the man full of events and the man who creates events. Sidney Hook states that the man who created the event, through his outstanding intelligence, willpower, and personality, influenced the course of historical events (Dobbins & Platz, 1986).

Woods (1913) studied the leadership conditions in fourteen countries over periods extending from five to ten centuries ago. The study concluded that the personality and abilities of the leader are what make the nation and shape it according to these leadership abilities.

As time passed, this theory became lost credibility, especially as it found that certain great leaders could stifle organizational growth and democracy (Dobbins & Platz, 1986).

2.3.2 The Trait Theory

Leadership is characterized by specific traits; some are hereditary, such as intelligence, self-confidence, attractiveness, and height, and some can be acquired and are not necessarily hereditary, such as traits of effectiveness (Ekvall & Arvonen, 1991).

People believe that leadership traits include excellent health, the ability to care for others, integrity, the ability to judge matters, and loyalty to the group. Some of them emphasize strong personalities, self-confidence, the ability to understand the ideas of others, and fun as leadership traits. There are multiple lists of leadership traits by different researchers. In his book The Art of Leadership, Tead (1935) lists ten characteristics that must be present for successful leadership. Some researchers have opposed this theory, as Jennings (1961) pointed out: "Fifty years of studies and research have failed to provide a single personality trait of leadership —or a group of them—that can be used to distinguish between leaders."

Considering the above, despite these efforts and research, there is a large discrepancy in views about whether there are common characteristics of leaders. Researchers doubt the ability of trait theory to define these traits specifically, as research has not shown uniformity in this regard. They consider that this variation and disparity make trait theory unhelpful in explaining leadership.

2.3.3 Behavioral theory

Leadership behavior in organizational environments has styles using dimensions of concern for people and concern for production. Each style (Country Club Management, Team Management, Impoverished Management, Authority-Compliance, and Middle-of-the-Road Management) has its own unique balance between prioritizing the well-being of team members and achieving production goals (Blake & Mouton, 1964).

According to Bass and Stogdill's (1990) definition of behavioral leadership theory, "leaders display two fundamental behavioral traits: a strong drive to complete tasks (job-centered) and a genuine concern for people (employee-centered)." According to this

theory, rather than having leadership traits ingrained in them from birth, leaders can develop via training, experience, and practical application (Goff, 2003, p. 4).

While exploring behavior theory, scholars overlooked the examination of how different circumstances influence behavior. The absence of a study on the effects of diverse situations on behavior led to the imposition of certain limitations, giving rise to the development of situational theories. In certain situations, a leader might find it necessary to adapt their behavior accordingly (Türetgen et al., 2004, p. 28).

2.3.4 Situational Theory

This theory highlights how circumstances and environment shape leaders rather than emphasizing how personal traits and behaviors determine leadership. According to situational theory, people who demonstrate leadership traits in one set of circumstances might not always be leaders in other ones (Türetgen et al., 2004, P. 28).

Contingency theory suggests that there is no single leadership approach that is effective in every circumstance. According to Greenleaf (1979), contingency theory fundamentally challenges the notion that there is a singular, optimal method for organizing or leading. Instead, it underscores the idea that a leadership approach that proves successful in one scenario may not necessarily yield the same success in another.

Moreover, within the framework of contingency theory, organizations adjust to shifting circumstances through uncontrollable interactions involving a range of variables, which can reduce the predictability of effective leadership. Contingency theory has drawn criticism for its complexity and lack of a universal framework for effective leadership in particular situations, despite its benefits, which include being intuitive and simple to implement. As a result, contemporary leadership theories have emerged, highlighting

leaders capable of attaining exceptional performance through the utilization of outstanding leadership techniques (Çetin, 2008). These strategies were assessed considering contemporary leadership theories.

2.3.5 Transactional theory

Transactional leadership involves an exchange relationship between leaders and followers, where rewards and punishments are used to motivate followers to achieve specific goals (Burns, 1978). This highlights how crucial it is to offer contingent reinforcement. Transactional leaders are adept at overseeing routine tasks and maintaining organizational stability through well-defined procedures and systems. They also set clear expectations, monitor performance, and apply rewards or corrective actions in response to results (Bass, 1985).

Relationships between leaders and followers governed by bilateral agreements that ensure an effective and active exchange in which diligent followers receive rewards for achieving previously defined goals are one of the most key features of this theory (House & Shamir, 1993).

On the other hand, unfavorable outcomes can include focusing on mistakes, avoiding answering questions, and delaying making decisions—a practice known as “management by exception.” The leader's involvement depends on when they become active. In the active form, leaders monitor performance and take corrective action as necessary (Bass & Avolio, 1997).

2.3.6 Transformational Theory

In the 1970s, Burns (1978) popularized transformational leadership, which focuses on inspiring and motivating followers to go beyond their self-interests for the good of the group or organization, often by appealing to higher-order values and aspirations. Transformational leaders create a sense of shared purpose and articulate a compelling vision that motivates followers to go beyond their own expectations (Bass, 1985).

House and Shamir (1993) emphasize that transformational leaders "engage in interactions with followers based on common values, beliefs, and goals," which raises the motivation levels of their followers through interactions rooted in shared values and common goals. This positively influences performance and goal achievement.

Transformational leadership emphasizes changing attitudes, values, and beliefs to increase leaders' ability to lead change. This paradigm states that leaders empower their followers, prioritize their needs, and support them in becoming leaders (House & Aditya, 1997).

2.3.7 New Approaches

Modern leadership theories have ushered in fresh viewpoints and sophisticated methodologies to comprehend the pivotal role of leaders in today's dynamic environments. New theories such as charismatic leadership, servant leadership, ethical leadership, outstanding leadership, authentic leadership, and reliable leadership (Kesimli, 2013). These approaches have emerged from dedicated research endeavors seeking to pinpoint effective and successful leadership styles (Tiryaki, 2008, p. 1). Tiryaki defines these leadership theories “within the context of diverse studies on leadership, highlighting the continuous evolution driven by research aimed at determining the most effective leadership types.”

Nevertheless, these definitions and theories collectively underline the absence of a universal, optimal leadership style applicable in all circumstances. Leadership recognized as a dynamic social phenomenon subject to change, as evidenced by recent studies that have fostered the emergence of people-oriented approaches emphasizing freedom and adaptability in leadership (Demir et al., 2010, p. 134).

2.4 Digital Leadership

At the outset of the digital era, the term "electronic leadership" emerged, signifying leadership that leverages information and communications technology (ICT) to support organizations (Dasgupta, 2011; Li et al., 2016). With the swift progression and the consequent rise of knowledge-based societies, the term has transformed into digital leadership. As per Oberer and Erkollar (2018), “digital leadership is delineated as leadership within a knowledge-based society comprised of digital companies and organizations.”

Walsh and Volini (2017) characterize digital leadership as” a pursuit to enhance businesses by nurturing a culture of creativity, taking calculated risks, and perpetuating digital transformation.” De Waal1 et al. (2016)define digital leadership as “the amalgamation of a leader's competency and culture to harness digital technology for organizational value generation.” According to El Sawy et al. (2020), it embodies the capability to apply business strategy, models, company platforms, alternative modes of thinking, and digital skill sets. Miller (2018) describes digital leaders as those utilizing a diverse range of technology to improve conditions, well-being, and lives.

Cortellazzo et al. (2019), assert that a digital leader is tasked with formulating digital strategies and implementing digital changes within organizations. Sagung and Darma (2020) characterized digital leaders as adept individuals in leveraging technology,

managing specialized talent, and achieving goals, particularly in balancing technology use and human resources.

The body of research emphasizes the significance of digital leadership, particularly when it comes to its intersection with transformational leadership. A digital leader that is committed to transformation must take an approach that empowers people and fosters innovation in the workplace (Judge & Bono, 2000; Kieser, 2017). It underscores the necessity for digital leaders to act proactively in attaining organizational goals (Prince, 2017). Qualman (2012) defines digital leadership as “embracing change, adaptability, and inspiration in the digital age.” Schiuma et al. (2022) define a digital leader as “an individual who believes that continuous innovation ensures organizational sustainability and instigates commitment from all members towards the principles of ongoing transformation.”

According to the literature (Cortellazzo et al., 2019; Dasgupta, 2011; De Waal1 et al., 2016; O. A. El Sawy et al., 2020; Li et al., 2016; Oberer & Erkollar, 2018; Qualman, 2012; Sagung & Darma, 2020; Schiuma et al., 2022b; Walsh & Volini, 2017), there is no unified definition of digital leadership agreed upon among researchers. The literature emphasizes the essentiality of leaders possessing digital competencies and cultivating a culture conducive to digital transformation within the organizational framework. It further entails adeptly engaging with diverse technologies, proficiently managing human resources, fostering employee motivation, and promoting a culture of creative thinking. Additionally, digital leadership necessitates alignment with business strategies and an unwavering commitment to perpetual transformation and innovation.

Based on these elements, the researcher suggests an operational definition: “Digital leadership is the possession by the administrative leaders of the Ministry of Education of a shared vision and the ability to develop plans to implement them and possess the necessary digital competencies that qualify them to innovate modern digital methods to solve problems and develop business using digital technologies.”

2.4.1 The Importance of Digital Leadership

To transform traditional bureaucratic processes into streamlined, efficient, and citizen-centric services, enterprise digital leaders enable their teams to embrace technological advancements and adopt agile, user-centric approaches. What makes digital leadership so crucial are the benefits it provides to businesses. After reviewing pertinent literature, the researcher thinks that organizations can benefit from digital leadership in the following ways (Abu Hayya, 2021; El Sawy et al., 2020; Mihardjo et al., 2019; Sağbaş & Erdogan, 2022; Zhong, 2016).

- Digital leadership sets goals and objectives and ensures that digital technologies are used to achieve those goals.
- Encourages experimentation and constant improvement, which sparks creativity across the entire organization.
- Find opportunities for digital technologies to automate tasks, increase efficiency, and streamline operations, facilitated by effective digital leadership. assures the implementation of digital tools and systems that boost workers' efficiency and productivity.
- Digital leadership enhances methods of collecting, analyzing, and interpreting data for use in decision-making, measuring performance, and identifying opportunities for improvement.

- Digital leadership enhances collaboration and communication between teams, departments, and stakeholders. This creates an environment that encourages teamwork and cross-functional collaboration.
- Offers training programs to give staff members the tools they need to succeed.

The objectives of digital leadership

- Develop a digital culture that encourage on change, innovation, and continuous learning.
- Enhancing the organization's digital capabilities and competencies.
- Improve operational efficiency and effectiveness using digital technologies and processes.
- Increasing focus on the audience of beneficiaries by utilizing digital tools and data to better understand and meet customer needs.
- Guarantee the safety and authenticity of digital resources, systems, and information.

2.4.2 The Digital Leadership Dimensions

Drawing from the extensive examination of earlier research, the subsequent table encapsulates the dimensions of digital leadership that have been employed in prior studies.

Table 2.1: Digital leadership dimensions – Literature analysis

No.	Sources	Dimensions
1.	(Mihardjo & Rukmana,2018)	creativity, thoughtfulness deep knowledge, global vision, collaboration, and curiosity
2.	(Husban et al., 2021)	creativity, thoughtfulness deep knowledge, global vision, collaboration, and curiosity
3.	(Busaily, 2022)	planning with a vision, experience, innovation, and initiative
4.	Al-Faris (2022)	innovation, persuasion, and knowledge
5.	(Zhong, 2016)	visionary leadership, digital learning culture, digital citizenship, systemic improvement, and excellence in professional practice
6.	(Domeny, 2017)	transformational leader, visionary leadership, digital learning culture, digital citizenship, systemic improvement, and excellence in professional practice
7.	(Abu Hayya, 2021)	equality and citizenship, visionary planning, empowerment of leaders, system design, and continuing professional learning
8.	(Tanucan et al., 2022)	equality and citizenship, visionary planning, empowerment of leaders, system design, and continuing professional learning
9.	(Kamal & Mahmoud, 2022)	digital learning culture, visionary leadership, and digital citizenship
10	(Al-Fahdawi, 2022)	digital competence, digital insight, digital literacy, and digital strategy
11	(Al-Shamrani, 2023)	innovation, persuasion, and knowledge
12	(Al-Damaty, 2023)	Innovation and supportive

The table above provides a summary of the dimensions of digital leadership used by previous studies. The current study used the most frequent dimensions, which are visionary leadership and innovation, and the researcher combined the dimensions of

digital knowledge, digital culture, digital literacy, and digital experience into one dimension, which is digital competencies.

Which includes the knowledge, skill, and ability that the individual possesses, which he needs to understand and use digital technology (European Commission, 2018), noting that the use of the digital competencies dimension as one of the dimensions of digital leadership is consistent with the study of (Al-Fahdawi, 2022). The dimensions of digital leadership used in the current study are as follows:

Digital Competencies

Digital competencies, as defined by the European Commission (2018), "encompass the confident, critical, and responsible use of digital technologies for learning, work, and societal participation. These competencies represent a harmonious blend of knowledge, skills, and attitudes."

The European Commission has developed a framework to assist individuals and organizations in understanding, assessing, and improving digital competence. This framework referred to as the Digital Competence Framework, abbreviated as DigComp (European Commission, 2018). It encompasses five primary areas of digital competence:

- Information and Data Literacy: This involves the ability to find, evaluate, and manage digital information efficiently. It also includes skills related to data processing and interpretation.
- Communication and Collaboration: This area focuses on using digital tools and technologies for effective communication, collaboration, and participation in digital networks.

- Digital Content Creation: Digital competence requires the ability to create and edit digital content, including text, images, and multimedia, using appropriate tools and software.
- Safety: Safety encompasses online security, privacy, and responsible behavior when using digital technologies. This includes understanding the risks associated with online activities and taking measures to protect oneself and others.
- Problem Solving: Digital competence involves the ability to use digital tools to solve problems, analyze situations, and make informed decisions. This includes critical thinking and adaptability in a digital context.

Visionary Leadership

Effective digital leaders can envision a future that goes beyond their current reality. They also establish a shared vision and plan to reach that destination (Erhan et al., 2015). Leadership involves employees setting a vision and a clear plan to implement it, and leaders do the following: (Abu Hayya, 2021)

- Involve employees in developing a shared vision.
- Collaboratively create a plan with clear goals.
- Continuously evaluate the plan.
- Communicate effectively with stakeholders.
- Disseminating best practices, challenges, and lessons learned in the organization.

Innovation

Innovation is the unconventional generation of work, either individually or collaboratively, marked by the implementation of viable and fitting ideas within specific contexts. This creative process may originate from internal motivation, where a leader is intrinsically compelled to cultivate a creative atmosphere, attain goals, and produce innovative outcomes for both them and their team. Conversely, innovation can arise externally, emerging in response to challenges and hurdles faced by organizations and their leaders. This external impetus drives leaders to make a substantial and transformative contribution by creatively addressing these challenges (Delanoy & Kasztelnik, 2020).

Talking about the traits of innovative leadership is no different from discussing innovation theories and the innovative person (Somsueb et al., 2019). The following characteristics can be considered characteristics of innovative leadership.

- Confidence: the leader trusts himself, his abilities, and the abilities of others.
- Deduction and imagination; the capacity to put creative concepts into practice; by his capacity to question and analyze phenomena, which prompts him to come up with novel answers.
- The ability to establish broad relationships with others and benefit from their opinions.
- Audacity and calculated risk so that he leads his team to present new ideas.
- The innovative leader's curiosity towards searching for everything new.
- Change leadership; You respond quickly to change and deal with it positively through cooperation with others and work teams.

- The ability to analyze problems and suggest approaches and ideas to solve them.

Considering the foregoing, innovative leadership has creative capabilities to develop work, through the ability to solve problems using digital technologies and present creative ideas, they have high flexibility to accept change and adapt to changes, and they can establish supportive relationships for change using digital technologies.

2.5 Digital Transformation

2.5.1 Introduction

Since the advent of digital communication tools in the 2000s, consumers' expectations have changed significantly regarding response times and the availability of multiple communication channels. Businesses are starting to realize that they can interact with consumers directly through digital means, frequently in real time (Schallmo et al., 2018).

Governments now must take on more roles and responsibilities to fulfill the demands of their societies in the digital age (Salaeimi & Boshi, 2019).

2.5.2 The Concept of Digital Transformation

Definitions of digital transformation have varied among researchers according to their field and research vision. Vial (2021, p. 3) defined it as “continuous changes based on digital technologies in response to technological development, with the aim of creating value and bringing about radical changes in administrative processes within the organization.” Hammad (2020, p. 432) defined digital transformation as “the process of organizations transitioning to a business model that relies on digital technologies in creating products and services and providing new channels of revenue and opportunities that increase the value of their product.” Salaeimi and Boshi (2019, p. 947) define digital transformation as “the ability of companies and government institutions to adapt and

respond to rapid technological changes by changing their business models and operations."

The Organization for Economic Co-operation and Development (OECD) defines digital transformation as "digital transformation refers to the economic and societal effects of digitization and digitalization. Digitization is the conversion of analog data and processes into a machine-readable format. Digitalization is the use of digital technologies and data as well as their interconnections that lead to new activities or changes in existing ones" (OECD, 2018, p. 8). While Balochi et al. (2020) defines digital transformation "as a government project that includes all the services of the various institutions and sectors in the country and is manifested in the transformation of vital and basic services related to serving individuals, institutions, and various investments from their traditional form to the smart electronic form, depending on modern and advanced technologies."

The researcher thinks that since definitions of digital transformation vary depending on the goals of the researcher, there is no universally accepted definition. As a result, the researcher suggests the following procedural definition of digital transformation: "a change process to replace its antiquated paper-based transactions and correspondence system with an advanced digital system built on technology, both in terms of service delivery and operational management."

2.5.3 Importance of Digital Transformation

Digital technologies enhance development and ensure its sustainability, so digital transformation is of interest to institutions (Al-Mutarrif & Abdul Rahman, 2020). Researchers (Al Najjar et al., 2023; Allam, 2022; Balochi et al., 2020; Chen et al., 2021; Hai et al., 2021; Hammad, 2020; Mahmoud & Salah, 2016) highlighted the positive

outcomes associated with adopting digital transformation, emphasizing its advantages and potential contributions to various aspects of organizations and industries.

- Cost reduction is one of the main goals of employing digital tools. Cloud storage solutions such as Google Drive, Dropbox, and OneDrive can take the place of more conventional storage techniques, saving money on long-term data maintenance and increasing accessibility for all staff members.
- Enhanced productivity: Using contemporary digital technology tools has the additional benefit of enhancing organizational productivity across the board.
- Encourage collaboration using digital tools in any workplace; employee collaboration is a critical component. Team members in various places can work together easily because of communication tools.
- Simplifying procedures: through redesigning procedures, deleting extra stations, and reducing the time it takes to complete tasks.
- Improving the user experience, which focuses on improving the user interface, citizen satisfaction, and providing the service quickly and at the lowest cost

Given the advantages that digital transformation offers to citizens and government institutions, as well as its role in fostering improved relations and achieving satisfaction, trust, and transparency between the two, it is no longer just a luxury or a need for development for institutions in providing services and their relationships with customers or citizens. Rather, it is now an urgent necessity.

2.5.4 Motives for Digital Transformation

To determine the most important of these motivations, Deloitte conducted interviews with more than 1,200 government agencies to determine the most important governments' motivations for digital transformation (Salaeimi & Boshi, 2019). These motivations were as follows:

- Costs and budgetary pressures: Measures taken by governments to save costs and implement effective government operations are among the most important drivers of digital transformation.
- Customer and Citizen Requirements: Due to the pervasiveness of digital technologies in their daily lives and the deep cultural roots of social media and other apps, the so-called "digital" generations—Gen Z, born in the first decade of the twenty-first century, and Generation Y, born between 1980 and 2000—are driving a radical transformation of society. Their persistent demands for higher-quality services, particularly government services, are no longer acceptable, nor are the traditional methods of receiving services (Henriette et al., 2016, P. 2).
- Government directions: After the government realized the importance of digital transformation, it became necessary to take quick and effective steps towards including digital transformation programs in its list of priorities and planning for its implementation quickly and effectively.

2.5.5 Digital Transformation Requirements

Previous studies (Al Najjar et al., 2023; Al-Jarboui, 2022; Balochi et al., 2020; Rashwan & Abu Arab, 2022) indicated a set of requirements for implementing a successful digital transformation in institutions. Among these requirements:

- Accurately defining the vision of what the organization wants to achieve from digital transformation in the future, and continuously reviewing the digital transformation plan.
- Leadership and administrative support for digital transformation efforts and providing the necessary resources and legislation for it.
- Developing flexible and effective organizational structures to achieve digital transformation, with a focus on creating effective work teams.
- Building a digital transformation strategy depends on analyzing processes, procedures, and audience requirements, identifying strengths and weaknesses, and scanning opportunities and threats.
- Focus on the technological dimension: The IT infrastructure must be renewed, and modern hardware and software must be provided.
- Continuous development of the organization's human resources through training and self-development programs.
- Spreading the culture of using technology and changing the prevailing organizational culture to successfully achieve digital transformation.

At the level of requirements for implementing digital transformation in the Palestinian Ministry of Education; The researcher believes that there are three important elements that work in an integrated manner to implement digital transformation, which are the human component of leaders and employees, the technical component and infrastructure, and the needs of the audience who benefit from the services provided by the ministry.

At the level of leaders and employees, The researcher believes that building an accurate vision, guidance and support, spreading an organizational culture supportive of digital transformation, and building a flexible organizational structure, in addition to developing

employees' capabilities, can be achieved through strong leadership that provides the required support and financial, technical, and human resources. This strong leadership needs to have a clear vision and involve employees in the process of planning for digital transformation, in addition to this leadership possessing digital capabilities that enable them to innovate and find appropriate digital solutions to problems, processes and procedures.

As for the technical requirements and needs of the audience benefiting from the services; Providing technologies appropriate to the needs of the ministry and its audience will lead to the success of the ministry's digital transformation efforts. According to (Hanif, 2023), 70% of digital transformation attempts fail due to incorrect strategies and technologies. In addition, determining the success or failure of digital transformation efforts may be one of the main reasons for the satisfaction of the beneficiary audience. Of electronic services.

2.5.6 Digital Transformation Technologies

Providing value to customers through the process of integrating digital solutions into operations within organizations requires providing digital technologies that are appropriate to the organization's requirements and the needs of its customers. Among these technologies that constitute an important support for digital transformation efforts are the following (Hanif, 2023; Sabah, 2021):

- Cloud computing is an important element of digital transformation as it provides flexibility, reduces cost, and provides data security. Traditional storage services are not sufficient to handle large amounts of data cost-effectively and securely.
- Mobile Technology: through which the customer can follow all the services, updates, and news that interest him, in addition to completing a lot of work that

requires some time and effort. Such as purchasing and booking airline tickets, paying bills, completing banking transactions, etc.

- Internet of Things (IoT): It is a technology that allows different devices to communicate with each other and share data between them, which helps improve productivity and improve the customer experience.
- Social media networks: These are technologies that allow remote communication and cooperation between workers in institutions, and include technologies such as video conferencing, instant communication, and teamwork techniques.
- API-Based Integrations: API integration is a crucial technology utilized in digital transformation platforms, facilitating seamless data exchange between systems. It functions as a central hub for programs based on their APIs, enabling a smooth dialog flow by detecting intent requests and responding with the appropriate API.
- Big Data and Real-Time Analytics: Big data and its analysis tools that help in making decisions.

Despite the large number of applications that support digital transformation, some of these applications receive more attention than others in terms of their strategic importance in driving digital transformation and its success, in a survey conducted by PricewaterhouseCoopers (PwC) (PricewaterhouseCoopers, 2015), the eighteenth annual global survey. For CEOs entitled "A Market Without Borders? The Answer to Disruption." The company surveyed 1,322 CEOs of companies located in 77 countries and asked the CEOs of these companies the following question: “How strategically important are the following categories of digital technologies to your organization?” 81% of CEOs indicated that mobile technologies are of strategic importance to their business, data mining and analysis came in second place in terms of strategic importance at 80%,

and cybersecurity came in third place at 78%. The figure below (2.1) shows the ranking of technologies in terms of strategic importance from the perspective of the participating CEOs.

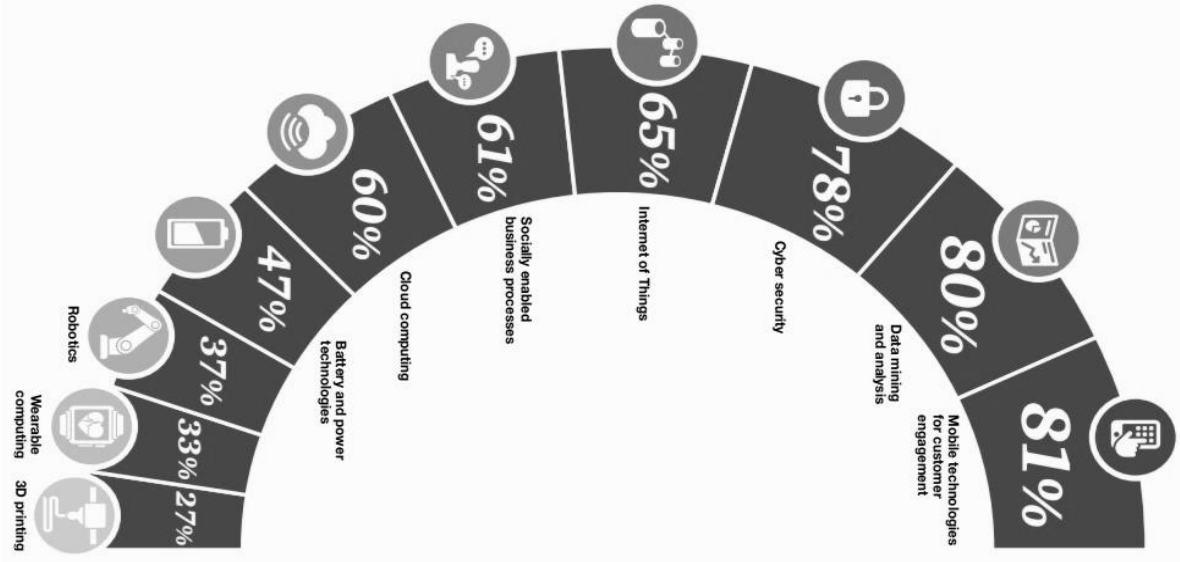

Figure 2.1: The ranking of technologies in terms of strategic importance.
Source (PricewaterhouseCoopers, 2015, p. 18)

In the Palestinian context, the researcher believes that one of the most important technologies that institutions must have been smartphone applications, given that access to the largest segment of society is available, as the percentage of smartphone ownership among individuals in Palestine aged 10 years and above reached 73% by the end of 2022 (Palestinian Central Bureau of Statistics, 2022). It is also necessary to provide data security technologies and benefit from cloud storage services due to the reduction in cost, speed of access to data, and technical support quickly available from international hosting companies.

2.5.7 Obstacles and Challenges in the Digital Transformation Process

The process of digital transformation in institutions faces a set of challenges and obstacles that limit their effectiveness and ability to achieve their goals, and institutions constantly strive to overcome them to achieve a successful digital transformation. Among these obstacles are the following (Al-Masdar & Nasrallah, 2020; Hai et al., 2021; Shehada, 2022):

- A lack of qualified human competencies to lead the application and management of new technology in institutions. The reason for the lack of competencies may be due to the lack of training and development for employees to ensure their ability to use new technologies effectively.
- The lack of technical infrastructure necessary for digital transformation, including communication networks, the Internet, computers, smart phones, cloud computing, and the necessary software and applications. This shortage will constitute an obstacle to the efforts of implementing digital transformation for institutions.
- Lack of financial resources, which is an important factor affecting the ability of government institutions to implement digital transformation projects.
- Cybersecurity and data protection: Digital transformation is a source of increased reliance on information technology and data transmission across the network, making organizations vulnerable to cyber threats and data theft.
- Cultural and organizational challenges: Government institutions may face difficulty in changing organizational culture and adopting new work methods related to technology. Employees may also face resistance to learning and using new technologies.

- Legal and regulatory challenges: Organizations may face legislation and regulations that limit their ability to implement some technical solutions or digital transformation projects.
- Cultural and social transformation and building confidence in digital transformation: Digital transformation may face resistance from some communities or groups that may not be ready to fully integrate into the digital environment due to a lack of confidence in technological solutions for fear of the risks resulting from it, such as piracy and electronic fraud.
- Weakness in the process of planning and building appropriate strategies for the digital transformation process within institutions.

In the Palestinian context, there are additional obstacles to implementing digital transformation, represented by the siege imposed by the Israeli occupation and the resulting poor economic and political conditions. Among the obstacles to implementing digital transformation in Palestine are the following (Al-Masdar & Nasrallah, 2020; Sabah, 2021; Shtayeh et al., 2023):

- Lack of supervisory role and weak measurement indicators: Palestinian institutions lack a supervisory role in implementing digital transformation plans. There is also a deficiency in measurement indicators necessary to track progress and achievement in employing digital technology in government institutions.
- Dependency on external funding: Digital transformation efforts in government institutions rely heavily on external funding, which is often characterized by fluctuations and irregularities. This dependency hampers the smooth execution of digital transformation plans and projects.

- Weak data governance: Data governance is inadequate, with databases varying significantly between ministries in terms of storage and preservation mechanisms. Most responsibility centers lack automated services due to the absence of analysis of work processes. Establishing standard work procedures before digitization and creating electronic interconnections between ministries with overlapping tasks are crucial. There is a pressing need to develop a unified, instantly updated database at the state level.
- Weak legislation and laws: Legislation regulating the digital transformation process is lacking or inadequate. Essential laws that need approval or development include the Personal Data Protection Law, the Law on the Right to Obtain Information Electronically via the Internet, the Law on Preserving and Sharing Data, its Security, and Confidentiality, and the Law on the Use of Digital Services.

In the context of the Ministry of Education, the researcher identifies the following prominent obstacles and challenges facing the digital transformation process:

- Lack of Legislation on Electronic Transactions: There is a deficiency in legislation at the ministry level concerning electronic transactions, including electronic authentication, electronic signature, and digital identity. The completion of electronic transactions still relies on traditional paper methods for necessary signatures and ratifications.
- Absence of Electronic Interconnection with Other Ministries: There is no electronic interconnection between the Ministry of Education and other ministries with overlapping tasks, such as the General Personnel Office, the Ministry of Finance, and the Ministry of Health. Correspondence with these ministries still occurs through traditional paper methods, hindering efficiency and integration.

- Lack of Application Integration through API Technology: There is a lack of integration between the applications used by the Ministry of Education through Application Programming Interface (API) technology. This absence inhibits seamless communication and data exchange between different systems, impeding the optimization of digital processes.
- There is no unified login system that is used to access all applications and digital services provided by the Ministry, which reduces the degree of security as well as improving the user experience.

2.5.8 The Digital Transformation Dimensions

Drawing from the examination of earlier research, the subsequent table encapsulates the dimensions of digital transformation that have been employed in prior studies.

Table 2.2: Dimensions of digital transformation - Literature analysis.

No.	Researcher	Dimensions
1.	(Henriette et al., 2016)	The digital technologies, and the user experience
2.	(Chen et al., 2021)	Organizational, process and system, customers, and products
3.	(Balochi et al., 2020)	Plans and strategies, human resources, security and legislation, and infrastructure
4.	(Al-Shehri & Abdel-Khair, 2023)	Human resources, digital culture, digital technologies, and operations
5.	(Allam, 2022)	Digital transformation strategy, technical requirements, the culture of digital transformation, procedural requirements, and human requirements
6.	(Al Najjar et al., 2023)	Plans and strategies, material resources, leadership, organizational culture, infrastructure, human resources, and administrative support
7.	(Ali Shaded & Mustafa, 2021)	Strategy, organizational culture, transformational leadership, and human resources

To evaluate the level of digital transformation in the Ministry of Education, the researcher used the dimensions most frequently mentioned in previous studies shown in the table above. The researcher identified four main dimensions of digital transformation, which are:

Plans and Strategies

Planning is an essential first step in any transformation process because it focuses administrative attention on goals and then turns those goals into concrete reality. Plans and strategies are essential tools for conducting digital transformation. These plans' lucidity and accuracy are crucial in determining how well a nation's efforts at digital transformation turn out (Manenji & Marufu, 2016).

According to Sousa and Rocha (2019), crucial elements may be considered when developing a digital transformation strategy.

- Including human resources, information technology, and communication in the plan.
- Ensuring that the plan is flexible and can change to meet the rapidly evolving and constantly changing information technology landscape.
- Being ready to adopt any changes required by the digital transformation process.
- Having the essential resources, including financial, administrative, and human capabilities.
- Designating a responsible entity for overseeing and closely monitoring the transformation process.

Organizational Culture

Employees within an organization share a common set of foundations, values, and concepts that make up its organizational culture. The intricate framework referred to as organizational culture comprises the values, assumptions, and beliefs upheld by individuals within the organization. These elements are closely related to the strategic

directions that the organization chooses to pursue. Organizational culture is embodied in the beliefs, roles, behaviors, and habits that its members hold. It also establishes the future and the method for conducting the various stages of the project, which can only be effectively accomplished by measuring the daily work (Nizar and Ibrahim, 2021).

Human Resources

Human resources constitute the cornerstone of digital transformation and serve as a vital indicator of a country's readiness for this transition. This readiness encompasses having a pool of skilled professionals capable of advancing e-government initiatives and effectively utilizing them to support governmental objectives. Furthermore, it is imperative that the public, as end-users, possess the ability to readily access and utilize these technologies (Badir, 2020). Moreover, human factors play a crucial role in addressing security vulnerabilities, often stemming from a lack of knowledge or technical expertise. Hence, it becomes the responsibility of relevant authorities to promote technical literacy among the public and to provide training to enable the workforce to effectively harness information technology in alignment with the needs of both the public and institutions. Ensuring the presence of information technology specialists and aligning their tasks with their skills and qualifications is of paramount importance (Sousa & Rocha, 2019).

The Technical and Infrastructure

The technical dimension in institutions is represented by the physical equipment of computers, software, and the infrastructure of communications networks necessary to use various applications. To achieve this dimension, the following components must be available (Dong et al., 2016):

- Technical devices (computers, interactive screens, cameras, broadcast, and transmission devices).
- The presence of modern applications to deal with big data.
- High-speed Internet network.

2.6 Digital Transformation in the Palestinian Government Sector

Since the emergence of digital communication tools and their prominent role in enhancing services, countries have swiftly worked to meet the needs of their societies and benefit from it by transforming the way services are provided using information and communications technology. The State of Palestine is actively seeking to harness advancements in the field of communications and information technology to transform the way it delivers services to citizens, ensuring a reduction in effort, time, and cost. To achieve this goal, it is crucial for the information and communications technology (ICT) sector in Palestine to align with the government's digital transformation initiatives. and develop plans, strategies, and initiatives for actively implementing digital transformation across Palestinian governmental institutions.

In the Palestinian context, data from the Palestinian Central Bureau of Statistics (2022) reveals that 92% of households in Palestine have access to Internet service at home, either directly or through one of their members. The ownership of smartphones among individuals aged 10 years and older reached 73% by the close of 2022. Additionally, 41% of economic institutions utilized computers for their daily operations, and 61% of these institutions had Internet access for work-related purposes. Notably, 53% of economic institutions received requests for goods or services through online platforms.

While the number of electronic services provided by government institutions in Palestine reached 42 (Ministry of Communications and Information Technology, 2023), to increase

the number of electronic services, the Palestinian government launched a project to develop digital services, funded by the World Bank, at a total cost of 20 million US dollars until the end of the year 2026 (World Bank, 2023).

Given this information, the researcher contends that the evident embrace of technology within Palestinian society provides a valuable opportunity to expedite the implementation of digital transformation initiatives. This can be achieved by expanding the array of electronic services and introducing digital educational platforms aimed at guiding individuals on how to effectively utilize these services.

2.6.1 Objectives of Digital Transformation in Palestine

In its belief that the way it provides services may change and evolve in response to the fourth industrial revolution, the Palestinian government launched a development plan with clusters, including the technology and management cluster, as part of its efforts to enhance and advance its performance and to stay up to date with changes occurring globally. This integration of technology and administration demonstrates the degree of awareness within the Palestinian government regarding the significance of using technology to support public administration. According to the Prime Minister's Office (2021), the following are the objectives that the Palestinian government hopes to accomplish through the Technology and Management Cluster:

- Increase efficiency and improve services, improve communication, and provide government services more easily and effectively, which improves the experience of citizens and contributes to enhancing trust between citizens and the government.
- Provide information and transparency: Digital transformation works to provide and exchange information faster and more transparently, which enhances

transparency and accountability in government work and reduces opportunities for corruption.

- Improve the planning and decision-making process by providing analytical tools and data management systems that help analyze information and make strategic decisions based on solid evidence. This allows the government to analyze data, identify needs and challenges, and better plan policies and programs.
- Improved coordination and cooperation between the various departments and ministries is made possible by the cooperative use of digital platforms and systems, which facilitate information sharing and teamwork in the workplace.
- Promote economic development: Digital transformation contributes to supporting economic development by promoting innovation, encouraging digital entrepreneurship, and providing new job opportunities.

2.6.2 National Policy for Digital Transformation in Palestine

The Palestinian government embraced a digital transformation policy at the national level, as indicated by the Minister of Communications and Information Technology, Ishaq Seder, at the Plenipotentiary Conference of the International Telecommunication Union. According to Sidr (2022), the digital transformation policy aims to:

1. Improve government performance in providing services.
2. Deliver government services electronically.
3. Transform Palestinian post offices into digital access points that will be available to all citizens.
4. Improve excellence, creativity, and innovation among citizens.
5. Improve employment opportunities, reduce unemployment, and empower youth.

6. Advance economic progress and openness to markets by activating electronic commerce tools and adopting the Palestinian postal code.

2.6.3 The Ministry of Education and Digital Transformation

Governmental organizations have started to put their plans into action and present policies for digital transformation after the Palestinian Council of Ministers approved the national digital transformation policy. One such entity is the Ministry of Education, which initiated a digital transformation policy focused on the efficient utilization of technology in March 2022. The execution of the transformation is underway, particularly evident in the digitization of human resources management. This involves self-service options accessible through web browsers or mobile applications.

In addition to facilitating administrative transactions in all their facets, speed of implementation, ease of follow-up, and evaluation of the workflow in the Ministry and the educational field in general, the Ministry's digital transformation attempts to empower and fortify the field of education and encourage decentralization (WAFA Agency, 2022).

2.7 Previous Studies

The topic of digital leadership and digital transformation has received the attention of researchers and scholars. The following is an analysis of studies that were conducted in the field of the current study, either directly or in general. The objective, methodology, data collection tool, and most important findings and recommendations were identified. The studies have been arranged in chronological order, from newest to oldest.

2.7.1 Studies Related to Digital Leadership

- **A study entitled "The Role of Digital Leadership in Achieving Organizational Brilliance"** (Al-Fahdawi, 2022).

This study aimed to identify a critical challenge faced by modern organizations, especially within the Iraqi context, which is the rapid progress in technology. The study emphasizes the necessity for ongoing initiatives in change and organizational development to adapt to these technological advancements. The research specifically delves into examining how digital leadership contributes to achieving the highest levels of organizational brilliance in performance within telecommunications companies in Iraq. The focus is on understanding the relationship between digital leadership and organizational brilliance, as well as assessing the extent to which digital leadership can impact organizational brilliance in Iraqi telecommunications firms.

The descriptive analytical methodology was used to describe and analyze the study problem, and the study population consisted of managers in Iraqi telecommunications companies (Asia Cell, Korek, and Zain Iraq), where the sample size was 102 managers, and the questionnaire was used for collecting data.

According to the study's findings, there is a statistically significant relationship between digital leadership and organizational brilliance as well as a positive correlation between

the two. The study concentrated on the need for leaders to have a digital vision and to always be prepared to create flexible digital strategies that will raise employees' levels of brilliance and boost organizational performance.

- **A study entitled "The Impact of Digital Leadership on Employee Performance in Kuwaiti Hospitals"** (Al-Faris, 2022).

Considering potential crises like the Corona pandemic, the study sought to emphasize the importance of enhancing employee performance, particularly in the health sector. It also sought to determine the effect of digital leadership on the employee's performance in the context of the State of Kuwait.

The descriptive analytical methodology was applied in this study, and data were gathered via a questionnaire. 12,006 administrators working in Kuwaiti hospitals made up the study population. The study sample consisted of 372 employees.

The study produced findings, the most significant of which is that digital leadership; including its dimensions of innovation, persuasion, and knowledge has a statistically significant impact on employee performance. The study demonstrated that the innovation dimension had no statistically significant impact on employees' performance, but the knowledge dimension was found to have the greatest influence.

- **A study entitled "Digital Leadership and Organization Performance: The Mediating Role of Innovation Capability"** (Husban et al., 2021).

This study delves into the connection between organizational performance and digital leadership and the mediating effect of innovation capability. In the ever-evolving landscape of contemporary business, organizations face the imperative to embrace digital leadership strategies to navigate challenges and optimize performance. By examining the role of innovation as a mediating factor, this research aimed to provide insights into how digital leadership practices contribute to organizational success, particularly shedding light on the transformative impact of innovation in enhancing overall performance.

The researcher employed structural equation modeling (SEM). The study cohort comprised senior managers from 130 industrial companies in Jordan, with data collection facilitated through a questionnaire administered to a sample of 248 managers.

The results of the study demonstrated that digital leadership has a positive impact and improves an organization's performance, indicating the necessity of integration between leadership capabilities and technological capabilities through vision, cooperation, and deep knowledge of the field of technologies and their importance. The research shows the effective impact of digital leadership on the ability to innovate, in addition to the role innovation plays in mediating and enhancing performance. Organizational, both of which are essential to overcoming crises and emergencies.

- **A study entitled "The degree of digital leadership practice among UNRWA school principals in the southern governorates of Palestine and ways to improve it"** (Abu Hayya, 2021)**.**

The purpose of the study was to clarify the practices conducted by school principals in the southern governorates of Palestine and to evaluate the level of digital leadership practice by school principals. The main instrument used by the researchers to collect data for their descriptive analytical method was a questionnaire. The study found that the school principals' practice of digital leadership was at an average level, with a relative weight of 64.02%. Notably, the educational district variable produced statistically significant differences in average ratings; no such differences were found for other variables, including gender, years of service, educational stage, academic qualification, and specialization. The sample comprised 522 male and female teachers. Based on their findings, the researchers recommended organizing a scientific conference by the United Nations Relief and Works Agency department of education, providing a platform for principals to highlight technological best practices, and incorporating international standards from the International Association for Technology into the training and education of school leaders.

- **A study entitled "The Impact of Digital Leadership on Organizational Culture Adoption"** (Al-Taie & Al-Hadrawi, 2021)**.**

This study aims to know solutions that companies can use in the context of their continuous efforts towards employees adopting organizational culture in the Iraqi context and the impact that digital leadership can have on the development of employees and its beneficial impact in shaping and adopting the organization's culture.

The research used the descriptive method and a questionnaire to collect data. The study population consisted of senior employees in the Najaf Directorate of the Iraqi Ministry of Education, and the study sample consisted of eighty-five officers.

The study showed that digital leadership in its dimensions (innovation, persuasion, and knowledge) has a positive effect on organizational culture. And that applying digital leadership accelerates the development of employees and the adoption of organizational culture.

- **A study entitled "The Effectiveness of Digital Leadership at K-12 Schools in Mississippi Regarding Communication and Collaboration During CCRS Implementation"** (Zhong, 2016)**.**

The main goal of this study was to assess how well digital leadership promotes education. To collect data from teachers and school principals, the study used mixed research methods. Following the college and career-ready standards implementation process, ten Mississippi public school principals were observed and interviewed. A qualitative analysis of these interactions revealed a range of strategies employed to enhance teacher collaboration and communication. Personalized professional development, peer modeling, digital governance, training, social media use, website usage, online learning, digital teaching, organized meetings, group projects, and data analysis were these strategies. A culture of digital age learning, visionary leadership, and methodical improvement were hard to establish for principals, despite their greater success in promoting professional development and digital citizenship, according to the findings of the study's quantitative section, which included 254 teachers.

- **A study entitled "Leadership in the Digital Age: Effects of Digitalization on Top Management Leadership"** (Khan, 2016)**.**

This study focused on the leadership styles used by senior management employees and organizational leaders and how digitalization affects them, specifically values-based, transformational, and authentic leadership. Using a mixed-methods approach, the study found six characteristics of digitalization and examined how they impact leadership through interviews with thirteen chief executive officers and organizational leaders, as well as a comprehensive literature review.

The findings point to significant shifts in leadership styles and show how digital tools are changing the ways in which leadership is expressed, promoted, and empowered. Due to digital transformation, even the smallest details regarding driving styles are changing dramatically. The study also recommended the need to conduct more studies on how digitalization affects other aspects such as integrity, listening, and respect for followers, because this would expand understanding of the impact resulting from digital change on business and society, as well as on leadership in institutions.

- **A study entitled "The Relationship Between Digital Leadership and Digital Implementation in Elementary Schools"** (Domeny, 2017)**.**

The research sought to determine the benefits that can be achieved by integrating technology and innovation within the framework of transformational leadership theory, which believes in change, by determining the significance level of the relationship between school principals' digital leadership and teachers' self-efficacy.

Using the qualitative descriptive methodology, the study used two questionnaires as tools for collecting data. one for teachers and the other for principals. The study samples 358 teachers and 260 principals.

The results of the study showed that there is a weak and statistically insignificant relationship between school principals' digital leadership and teachers' technological self-efficacy. This suggests that although digital leadership is important, teachers' use of technology may not be significantly affected by it. The study emphasized the importance of school principals adopting a transformational leadership approach to foster a creative environment for technological integration. Recommendations include bridging the experience gap among teachers, instilling a culture of innovation, and remaining vigilant in supporting stakeholders in adapting to evolving digital developments in education.

2.7.2 Studies Related to Digital Transformation

- **A study entitled "The Impact of Digital Transformation in the Strategy of the Job Performance Appraisal for Teachers in Public Schools from their Principals' Point of View"** (Abu Hashish and al-Halimi, 2023)**.**

From the viewpoint of school principals, this study investigates how the digital transformation has affected the method used in Palestinian public schools to assess the work performance of teachers. The study used descriptive analytical methodology, and a questionnaire was used to collect data. the study sample of eighty-two principals.

Based on the responses from school principals, the digital transformation in the Palestinian Ministry of Education is deemed average, with a relative weight of 64.22%. Conversely, the method of assessing public school teachers' work performance from their principals' perspective scored a high score of 70.44%. The research demonstrated that

there is no statistically significant positive correlation between the job performance evaluation strategy and the planning dimension of digital transformation.

However, a statistically significant correlation was discovered between institutional preparedness for digital transformation and the job performance evaluation strategy. The study also found that the strategy for evaluating job performance and the aspect of getting leaders ready for digital transformation do not statistically significantly positively correlate.

- **A study entitled "The Reality of Digital Transformation in Non-Governmental Organizations in Palestine"** (Al Najjar et al., 2023)**.**

This study explores the current state of digital transformation within non-governmental organizations (NGOs) in Palestine. It may shed light on how Palestinian nongovernmental organizations navigate the integration of digital technologies to enhance their operations, outreach, and overall effectiveness. Understanding the reality of digital transformation in this specific sector can offer valuable insights into the unique challenges and opportunities faced by non-governmental entities in Palestine as they strive to leverage technology for socio-economic development and humanitarian endeavors.

This study employs a descriptive analytical methodology. Utilizing a structured questionnaire, data were collected from a random sample of 183 employees. The overall evaluation of digital transformation in these organizations was 83.92%, which is an important level.

The study recommended the necessity of setting aside money for training and development, luring in experts and specialists in the field, and offering fundamental software tools for creating and overseeing the process of digital transformation.

- **A study entitled "The Role of Knowledge Management Practices in Implementing Digital Transformation"** (Al-Shehri and Abdel-Khair, 2023)**.**

The study examines the impact of adopting knowledge management practices on implementing digital transformation among civilians in the Saudi Public Security Service in the Asir region. The study used the descriptive analytical methodology, and the study used a questionnaire to collect data. The study reached a set of results: There is a direct relationship between knowledge management practices and digital transformation. The study also confirms the positive impact of workshops in facilitating the exchange of knowledge and experiences and contributing to the effective use of digital transformation technologies in storing knowledge. The results confirm the importance of regular training for employees on the electronic transformation programs approved by the Security Services Department.

- **A study entitled "The Role of Digital Transformation in Enhancing the Quality of the Internal Audit Process"** (Rashwan and Abu Arab, 2022)**.**

The purpose of this study is to shed light on one potential remedy for raising the standard of the internal auditing procedure. In the context of banks listed on the Palestine Stock Exchange, the study investigates the potential contribution that digital transformation can make to internal audit procedures.

A descriptive-analytical methodology was employed in the study. Internal auditors from banks included in the Palestine Index were among the study population. The instrument used to gather data was a questionnaire. The eighty-five internal auditors that made up the study sample were given the questionnaire. The small sample size led to the application of the comprehensive inventory method.

The study's most notable finding was the strong and positive correlation between enhancing internal audit operations' quality and implementing digital transformation. The ability to provide electronic data on demand has demonstrated the critical role that digital transformation plays.

According to the study, implementing digital transformation initiatives can result in significant adjustments to the audit process's structure and scheduling. The study also stressed how these programs can aid in identifying and assessing risks that may arise during internal audits. The results highlight how digitalization has a revolutionary effect on the quality of internal audits and advocate for the banking industry to strategically implement digital initiatives to enhance risk management and regulatory procedures.

- **A study entitled "The reality of digital transformation in private training institutes and the accompanying challenges"** (Al-Jarboui, 2022)**.**

The study's objectives were to find out how far private training institutions in the Kingdom of Saudi Arabia have come with digital transformation and to identify the obstacles standing in their way. The study employed a questionnaire to gather data and used the descriptive analytical method of analysis. The participants in the study were the staff members of eighty-three institutions.

The study found that members of the study sample expressed their agreement with the questionnaire items related to the reality of digital transformation. The study also concluded the need to provide protection for digital devices and data, strengthen the level of technical support services, and strengthen the digital skills of employees in institutes, in addition to providing financial support and supporting the technological infrastructure to facilitate digital transformation.

- **A study entitled "The Role of Government in Enhancing Digital Transformation in Small Service Businesses"** (Chen et al., 2021)**.**

The study contributes to developing a conceptual framework that highlights the complexities and challenges of digital transformation faced by small service businesses and identifies the critical roles that government interventions can play.

The study used qualitative methodology; interviews were used for collecting data, and senior workers in small businesses made up the study population.

The results of the study showed obstacles that could hinder digital transformation in small companies were lack of funding, limited digital capabilities, insufficient human resources, and technical challenges. The study indicated that the government's role in supporting small businesses' efforts towards digital transformation can be divided into four roles: creating dedicated digital platforms, enhancing mobile payment solutions and digital platforms, providing digital training programs, and creating an ecosystem for digital cooperation.

- **A study entitled "Digital Transformation: Opportunities and Challenges for Leaders in Emerging Countries in Response to the COVID- 19 Pandemic"** (Hai et al., 2021)**.**

This study seeks to know the intellectual framework of digital transformation, identify the advantages and threats that result from implementing digital transformation, highlighting the advantages of this transformational process, and summarize its achievements so far, especially considering pandemics and crises.

This study used the descriptive methodology, which relied on studying, analyzing, and linking previous literature related to digital transformation.

According to the study, having creative leadership and visionary leadership capable of planning, developing digital strategies, and innovating is necessary to implement digital transformation projects.

- **A study entitled "Digital Transformation in the Sultanate of Oman: Roles, Levels, and Prominent Projects"** (Balochi et al., 2020)**.**

This study endeavors to investigate the status of digital transformation in the Sultanate of Oman, undertaking an assessment of the levels of digital transformation while elucidating the specific roles played by diverse institutions within the country. The study aligned these findings with global trends in the digital transformation domain, offering a comprehensive exploration of Oman's current digital landscape. By examining the roles of different institutions, the research seeks to provide insights into how the Sultanate of Oman is adapting to and aligning with international developments in the realm of digital transformation, thereby contributing valuable perspectives on the country's digital evolution in comparison to global benchmarks.

The study utilized a qualitative descriptive methodology and data gathered through interviews. The study applied to four government institutions and one private institution, there were fourteen interviews with general managers, department directors, and department heads in these institutions.

The study finds that the institutions under study have made significant efforts to transform digitally. The study made it clear that digital transformation, despite these significant efforts, is proceeding slowly and with variation between these institutions, and despite the different levels of digital transformation in these institutions, they have worked together to help Oman advance in this field, especially when it comes to e-participation.

The study recommends promoting existing electronic services through various media and social networks to enhance user awareness and broaden their utilization. It also encourages institutions to harness fourth industrial revolution technologies to develop technical projects that tangibly impact their operations and service delivery mechanisms.

- **A study entitled "The role of digital transformation in developing employee performance: A field study on the Egyptian Pharmaceutical Trading Company"** (Hammad, 2020)**.**

The study seeks to investigate and analyze the impact of digital transformation initiatives on the performance of employees within this specific organizational setting. By examining the practical implications and outcomes of integrating digital technologies, the study aims to provide valuable insights into the relationship between digital transformation strategies and the overall effectiveness of employees in the pharmaceutical sector in Egypt.

The descriptive analysis methodology and a questionnaire was used to collect data for the study. 318 individuals comprised the study sample. The study found a statistically significant correlation between improving employee performance and digital transformation. The study emphasized how critical it was to concentrate on aspects of digital transformation, such as leadership development and strategic planning.

- **A study entitled "Overcoming Today's Digital Talent Gap in Organizations Worldwide"** (Nair, 2019)**.**

The study aimed to highlight the key role of human resources management in overcoming the challenges that can result from implementing digital transformation and seeks to shed light on the reasons why companies find it difficult to achieve a quick return on their investments in digital transformation projects.

The study used qualitative research methodology, incorporating expert opinions and current research on the difficulties associated with digital transformation. The responses that have been gathered were analyzed using descriptive statistics. To close the digital talent gap, the paper provides human resources professionals and organizational leadership with actionable advice. The goal of these suggestions is to increase productivity and support effective digital transformation initiatives. The study emphasizes how crucial it is for today's workforce to acquire the critical digital skills that businesses need. The study highlights the widening digital talent gap, which calls for HR departments and executives to move quickly to close this gap.

- **A study entitled "Critical Factors Affecting a Firm's Capacity for Digital Transformation: Empirical Evidence from Korea"** (Kwon and Park, 2017)**.**

This study aimed to identify critical factors and challenges facing digital transformation in organizations that affect the organizations' ability to implement digital initiatives.

To achieve its objectives, the study used insights from previous research on influencing factors such as human and technological aspects of information technology governance. It also includes insights from relevant literature on strategic alignment between information technology and business, digital leadership, and digital transformation

capability. Empirical analysis was performed using a structural equation model based on data collected from questionnaires conducted on employees of different companies.

The study emphasized that various stakeholders, including marketing, information technology, product development, strategy, and human resources departments, play roles in shaping transformation strategies. According to the study, critical factors, including human factors, technological factors, strategic alignment of the business and information technology sectors, and digital leadership, influence information technology governance, which in turn affects the ability to digitally transform.

- **A study entitled "The impact of the digital transformation of knowledge on the information culture of specialists in the field of arts and humanities who are faculty members at the Faculty of Arts in Qena "** (Mahmoud and Salah, 2016)**.**

The primary objective is to identify the influence of information and communication technology on their media culture and explore new research perspectives emerging after the digital transformation of knowledge. The study employs a questionnaire directed at faculty members. Utilizing a descriptive-analytical methodology, the study analyzes responses from faculty members to draw conclusions. The study reveals that digital transformation has positively contributed to enhancing the media culture among faculty members specializing in the arts and humanities. The study also highlights key motivations driving their engagement with digital information sources for study purposes. Furthermore, the study identifies variations in the use of digital information sources based on factors such as gender, age, and specialization among faculty members.

2.7.3 Summarizing Previous Studies

Based on the previous studies reviewed, the following table constitutes a summary of those studies.

Table 2.3: Summarizing previous studies

No.	Researcher	Methodology	Tools	Key Findings
1.	(Abu Hashish & al-Halimi, 2023) "The Effect of Digital Transformation in the Strategy of the Job Performance"	descriptive analytical	Questionnaire	The level of digital transformation at the Ministry of Education was medium at 64.22%. The level of the strategy for evaluating teachers' job performance obtained a high score of 70.44%.
2.	(Al Najjar et al., 2023) "The Reality of Digital Transformation in Non-Governmental Organizations in Palestine"	Descriptive-analytical	Questionnaire	The level of digital transformation was 83.92%.
3.	(Al-Shehri & Abdel-Khair, 2023) The Role of Knowledge Management Practices in Implementing Digital Transformation	Descriptive-analytical	Questionnaire	Digital transformation and knowledge management techniques are related.

No.	Researcher	Methodology	Tools	Key Findings
4.	(Al-Fahdawi, 2022) "The Role of Digital Leadership in Achieving Organization Brilliance"	Descriptive-analytical	Questionnaire	Digital leadership significantly contributes to brilliance; recommendations focus on investing in digital leadership practices.
5.	(Al-Jarboui, 2022) The reality of digital transformation in private training institutes and the accompanying challenges	Descriptive and analytical	Questionnaire	High degree of level of digital transformation.
6.	(Al Faris & Bani Khaled, 2022) - "Impact of Digital Leadership on Employee Performance in Kuwaiti Hospitals"	Descriptive and analytical	Questionnaire	Digital leadership, including innovation, persuasion, and knowledge, significantly impacts performance; recommendations emphasize strengthening digital leadership.
7.	(Rashwan & Abu Arab, 2022) "The Role of Digital Transformation in Enhancing Internal Audit"	Descriptive-analytical	Questionnaire, Statistical Packages Program	The accuracy of the audit process increased by the adoption of digital transformation; banks listed on the Palestine Stock Exchange should take these initiatives into consideration.

No.	Researcher	Methodology	Tools	Key Findings
8.	(Husban et al., 2021) "Digital Leadership and Organization's Performance: The Mediating Role of Innovation Capability"	Quantitative research	Questionnaire	Digital leadership positively impacts innovation capability and performance; recommendations include investing in R&D and promoting a culture of innovation.
9.	(Abu Hayya, 2021) "Practicing Digital Leadership among UNRWA School Principals"	Descriptive-analytical	Questionnaire	Recommendations include organizing technology highlights and incorporating international standards.
10.	(Al-Taie & Al-Hadrawi, 2021) "The Impact of Digital Leadership on Organizational Culture Adoption"	Descriptive	Questionnaire	Digital leadership positively impacts organizational culture adoption; Recommendations emphasize prioritization of effective digital leadership elements.
11.	(Chen et al., 2021) "Role of Government in Enhancing Digital Transformation in Small Service Businesses"	Qualitative (Interviews and Content Analysis)	Semi-Structured Interviews, Content Analysis	Barriers include lack of funding, limited digital capabilities, insufficient human resources, and technical obstacles; Government can support through digital platforms, mobile payments, training programs, and digital collaboration ecosystems.

No.	Researcher	Methodology	Tools	Key Findings
12.	(Hai et al., 2021) "Digital Transformation Opportunities and Challenges in Emerging Countries in Response to Covid-19"	Literature Review and Analysis	Existing documents, Academic Literature	Digital transformation is crucial for success; Innovative leadership is vital for successful digital transformation; Highlights challenges and limitations in emerging countries.
13.	(Balochi et al., 2020) "Digital Transformation in the Sultanate of Oman"	Qualitative	Semi-Structured Interviews, Content Analysis	Varied levels of digital transformation among institutions; Recommendations include promoting electronic services and harnessing Fourth Industrial Revolution technologies.
14.	(Hammad, 2020) "Role of Digital Transformation in Developing Employee Performance"	descriptive analysis	Questionnaire	Digital transformation significantly improves employee performance; Focus on strategic planning, leadership preparation, and competency acquisition in digital transformation.
15.	(Nair, 2019) "Overcoming Digital Talent Gap in Organizations Worldwide"	Qualitative	Expert Opinions, Descriptive Statistics	Digital talent gap poses challenges; Current workforce needs essential digital skills; HR and leadership should address digital talent gaps.

No.	Researcher	Methodology	Tools	Key Findings
16.	(Kwon & Park, 2017) "Factors Affecting a Firm's Capacity for Digital Transformation in Korea"	Structural Equation Modeling (SEM)	Questionnaire	CEO's digital leadership is crucial; Digital leadership facilitates coordination between IT and business; It shapes organizational culture and enhances implementation.
17.	(Domeny, 2017) "Relationship Between Digital Leadership and Digital Implementation in Elementary Schools"	Quantitative descriptive	Questionnaire	No meaningful relationship between principals' digital leadership and teachers' digital implementation; Recommendations include fostering an innovative environment and recognizing the role of transformational leadership.
18.	(Zhong, 2016) "Effectiveness of Digital Leadership at K-12 Schools in Mississippi"	Mixed method (qualitative and quantitative)	Interviews, observations, questionnaires	Principals employ various methods for support; Recommendations include fostering an innovative environment and recognizing the role of transformational leadership.
19.	(Khan, 2016) "Leadership in the Digital Age: Effects of Digitalization on Top Management Leadership"	Mixed method (literature review and interviews)	Literature review, interview	Digitalization significantly impacts contemporary leadership styles; Recommendations include adopting perspectives like holism, virtuality, and networked-based hubs.

No.	Researcher	Methodology	Tools	Key Findings
20.	(Mahmoud & Salah, 2016) "The impact of the digital transformation of knowledge on the information culture."	Descriptive-analytical	Questionnaire	The study reveals that the digital transformation has positively contributed to enhancing the media culture among faculty members specializing in the arts and humanities. The study identifies variations in the use of digital information sources based on factors such as gender, age, and specialization among faculty members.

2.7.4 Discussing Previous Studies

Through the researcher's review of previous studies related to the topic of digital transformation and digital leadership, it becomes clear that the majority adopted the descriptive and analytical approach, and often used questionnaires to collect data. Previous research has mainly focused on assessing levels of digital leadership and digital transformation within organizations. While some studies have explored the relationship between digital leadership and variables such as organizational culture, organizational performance, employee performance, and organizational intelligence. Other studies have examined the relationship between digital transformation and factors such as job evaluation strategy, knowledge management, internal audit, employee performance development, and information culture.

However, there is a notable gap in the literature regarding the direct link between digital leadership and successful implementation of digital transformation policy. Previous studies have generally treated these variables separately and have not provided a

comprehensive understanding of how digital leadership impacts the implementation of digital transformation.

Considering these observations, the current study seeks to fill this gap by studying the impact of digital leadership on the implementation of digital transformation policy. Building on the foundation laid by previous research, the current study adopts the descriptive-analytical approach, which ensures continuity and facilitates meaningful comparisons. In addition, the researcher benefited from previous studies to enrich the theoretical framework and structure of the study, build the study tool, and the results and recommendations reached by previous studies. The additions and contributions made by the current study are as follows:

- Comprehensive coverage of the theoretical and practical aspects of digital transformation and digital leadership. In contrast to previous studies, which often studied digital transformation and digital leadership separately, the current study examined digital leadership and digital transformation, with the aim of identifying the impact of digital leadership on the implementation of digital transformation policy. Therefore, the current study will provide new insights and add knowledge to the field.
- Conducting the study in the context of the Ministry of Education, and the study was distinguished from previous studies in the context and in the study population, which are the administrative employees in the main branch of the Palestinian Ministry of Education. Therefore, this study is a new addition to this field of knowledge.
- The modernity and importance of digital transformation in improving and developing the processes and services provided by institutions and improving the

user experience, and the importance of being aware of all the changes that contribute to the success of institutions in their digital transformation, including digital leadership.

Chapter Three: Methodology

3.1 Introduction

To understand the extent of the effect of digital leadership on the implementation of digital transformation in the context of the Ministry of Education in Palestine and to achieve the objectives of the current study, one of the important steps to accomplish the applied aspect of the study is to define the study's methodology and procedures with the aim of obtaining the data required to conduct the statistical analysis to reach the results that are interpreted in light of the literature related to the subject of the study.

This chapter provides a description of the approach followed, the population and sample of the study, as well as the data collection tool, the method of preparing it, how it was built and developed, and examination of the extent of its validity and stability. The chapter ends with the statistical treatments that were used in analyzing the data to draw conclusions. The following is a description of these procedures.

3.2 Study Variables

The independent variable (digital leadership): Which means that the administrative leaders of the Ministry of Education have a common vision and the ability to develop plans for their implementation and possess the necessary digital competencies that qualify them to innovate modern digital methods to solve problems and develop business using digital technologies. The researcher limited a set of dimensions of digital leadership that the researchers used, where the researcher chose the following dimensions, which are:

1 Digital competence: It is the set of digital skills, knowledge, and capabilities that a leader needs to succeed in leadership in the digital age.

2 Visionary leadership: It is the leader’s possession of a specific and clear future vision to benefit from digital technologies at work and can set goals and develop plans and strategies to achieve this vision.

3 Innovation: It is the leader's ability to think creatively, motivate others to think outside the box, and propose new and effective digital solutions to problems.

Dependent variable (digital transformation): A change process to replace its antiquated paper-based transactions and correspondence system with an advanced digital system built on technology, both in terms of service delivery and operational management. Based on previous studies, the researcher chose the following dimensions:

1 Planning and strategies: It mean defining goals and specific methods that will be taken to achieve the goals. These plans and strategies are essential tools for directing administrative efforts towards achieving digital transformation, as they help transform goals into reality.

2 Technology and infrastructure: It represent the physical equipment such as computers, software, and communications network infrastructure necessary to use various applications.

3 Organizational culture: It is a set of values, concepts and foundations that employees share within the organization and is closely linked to the strategic directions chosen by the organization.

4 Human resources: The presence of a group of skilled employees capable of developing digital transformation initiatives and benefiting from them effectively to support government objectives.

Demographic variables include the following:

1 Gender: divided into two groups, male and female

2 Experience: divided into three groups (under 5 years, between 5 and 10, and above 10 years).

3 Qualification.

4 Administrative level: divided into three groups (less than a division head, division head, and manager and above).

5 Age: divided into three groups (under 30 years, between 30 and 40, and above 40).

3.3 The Study Model

Based on previous studies, a special model was designed for the current study; figure below shows the research model.

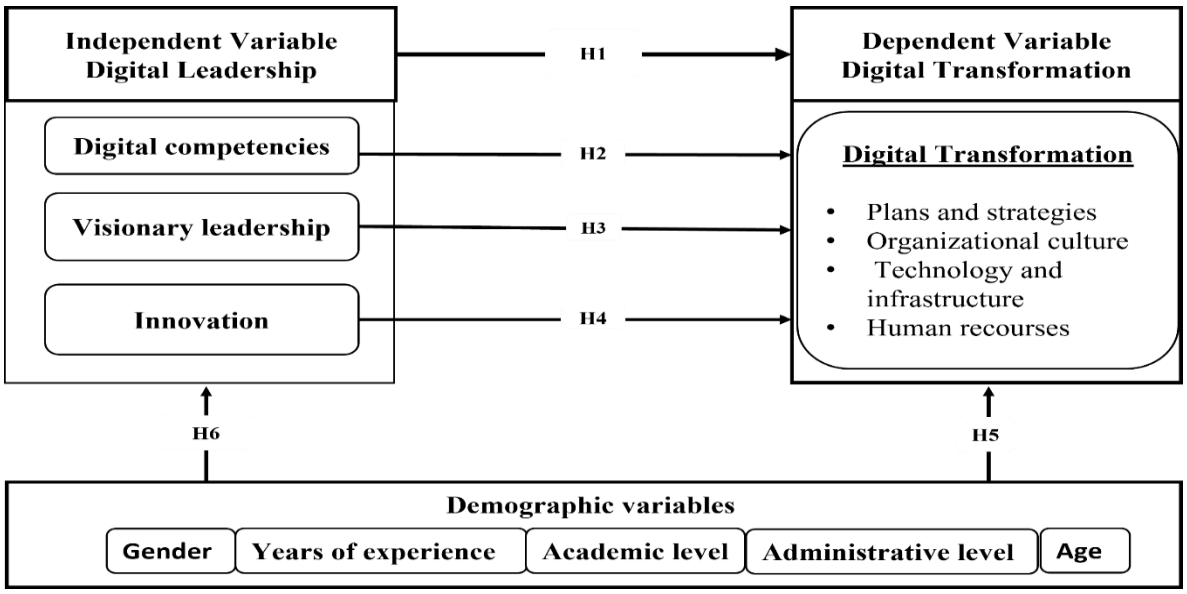

Figure 3.1: Study Model

3.4 Study Methodology

In this study, the researcher employed a descriptive-analytical methodology as the most suitable approach to achieve the study's objectives. This method was chosen to comprehensively describe the study's variables by referencing pertinent literature, collecting, and analyzing data. The aim was to present facts and information in a clear and detailed manner, highlighting the characteristics or attributes of the phenomenon under investigation. Additionally, the researcher conducted an evaluative analysis, breaking down the information into its components to discern relationships, draw conclusions, and engage in a comprehensive discussion. The goal is to derive a set of recommendations based on the findings, contributing to potential improvements in the subject matter.

Secondary data was used through a literature review (books, articles, reports, theses, websites, and ministry files) to build the theoretical framework for the study. The researcher used a questionnaire to collect primary data.

3.5 The Study Population and Sampling

Study population

The study population comprises all administrators working in the main branch of the Palestinian Ministry of Education, situated in the Ramallah and Al-Bireh Governorates. These administrators play a crucial role in the planning, development, and policymaking processes within the Palestinian education sector. The total number of employees in the main branch, as per the researcher's review of the Ministry's data, is 578 individuals.

For this study, certain exclusions were made. Employees in the service field, specifically those holding job categories (fourth and fifth) and job titles such as cleaner, driver, and

guardian craftsman, are excluded. The number of excluded employees in these categories is 105. Consequently, the target population for the study is 473 employees.

The distribution of the study population, based on the Ministry of Education data examined by the researcher, was categorized according to administrative level and gender, as outlined in Table 3.1 below.

Table 3.1: Distribution of the study population according to the variables of administrative level and gender

Administrative level and Gender	Male (%)	Female (%)	Total
Less than a Division Head	122 (41.2)	174 (58.8)	296
Division Head	68 (57.1)	51 (42.9)	119
Manager and above	46 (79.3)	12 (20.7)	58
Total	236	237	473

The employees were distributed according to the organizational structure of the Ministry of Education (see Appendix 7.6).

Study Sample

The study sample consisted of a random sample of administrative employees working in the main branch of the Ministry of Education. An electronic questionnaire was prepared and sent to the Ministry of Education. It was distributed through the General Administration of International and Public Relations via government e-mail to employees through a group created by the Ministry to distribute instructions. There are 410 employees in this group. The researcher retrieved 252 questionnaires, representing 61.4% of the total questionnaires distributed and 53.2% of the study population. The analysis was performed on 252 questionnaires. It exceeds the sample size of 213 employees,

calculated using the Steven K. Thompson formula to determine the appropriate sample size (Steven K. Thompson, 2012, pp. 59–60).

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Figure 3.2: Steven k. Thompson equation
Source (Steven K. Thompson, 2012, pp. 59–60)

Where (**n:** sample size, **N:** population size (473), **Z:** confidence level at 95% (1.96), **d:** error, proportion (0.05), **p:** probability (50%)).

3.6 Study Tools

The researcher used the questionnaire as a tool to collect data to achieve the objectives of the study. The questionnaire was constructed after reviewing previous literature and studies related to the topic of the current study. The current study consisted of three sections:

- The first section is the demographic data (gender, age, educational level, administrative level, years of experience).
- The second section is the independent variable (digital leadership), and the second section consists of three axes, which are the dimensions of digital leadership (digital competencies, visionary leadership, and innovation). In determining the items on these three axes, the researcher relied on a group of previous literature and studies while making modifications to them to be compatible with the context of the study. About the digital competencies' axis, the researcher used the digital competencies framework issued by the European Union (2019) to evaluate the digital competencies of citizens and workers in institutions, while the researcher identified the items of the

visionary leadership axis and the innovation axis with the items identified by the following studies (Abu Hayya, 2021; Busaily, 2022).

- The third section is the dependent variable (digital transformation) consists of four axes: plans and strategies, organizational culture, technologies and infrastructure, and human resources. In defining the items of these four axes, the researcher relied on a group of previous literature and studies (Al Najjar et al., 2023; Al-Jarboui, 2022; Al-Shehri & Abdel-Khair, 2023; Sabah, 2021). With modifications to be compatible with the context of the study. The table below shows the sections, fields, axes, and the number of paragraphs for each axis.

Table 3.2: The number of questionnaire items according to the fields and axes of the study

The Section	The Field	The Axis	No. of Items
Section One	The Personal Data	(Gender, Age, Educational Qualification, Administrative Level, Years of Experience)	5
Section Two	Digital Leadership	Digital Competencies	6
		Visionary Leadership	6
		Innovation	7
Section Three	Digital Transformation	Planning and Strategies	4
		Organizational Culture	5
		Human Resources	4
		Technologies and Infrastructure	5
Total			42

Based on a five-point Likert scale, the table below shows the response and its corresponding result.

Table 3.3: Correcting the study tool

Response	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Degree	1	2	3	4	5

The table above shows that the degree of agreement with what is stated in the questionnaire items is high the closer the answer is to the score 5, and the opposite is true, meaning that the degree of agreement with what is stated in the questionnaire paragraphs is low the closer the answer is to 1.

For judging the direction of each item when using a five-point Likert scale, the study adopted the criterion shown in Table below by converting the Likert scale into intervals (Abu Hayya, 2021; Pimentel, 2010), relying on the value of the arithmetic mean. The relative weight was used to determine the level of approval of the items and axes of the study, through which the result of each paragraph of the study and the result of each dimension of the study were finally determined.

Table 3.4: Correction key to estimate the level of agreement

Likert-Scale	Description	Interval	Relative weight	Level of Agreement
1	Strongly disagree	[1.00-1.80)	Under 36%	Low
2	Disagree	[1.80- 2.60)	36% - 51.9%	
3	Neutral	[2.60- 3.40)	52% - 67.9%	Medium
4	Agree	[3.40- 4.20)	68% - 83.9%	
5	Strongly agree	[4.20- 5.00]	84% or more	High

3.7 Steps to Build the Questionnaire

The researcher followed the following steps to build the study tool:

- The researcher benefited from the tools used in previous studies that were reviewed to build the current study sections and axes.
- The questionnaire was designed in a scientific manner and included variables (independent and dependent), dimensions, and items under each dimension.
- A group administrative leader in the Ministry of Education was consulted regarding the dimensions and items of the study.
- The questionnaire was presented to the supervisor and modifications were discussed.
- The initial version of the questionnaire was presented to six arbitrators whose names are listed in Appendix (7.3). Based on their recommendations, the required amendments were made to items (deletion, addition, or modification), so that the final form of the questionnaire became as it is in Appendix (7.4).

3.8 The Study Instrument's Validity

The validity of the questionnaire means “it is about the closeness of what we believe we are measuring to what we intended to measure” (Roberts & Priest, 2006).

3.8.1 Opinions of Arbitrators

The researcher presented the questionnaire to the supervisor in its initial form, and after obtaining permission to referee it, it was presented to knowledgeable and experienced arbitrators (see Appendix 7.3).

The researcher added items, deleted others, and merged other items in accordance with the recommendations of the arbitrators. Items were divided into more than one item, and a few of them were revised and modified. In addition, the researcher distributed and

reorganized items into topics and sections and removed any conflict or overlap between the items based on the recommendations of the arbitrators. The questionnaire is in its final form in Appendix (7.4).

3.8.2 The Internal Validity

The researcher used the Pearson correlation coefficients to assess the internal validity. This test was done on a pilot sample of thirty employees. The results are as follows.

Table 3.5: The internal validity test of the digital leadership and digital transformation.

No.	The Items	Pearson correlation coefficient	(Sig.)
First field: digital transformation			
First axis: digital competences			
1.	My direct manager has positive attitudes towards digital transformation in the ministry.	0.789**	0.000
2.	My direct manager is proficient in using digital technology used in daily work, such as self-service software (MenaME).	0.826**	0.000
3.	My direct manager uses digital communication effectively to enhance interaction among team members. (Email, WhatsApp, Messenger, etc.).	0.663**	0.000
4.	My direct manager responds appropriately regarding the risks and threats that arise from the use of digital technologies in his field of work.	0.824**	0.000
5.	My direct manager manages data (analyzing, organizing, storing, and retrieving data, information, and digital content) by employing appropriate digital tools.	0.877**	0.000
6.	My direct manager establishes procedures to protect the security of data, information and digital content related to his field of work.	0.790**	0.000

Second axis: visionary leadership			
7.	My direct manager builds strategies that support digital transformation in the ministry.	0.849**	0.000
8.	My direct manager determines technology investment priorities to improve services in his area of work.	0.818**	0.000
9.	My direct manager prepares a plan with clear goals to achieve the common vision for digital transformation in his field of work.	0.837**	0.000
10.	My direct manager involves employees in planning for digital transformation.	0.654**	0.000
11.	My direct manager can effectively manage resources to achieve digital transformation goals.	0.953**	0.000
12.	My direct manager evaluates the impact of digital transformation on performance in his field of work, and benefits from the results.	0.865**	0.000
Third axis: innovation			
13.	My direct manager embraces new ideas to develop work using digital technologies.	0.844**	0.000
14.	My direct manager has high flexibility in dealing with developments in digital transformations.	0.913**	0.000
15.	My direct manager shows his willingness to change traditional practices and methods in his field of work in favor of innovative digital solutions.	0.859**	0.000
16.	My direct manager encourages employees to innovate new digital ways of working.	0.740**	0.000
17.	My direct manager accepts criticism regarding work methods within the scope of his responsibilities.	0.766**	0.000
18.	My direct manager participates in developing digital solutions at the ministry level.	0.689**	0.000
19.	My direct manager uses problem-solving skills to overcome the obstacles to digital transformation in the ministry.	0.811**	0.000

Second field: digital transformation			
First axis: plans and strategies			
20.	In formulating plans, the Ministry relies on following strategies compatible with digital transformation.	0.890**	0.000
21.	The Ministry provides sufficient administrative and financial support for planning, monitoring, and implementing digital transformation.	0.886**	0.000
22.	The Ministry is evaluating and redesigning traditional processes to be more efficient and flexible using digital technology.	0.892**	0.000
23.	The Ministry provides opportunities for employees to participate in planning digital transformation and implementing digital initiatives in the Ministry.	0.843**	0.000
Second axis: Technology and infrastructure			
24.	The Ministry provides appropriate components and equipment to support digital transformation (computers, Internet, etc.).	0.714**	0.000
25.	The Ministry provides appropriate digital applications (software, smart devices, cloud computing, etc.) to support digital transformation.	0.898**	0.000
26.	The Ministry provides specialists to provide technical support and solve technical problems related to digital transformation.	0.778**	0.000
27.	The Ministry provides a system to protect the security of data and information.	0.791**	0.000
28.	The Ministry provides a unified access system to all software applied in the Ministry.	0.860**	0.000
Third axis: Organizational culture			
29.	The Ministry promotes awareness and understanding of digital transformation and its importance among employees. Through (publications, videos, etc.).	0.814**	0.000

30.	The Ministry encourages a culture of communication and cooperation between departments and units in the Ministry to enhance the culture of digital transformation.	0.763**	0.000
31.	The Ministry provides instructions in a procedural guide, publications, or videos for using the digital programs used.	0.898**	0.000
32.	The Ministry allows sufficient time to adapt to the new digital work environment.	0.788**	0.000
33.	The current organizational culture in the Ministry facilitates the process of digital transformation within it.	0.803**	0.000
Fourth axis: human resources			
34.	The Ministry implements training courses to qualify employees towards digital transformation.	0.899**	0.000
35.	The Ministry has experts and specialists capable of achieving digital transformation.	0.935**	0.000
36.	The Ministry encourages the spirit of initiative, knowledge, and acquisition of knowledge among employees to keep pace with digital transformation.	0.811**	0.000
37.	The Ministry provides promotion opportunities and rewards those who excel in their performance in support of digital transformation.	0.915**	0.000

The table presented above illustrates the correlation coefficients among the components of the axes and the total score for these axes. Notably, all correlation coefficients were found to be statistically significant at a level below 0.01. The correlation values range from 0.654 to 0.953, as indicated in the table. Consequently, with these findings, the researcher confidently concludes that all items within each axis exhibit internal validity.

3.9 Assess The Reliability of The Study Tool

According to Roberts and Priest (2006), “reliability describes how far a particular test, procedure, or tool, such as a questionnaire, will produce similar results in different circumstances, assuming nothing else has changed”.

The researcher assesses the reliability of the questionnaire by using Cronbach's alpha coefficient. This test was done on a pilot sample of 30 employees. The results are as follows:

Table 3.6: Cronbach's alpha coefficient to measure the reliability of the questionnaire

The Field	No. of Items	Cronbach's Alpha Coefficient
Independent variable: Digital leadership	**19**	**0.962**
Axis 1: Digital competences	6	0.872
Axis 2: Innovation	7	0.901
Axis 3: Visionary leadership	6	0.904
Dependent variable: Digital transformation	**18**	**0.954**
Axis 1: Plans and strategies	4	0.894
Axis 2: Organizational culture	5	0.872
Axis 3: Technology and infrastructure	5	0.861
Axis 4: Human resources	4	0.912
All axes of the questionnaire	**37**	**0.974**

The table above shows that the reliability coefficient for the study's axes is high, reaching 0.974 for all questionnaire items. The reliability of axes ranged from a minimum of 0.861 to a maximum of 0.912. Given that the minimum acceptable level of reliability was 0.70 according to Nunnally and Bernstein (1994), the researcher deduced from the foregoing that the questionnaire has a high degree of reliability and can be trusted in the field application of the current study. Therefore, the questionnaire was approved without changing its items (Appendix 7.4), and the questionnaire is ready for distribution to the respondents.

3.10 Normality Distribution Test

The researcher extracted the skewness and kurtosis values for the study variables to assess the normality of the data distribution. The table below shows the results.

Table 3.7: Normal distribution test results

Variables	Skewness	kurtosis
Digital Competences	-0.123	0.356
Visionary Leadership	-0.085	-0.078
Innovation	-0.045	0.425
Digital Leadership	-0.052	0.124
Digital Transformation	-0.099	0.074

Table (3.7) shows the skewness and kurtosis values for the study variables. which are close to zero, so the distribution of the data tends to a normal distribution (Gawali, 2023; Gujarati & Porter, 2009).

3.11 Multicollinearity Test

The researcher examined whether the study variables suffer from the problem of multicollinearity, and it found that the current study does not suffer from the problem of multicollinearity. The factor inflation variance VIF for each of the study variables was no more than four, as the VIF values are considered acceptable if They are values were no more than five (Kim, 2019; Kock & Lynn, 2012). The VIF value for each of the study variables ranged between 1.7 and 3.9, which are acceptable values.

3.12 Statistical Tests Used in the Study

Following the completion of the data collection phase, responses from Google Forms were extracted and transcribed into MS Excel. Qualitative responses are systematically converted into quantitative data within the Excel environment. Subsequently, the

processed data was imported into the SPSS v23 program for comprehensive analysis. The analytical procedures encompassed the application of the following statistical tests:

1. Descriptive Statistics: Means, standard deviations, frequencies, percentages, weighted mean.
2. Reliability Assessment: Cronbach's alpha reliability equation was applied to examine the stability of the study tool.
3. Validity Assessment: The Pearson correlation coefficient was employed to assess the internal consistency and validity of the study tool.
4. Normality Assessment: Skewness and kurtosis tests are used to assess the normality of the data distribution.
5. Independent Samples Analysis: A T-test was employed to determine statistically significant differences between two sets of independent data in the case of two independent samples.
6. Multiple Groups Comparison: A One-Way ANOVA test was used to ascertain statistically significant differences between three or more groups of independent data.
7. Regression Analysis: Simple and multiple regression analyses explored the effect of digital leadership and its dimensions (digital competence, visionary leader, innovation) on digital transformation.
8. Post-Hoc Analysis: The Scheffe post-hoc test was utilized to reveal the direction of differences between the average scores of groups according to demographic data.
9. Multicollinearity Check: A regression test was used to check multicollinearity in the data.

10. Distribution Examination: Histograms were used to examine the normal distribution of residuals and the normal distribution of dependent variables between demographic variable groups.
11. Outlier Detection: Boxplots were employed to explore the data and identify outliers.
12. Equality of Variances: Levene's Test for Equality of Variances was conducted.

Chapter Four: Data Analysis

4.1 Introduction

This chapter deals with data analysis and a presentation of the most important statistical results regarding the problem of the study, which aims to identify the impact of digital leadership on the implementation of the digital transformation policy of the Palestinian Ministry of Education. In this chapter, demographic data was analyzed, the study's questions answered, its hypotheses verified, and the interpretation of these results was done in a manner consistent with the phenomenon of the study and its variables. This provides a strong basis for the fifth section of the current study to present and discuss the results and provide recommendations.

4.2 Demographic Data Distribution Results

This section presents the results of the demographic data analysis.

Table 4.1: Demographic data distribution results

Demographic variables	Category	%	Frequency
Gender	Male	54.8	138
	Female	45.2	114
Years of Experience	Under 5 Years	11.5	29
	Between 5 and 10	18.7	47
	Above 10 Years	69.8	176
Academic Level	Diploma	6.0	15
	Bachelor's	64.7	163
	Postgraduate	29.3	74
Administrative Level	Under Head division	54.4	137
	Head division	29.4	74
	Manager and above	16.2	41
Age	Under 30 Years	6.7	17
	Between 30 and 40	31.0	78
	Above 40	62.3	157

Distribution of Respondents by Gender

The table (4.1) shows the distribution of the study sample by gender, as the percentages show that there is a small difference between the percentage of female participants and the percentage of females in the study population, about 50% (see Table 3.1), while the percentage of female participants in the study reached 45.2%. Although the difference in proportions is not large, the researcher attributes this to the weak representation of female employees in senior leadership positions and the lack of professional development opportunities as a factor that may affect the inspiration and motivation for females to participate in such studies. According to the General Personnel Council (2022), the percentage of women in senior leadership positions is 11%.

Distribution of Respondents by Experience

It is clear from Table (4.1) that 11.5% of the study sample have years of experience less than 5 years, while 18.7% have years of experience between 5 and 10 years. 69.8% have more than 10 years of experience. The researcher attributes the high percentage of employees with more than 10 years of experience to the fact that the recruitment process in the administrative sector of the Ministry of Education is extremely limited. According to data from the General Personnel Council, the Ministry of Education granted 4,442 new jobs in 2021, which were appointed in schools. 3,977 teachers were appointed, 186 vocational teachers were appointed, 139 educational counselors were appointed, eighty-two school trustees were appointed, and 46 employees were appointed to service positions. These numbers indicate that the administrative sector in the Ministry of Education and its directorates obtained only twelve jobs. These percentages are also consistent with the rest of the institutions of the State of Palestine, as stated in the General

Personnel Council report that the percentage of employees with more than ten years of experience was 70% by the end of the year 2021 (General Personnel Council, 2022).

Distribution of Respondents by Qualification

It is clear from Table (4.1) that 64.7% of the administrative employees in the main branch of the Ministry of Education hold a bachelor's degree. The researcher attributes the high percentage of people holding a bachelor's degree to the fact that most jobs in the Ministry of Education and the civil service sector in Palestine require obtaining a bachelor's degree as a minimum. According to statistics published by the General Personnel Council for the year 2022, it was found that the percentage of employees holding a bachelor's degree among job holders was about 60% until the end of 2021 (General Personnel Council, 2022).

Distribution of Respondents by Administrative Level

It is clear from Table (4.1) that 54.4% of the sample members work as employee below the position of head division. The researcher attributes the high percentage of employees whose ranks are below department head to the fact that they are implementing routine and operational tasks. As for department heads, it is their responsibility to follow up and supervise a group of employees, while managers and above are responsible for following up with department heads. These percentages mentioned in the table above are consistent with the percentages that the researcher obtained from the Palestinian Ministry of Education, and the data showed that 62% of employees work at the rank of employee under a head of section, while 25% of employees work at the position of head of section. While the percentage of employees with a manager level or higher reached 12%, data from the General Personnel Council also support these results, as the percentage of

employees who are under the head of section and without service positions, guards, and the like reached 64% (General Personnel Council, 2022).

Distribution of Respondents by Age

It is clear from table (4.1) that 6.7% of the study sample are under 30 years old, 31% are between 30 and 40 years old, and 62.3% are over 40 years old. The researcher attributes the high percentage of employees over 40 years of age to the weakness of the employment process in the State of Palestine compared to the number of university graduates, as also indicated by data from the General Personnel Council, where the number of applicants for employment applications reached approximately 152,765 applicants in the year 2021 to compete for 8,143 jobs. Permanent or on contract. Data from the General Personnel Council also indicate that the percentage of workers in the Palestinian civil service sector who are over 40 years old reached about 71%. While the percentage of employees between the ages of 30 and 40 years old was approximately 25%, the percentage of employees who were less than 30 years old was about 4% (General Personnel Council, 2022).

4.3 Descriptive Analysis of Study Variables

To understand the opinions of the study sample members about the study variables (digital leadership and digital transformation). The researcher used arithmetic means, standard deviations, weighted mean, and relative weight as a measure of the estimates of the study sample members. The results were as follows.

First: Opinions of the study sample members about the level of digital leadership

The second section of the questionnaire includes three axes, namely the dimensions of digital leadership (digital competencies, visionary leadership, and innovation). The table (4.2) below shows an analysis of the responses of the study sample members regarding the level of digital leadership and its dimensions.

Table 4.2: Results of the study sample members' estimates of the level of digital leadership at the axial level.

The Axes	Mean	Std. Deviation	Relative weight	Level
Digital competencies	3.82	0.63	76.4	Medium
Visionary leadership	3.59	0.79	71.8	Medium
Innovation	3.68	0.74	73.6	Medium
Digital leadership weighted mean, std. deviation, relative weight, and level of agreement	3.70	0.68	74	Medium

The table above indicates that the evaluation of the level of digital leadership was at a medium level, according to the responses of the study sample members, with a weighted average of 3.70, a standard deviation of 0.68, and a relative weight of 74%.

Digital competencies were evaluated at a medium level, according to the answers of the study sample members. The digital competencies axis was the highest rated among the digital leadership axes, with a mean of 3.82, a standard deviation of 0.63, and a relative weight of 76.4%. The researcher attributes the digital competencies axis receiving the highest rating among the digital leadership axes to the Ministry of Education's response to the challenges imposed by the Corona pandemic, the restrictions it imposed on movement, and the ministry's tireless attempts to find solutions to sustain its services, as

social media platforms were used (WhatsApp, Messenger, email, and other digital tools) effectively and widely to manage tasks and meetings remotely, which contributed to enhancing the digital capabilities of officials in the ministry. This, in turn, enhanced employees' confidence in the level of digital competencies of their leaders.

Despite the importance of officials having a future vision and planning to implement it and considering planning the first function of management, the visionary leadership axis received a rating of medium, according to the responses of the sample members, and it is the lowest rating among the digital leadership axes, with an arithmetic mean of 3.59, a standard deviation of 0.79, and a relative weight of 71.8%. The researcher attributes this result to officials' focus on daily operational details.

The following is an explanation of the results related to the axes of digital leadership and its items in the Palestinian Ministry of Education.

Table 4.3: Results of the study sample members' estimates of the level of digital competencies at the item level.

The Items	Mean	Std. Deviation	Relative Weight	Level
Item 1: My direct manager has positive attitudes towards digital transformation in the ministry.	4.00	0.78	80.0	Medium
Item 2: My direct manager is proficient in using digital technology used in daily work, such as self-service software (MenaME).	4.12	0.74	82.4	Medium
Item 3: My direct manager uses digital communication effectively to enhance interaction among team members. (Email, WhatsApp, Messenger, etc.).	4.25	0.58	85.0	High
Item 4: My direct manager responds appropriately regarding the risks and threats that arise from the use of digital technologies in his field of work.	3.51	0.89	70.2	Medium
Item 5: My direct manager manages data (analyzing, organizing, storing, and retrieving data, information, and digital content) by employing appropriate digital tools.	3.52	0.93	70.4	Medium
Item 6: My direct manager establishes procedures to protect the security of data, information and digital content related to his field of work.	3.51	0.91	70.2	Medium

The table above shows the study sample members' estimates of the level of digital competencies for direct managers. The study sample's estimates of the level of digital competencies ranged from a medium level to high. The study sample's estimates came at a medium level for most of the items in the digital competencies' axis, except for the third

item, where the third item level came at high and with an arithmetic average of 4.25, a standard deviation of 0.58, and a relative weight of 85.0. The researcher attributes this high evaluation of the third item to the focus on digital tools in communicating with employees by the leadership, which was a result of the solutions provided by the Ministry during the COVID- 19 pandemic and thus sustained and integrated into routine daily practices. In addition, the extensive training provided by the Ministry of Education to guide officials and employees on the use of these digital tools has strengthened their digital capabilities in this field.

Table 4.4: Results of the study sample members' estimates of the level of visionary leadership at the item level

The Items	Mean	Std. Deviation	Relative Weight	Level
***Item 1*:** My direct manager builds strategies that support digital transformation in the ministry	3.69	0.94	73.8	Medium
***Item 2*:** My direct manager determines technology investment priorities to improve services in his area of work	3.73	0.82	74.6	Medium
***Item 3*:** My direct manager prepares a plan with clear goals to achieve the common vision for digital transformation in his field of work	3.53	0.92	70.6	Medium
***Item 4*:** My direct manager involves employees in planning for digital transformation	3.48	1.05	69.6	Medium
***Item 5*:** My direct manager can effectively manage resources to achieve digital transformation goals	3.63	0.84	72.6	Medium
***Item 6*:** My direct manager evaluates the impact of digital transformation on performance in his field of work, and benefits from the results	3.51	0.91	70.2	Medium

The table above shows the degree of agreement of the study sample members with the items on the visionary leadership axis. It is clear from the table above that all items obtained a medium level, as the arithmetic mean of the items ranged from 3.48 to 3.73. The researcher attributes this result to the weakness of the reality of planning among the direct officials in the Ministry of Education, specifically around the vision and joint

planning for integrating digital tools into daily work, evaluating their impact, and benefiting from the results. This decline may be due to the weakness of direct officials in their ability to plan or a weakness in understanding renewable digital tools and their capabilities, or this decline may be due to the weakness of the Ministry of Education's interest in the availability of plans among its officials, and this decline may be due to the direct managers' focus on routine daily accomplishment. Without giving sufficient time for development, planning, and continuous improvement.

Table 4.5: Results of the study sample members' estimates of the level of innovation at the item level

The Items	Mean	Std. Deviation	Relative Weight	Level
Item 1: My direct manager embraces new ideas to develop work using digital technologies.	3.73	0.90	74.6%	Medium
Item 2: My direct manager has high flexibility in dealing with developments in digital transformations.	3.70	0.95	74.0%	Medium
Item 3: My direct manager shows his willingness to change traditional practices and methods in his field of work in favor of innovative digital solutions.	3.76	0.88	75.2%	Medium
Item 4: My direct manager encourages employees to innovate new digital ways of working.	3.73	0.95	74.6%	Medium
Item 5: My direct manager accepts criticism regarding work methods within the scope of his responsibilities.	3.60	0.94	72.0%	Medium
Item 6: My direct manager participates in developing digital solutions at the ministry level.	3.57	0.81	71.4%	Medium
Item 7: My direct manager uses problem-solving skills to overcome the obstacles to digital transformation in the ministry.	3.65	0.83	73.0%	Medium

It is clear from the table above that the relative weight of the "Innovation" axis items ranged between 71.4% and 75.2%, which means that the study members' evaluation of this axis is medium.

Item 3 stated It ranked highest according to the responses of the study sample, with a mean of 3.76, a standard deviation of 0.88, and a relative weight of 75.2%. The researcher attributes the third item's highest ranking to the direct supervisors' interest in the change process in favor of digital solutions and their focus on facilitating and accelerating procedures.

Regarding the item with the lowest ranking, which is item 6, with an arithmetic mean of 3.57, a standard deviation of 0.81, and a relative weight of 71.4%. The researcher attributes the low level of this item to the lack of the necessary skills to solve problems among direct officials. It may be difficult for line managers to effectively address the challenges of digital transformation due to the lack of training in this field.

Second: Opinions of the study sample members about the level of digital leadership

The third section of the questionnaire includes four topics: digital transformation requirements (Plans and strategies, Technology and infrastructure, Organizational culture, and Human requirements). The table (4.6) below shows an analysis of the responses of the study sample members regarding the level of digital transformation.

Table 4.6: Results of the study sample members' estimates of the level of digital transformation at the axes level.

The axes	Mean	Std. Deviation	Relative weight	Level of agreement
Plans and strategies	3.45	0.72	69.0%	Medium
Technology and infrastructure	3.51	0.70	70.2%	Medium
Organizational culture	3.50	0.73	70.0%	Medium
Human requirements	2.96	0.84	58.0%	Medium
Digital transformation weighted mean, std. deviation, relative weight, and level of agreement	3.36	0.65	67.2	Medium

The table above indicates that the level of digital transformation received an assessment of medium based on the responses of the study sample, with an arithmetic mean of 3.63, a standard deviation of 0.65, and a relative weight of 76.2%. The researcher attributes this evaluation to the limited attention given by the Ministry of Education to the implementation of digital transformation. It may be a result of insufficient financial and human resources faced by the Palestinian government for an extended period. Or it could be due to a shortage of human resources within the ministry, resulting from inadequate training for employees to support the ministry's efforts towards digital transformation.

The technology and infrastructure dimension outperformed the other dimensions of digital transformation, as it obtained the highest rank with a mean of 3.51, a standard deviation of 0.70, a relative weight of 70.2%, and a high rating according to the answers of the sample members. The researcher attributes the superiority of this axis to the fact that the Ministry was well prepared from the technical and structural aspects and provided all the necessary equipment and supplies and appropriate communications for employees, especially after the Corona pandemic.

The human requirements axis came in with the lowest ranking, with a mean of 2.96, a standard deviation of 0.84, a relative weight of 58.0%, and an average rating, according to the answers of the sample members. The researcher attributes the low level of this item to the lack of interest of the Ministry of Education in building the capabilities of its human staff to be supportive of digital transformation efforts. Or the lack of motivation that the Ministry provides to its human resources to support their efforts in implementing digital transformation. The figure below shows the ranking of digital transformation axes.

4.4 Evaluating the Study Hypotheses

The researcher used statistical methods appropriate to the nature of the data and the study hypotheses to evaluate his hypotheses. The data were analyzed to evaluate the extent to which the null hypotheses set by the researcher were accepted or rejected at a significance level ($\alpha \leq 0.05$). The results are as follows:

The main question is: What is the effect of digital leadership and its dimensions (digital competencies, visionary leadership, and innovation) on digital transformation and its dimensions (plans and strategies, technology and infrastructure, organizational culture, human requirements) in Palestinian Ministry of Education?

The following main hypothesis emerges from this question:

Main hypothesis: There is no statistically significant effect at the significance level ($\alpha \leq 0.05$) of the digital leadership and its dimensions (digital competence, visionary leader, innovation) on digital transformation and its dimensions (planning and strategies, technology and infrastructure, organizational culture, human resources) in the Ministry of Education in Palestine. The following are the study questions and associated hypotheses:

Answering the third study question: What is the effect of digital leadership on digital transformation in the Palestinian Ministry of Education?

The first hypothesis

H_0: There is no statistically significant effect at the significance level ($\alpha \leq 0.05$) of digital leadership on digital transformation in the Ministry of Education in Palestine.

To evaluate the hypothesis, the researcher employed a simple linear regression analysis to investigate the effect of digital leadership on digital transformation.

The researcher made sure that the basic assumptions necessary to conduct a simple linear regression test were met. In the previous chapter (Methodology), the normal distribution of the data as well as multicollinearity were discussed. The normal distribution of the data examined, and the results indicated that the data tends towards a normal distribution. In addition, the issue of multicollinearity was evaluated, and the results showed that the data were not subject to multicollinearity.

Moreover, the relationship between the explanatory variable and the dependent variable was examined, and the results showed that the relationship between them is linear. After conducting the test and examining the distribution of the residuals, the histogram results showed that the residuals followed a normal distribution.

Therefore, this examination enhances confidence in the strength and reliability of simple linear regression analysis, ensuring that the statistical results derived from the model are valid and can be interpreted with confidence. The table below presents a simple linear regression analysis result.

Table 4.7: Regression analysis of digital leadership on digital transformation in the Palestinian Ministry of Education

R Square	**0.437**	
F Value	193.91	
F (Significance)	0.000	Significant
(Constant)	0.205	Significant
Beta of Digital Leadership	0.588	Significant

The findings from the simple linear regression analysis reveal a meaningful effect of digital leadership on digital transformation. indicating that as digital leadership increases, digital transformation tends to increase as well. The R square value of 0.437 indicates that 43.7% of the variability in digital transformation can be explained by the variance in digital leadership, demonstrating the need for other variables.

The statistical significance of the model is supported by the F-value of 193.91, coupled with a low p-value of 0.000. This implies that at least one predictor variable (digital leadership) significantly influences the dependent variable (digital transformation).

The beta values provide insights into the strength and direction of the relationship. A beta value of 0.588 implies that, on average, a one-unit increase in digital leadership is associated with a 0.588-unit increase in digital transformation.

Based on the above results, the null hypothesis was rejected, and the alternative hypothesis was accepted, and there was a statistically significant effect of the digital leadership variable on the digital transformation of the Palestinian Ministry of Education. The researcher interprets the observed result by highlighting the respondents' recognition of the pivotal role played by digital leadership in fostering digital transformation within

the Palestinian Ministry of Education. This type of leadership is characterized by possessing a forward-looking vision, clear objectives, and the ability to formulate effective plans and strategies. Consequently, the statistical significance observed in the effect of the digital leadership variable on digital transformation is attributed to the participants' awareness of its importance. Based on the above, we can write the simple linear regression equation as follows:

$$Y=\beta 0 + \beta 1\ X + \varepsilon$$

Digital transformation= 0.208 + 0.588 (digital leadership) + error term

The effect of digital leadership dimensions (digital competencies, visionary leadership, and innovation) on digital transformation.

The researcher used multiple linear regression analysis to determine the effect of digital leadership dimensions (digital competencies, wise leadership, and innovation) on digital transformation.

The researcher made sure that the necessary assumptions to conduct a multiple linear regression test were met. In the previous chapter (Methodology), the normal distribution of the data as well as multicollinearity were discussed. The normal distribution of the data examined, and the results indicated that the data tends towards a normal distribution. In addition, the issue of multicollinearity was evaluated, and the results showed that the data were not subject to multicollinearity.

Moreover, the relationship between the explanatory variables and the dependent variable was examined, and the results showed that the relationship between them is linear. After

conducting the test and examining the distribution of the residuals, the histogram results showed that the residuals followed a normal distribution.

Therefore, this examination enhances confidence in the strength and reliability of multiple linear regression analysis, ensuring that the statistical results derived from the model are valid and can be interpreted with confidence. The table below presents a multiple linear regression analysis result.

Table 4.8: Regression Analysis of Digital Leadership Dimensions on Digital Transformation

R Square	**0.436**	
F Value	63.955	
F (Significance)	0.000	Significant
(Constant)	0.208	Significant
Beta of Digital Competencies	0.174	Significant
Beta of Visionary Leadership	0.173	Significant
Beta of Innovation	0.238	Significant

To find out the effect of digital competencies, visionary leadership, and innovation on digital transformation, a multiple linear regression model was used in which digital competencies, visionary leadership, and innovation were considered as explanatory variables and digital transformation as a dependent variable. The findings from the multiple linear regression analysis, as shown in the table above, reveal a meaningful effect of explanatory variables on digital transformation. indicating that as explanatory variables increase, digital transformation tends to increase as well. The R square value of 0.436 indicates that 43.6% of the variability in digital transformation can be explained by the variance in explanatory variables, demonstrating that some other variables are needed.

The statistical significance of the model is supported by the F-value of 63.955, coupled with a low p-value of 0.000. This implies that at least one predictor variable (digital competencies, visionary leadership, and innovation) significantly influences the dependent variable (digital transformation). Below are the answers to the study questions and related hypotheses.

Answer to the fourth study question: What is the effect of digital competencies on digital transformation in the Palestinian Ministry of Education?

The second hypothesis:

H_0: There is no statistically significant effect of digital competences on digital transformation in the Ministry of Education in Palestine.

Based on the results in Table 4.8, the null hypothesis was rejected and so the alternative hypothesis was accepted. There is a significant effect of the digital competences' variable on digital transformation at the Ministry of Education. A beta value of 0.174 implies that, on average, a one-unit increase in digital competences is associated with a 0.174 unit increase in digital transformation.

Answer to the fifth study question: What is the effect of visionary leadership on digital transformation in the Palestinian Ministry of Education?

The third hypothesis:

H_0: There is no statistically significant effect of the visionary leadership on digital transformation in the Ministry of Education in Palestine.

Based on the result in Table 4.8, the null hypothesis was rejected, and the alternative hypothesis was accepted. There is a significant effect of the visionary leadership variable

on digital transformation at the Ministry of Education. A beta value of 0.173 implies that, on average, a one-unit increase in visionary leadership is associated with a 0.173-unit increase in digital transformation.

Answer to the sixth study question: What is the effect of innovation on digital transformation in the Palestinian Ministry of Education?

The fourth hypothesis:

H_0: There is no statistically significant effect of the innovation on digital transformation in the Ministry of Education in Palestine.

Based on the result in Table 4.8, the null hypothesis was rejected, and the alternative hypothesis was accepted. There is a significant effect of the innovation variable on digital transformation at the Ministry of Education. A beta value of 0.238 implies that, on average, a one-unit increase in innovation is associated with a 0.238-unit increase in digital transformation.

Based on the above, the researcher can write the multiple linear regression equation as follows:

$$Y=\beta 0+\beta 1X1+\beta 2X2+...+\beta nXn+\varepsilon$$

Digital transformation= 0.208+ 0.174 (digital competences) + 0.173 (visionary leadership) + 0.238 (innovation)+ error term.

Answer to the seventh study question: Are there statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, and academic qualification)?

The fifth hypothesis:

H_0: There are no statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation at the Ministry of Education due to the different demographic variables (gender, age, years of experience, administrative level, and academic qualification).

To verify this hypothesis and the fact that the gender variable consists of two groups, male and female, the researcher used the t-test for independent samples. As for the rest of the demographic variables, which consist of three groups for each of these variables (age, years of experience, administrative level, and academic qualification), the researcher used the One-Way ANOVA test.

Before conducting the tests, the researcher checked the availability of assumptions to ensure the strength and validity of the analysis. According to Kent State University (2021), both tests have the same assumptions except for the number of groups in the independent variables. The following explains the availability of conditions for conducting the two tests:

1. Nature of Variables: The dependent variable, "digital transformation," is affirmed to be of a continuous type. The independent variable, "gender," comprised two groups. And the other independent variables (age, years of

experience, administrative level, academic qualification) comprised three groups for each one.

2. Sampling Method: Samples were selected randomly and independently from the study population, utilizing the simple random sampling method. This ensured that each member of the community had an equal and independent chance of being included in the study.
3. Normal Distribution: The normal distribution of the dependent variable (digital transformation) between the two groups or three groups assessed through histograms. The results revealed that the dependent variable exhibited a normal distribution (almost) within independent groups.
4. Homogeneity of Variances: The homogeneity of variances was evaluated using the Levene test, examining whether the variances of the dependent variable (digital transformation) were consistent between the male and female groups. The results indicated that the variances were equal.
5. Outliers: Outliers meticulously were examined and addressed using boxplots.

A comprehensive examination of these conditions showed that all the basic requirements of the t-test and one-way ANOVA test were met. This ensures that subsequent statistical results will be valid and can be interpreted with a high degree of confidence.

T-Test Results: The table below presents the results of the t-test, summarizing the statistical findings derived from the analysis.

Table 4.9: T-Test results for digital transformation between Male and Female groups.

Group	Mean	Std. deviation	Sample size	t-value	p-value
Male	3.46	0.637	138	2.79	0.006
Female	3.25	0.525	114		

The results in Table (4.9) indicate that the average estimates of the study sample of males are higher than the average estimates of females, with a difference of 0.21 in favor of males. The p-value, which reached 0.006, which is less than 0.05, indicates rejection of the null hypothesis and acceptance of the alternative hypothesis, and thus it is clear that there are statistically significant differences between the average estimates of the study sample according to the gender variable.

The researcher attributes this result to the weak representation of females in leadership positions in the Ministry of Education, as females constitute 31.8% of these positions, including department heads and above (see Table 3.1). Given the low representation of females in leadership administrative levels, their participation and appreciation for levels of digital transformation may be less due to their distance from decision-making roles and participation in digital transformation procedures. Consequently, this leads to clear differences in their responses to the level of digital transformation compared to males.

Additionally, females often find themselves in management roles under department heads, which may impact their perception of digital transformation and their ability to contribute to digital transformation within the organization. This may also negatively

affect their levels of job satisfaction, and thus their assessment of the level of digital transformation within the ministry.

One-Way ANOVA Results: The table below presents the results of the t-test, summarizing the statistical findings derived from the analysis.

Table 4.10: One-Way ANOVA results for digital transformation between groups, considering age, years of experience, administrative level, and academic qualification

Variables	Category	Mean	p-value	(Sig)
Age	Under 30	3.45	0.963	Not significant
	Between 30 and 40	3.34		
	Above 40	3.36		
Years of experience	Under 5 years	3.50	0.412	Not significant
	Between 5 and 10	3.30		
	Above 10	3.35		
Administrative level	Under head division	3.30	0.093	Not significant
	Head division	3.35		
	Manager and above	3.55		
Academic qualification	Diploma	3.44	0.123	Not significant
	Bachelors	3.30		
	postgraduate	3.48		

Table (4.10) shows the results of the One-Way ANOVA analysis, and the p-value for all variables in the table indicates that it is greater than 0.05. That is, there are no differences in the average responses of the study sample to the level of digital transformation due to the different demographic variables (age, years of experience, administrative level, academic qualification). Based on these results, the fifth null hypothesis was partially rejected, and therefore the answer to the seventh question is that there are statistically

significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the gender variable, while there are no differences due to the rest of the demographic variables (age, years of experience, administrative level, educational qualification).

The researcher attributes this result to informing employees, with their various years of experience, of the measures taken by the Ministry of Education in the areas of digital transformation, including planning and strategy development, building an organizational culture that supports digital transformation, and the Ministry's ability to provide technical supplies and infrastructure and build human resources capabilities. This was reflected in the employees' ability to evaluate the level of digital transformation at the Ministry of Education.

Answer to the eighth study question: Are there statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, age, years of experience, administrative level, academic qualification)?

The sixth hypothesis:

H_0: There are no statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, age, experience, administrative level, academic qualification).

To verify this hypothesis and the fact that the gender variable consists of two groups, male and female, the researcher used the t-test for independent samples. As for the rest of the demographic variables, which consist of three groups for each of these variables (age, years of experience, administrative level, and academic qualification), the researcher used the one-way ANOVA test.

Before conducting the tests, the researcher checked the availability of assumptions to ensure the strength and validity of the analysis. According to Kent State University (2021), both tests have the same assumptions except for the number of groups in the independent variables. The following explains the availability of conditions for conducting the two tests:

1. Nature of Variables: The dependent variable, "digital leadership," is affirmed to be of a continuous type. The independent variable, "gender," comprised two groups. And the other independent variables (age, years of experience, administrative level, academic qualification) comprised three groups for each one.
2. Sampling Method: Samples were selected randomly and independently from the study population, utilizing the simple random sampling method. This

ensured that each member of the community had an equal and independent chance of being included in the study.

3. Normal Distribution: The normal distribution of the dependent variable (digital leadership) between the two groups or three groups assessed through histograms. The results revealed that the dependent variable exhibited a normal distribution (almost) within independent groups.
4. Homogeneity of Variances: The homogeneity of variances was evaluated using the Levene test, examining whether the variances of the dependent variable (digital leadership) were consistent between the male and female groups. The results indicated that the variances were equal.
5. Outliers: Outliers meticulously were examined and addressed using boxplots.

A comprehensive examination of these conditions showed that all the basic requirements of the t-test and one-way ANOVA test were met. This ensures that subsequent statistical results will be valid and can be interpreted with a high degree of confidence.

T-Test Results: The table below presents the results of the t-test, summarizing the statistical findings derived from the analysis.

Table 4.11: T-Test results for digital leadership between Male and Female groups.

Group	Mean	Std. deviation	Sample size	t-value	p-value
Male	3.83	0.611	138	3.369	0.001
Female	3.57	0.628	114		

The results in Table (4.11) indicate that the average estimates of the study sample of males are higher than the average estimates of females, with a difference of 0.26 in favor of

males. The p-value, which reached 0.001, which is less than 0.05, indicates rejection of the null hypothesis and acceptance of the alternative hypothesis, and thus it is clear that there are statistically significant differences between the average estimates of the study sample according to the gender variable.

The researcher attributes this result to the higher representation of males in leadership positions within the Ministry of Education, where males constitute 68.2% of these positions from department heads and above. Due to this significant male dominance, their participation and appreciation of digital leadership levels might be higher because of their proximity to decision-making roles and their greater awareness of digital transformation procedures. Consequently, this leads to clear differences in their responses to digital leadership compared to females.

Additionally, females often find themselves in administrative roles below department heads, which could affect their perception of digital leadership and their ability to contribute to digital transformation within the organization. This could also negatively impact their job satisfaction levels and, consequently, their appraisal of digital leadership within the ministry.

One-Way ANOVA Results: The table below presents the results of the t-test, summarizing the statistical findings derived from the analysis.

Table 4.12: One-Way ANOVA Results for Digital leadership Between Groups, Considering Age, Years of Experience, Administrative Level, and Academic Qualification

Variables	Category	Mean	p-value	(Sig)
Age	Under 30	3.80	0.789	Not significant
	Between 30 and 40	3.68		
	Above 40	3.69		
Years of experience	Under 5 years	3.86	0.044	Significant
	Between 5 and 10	3.49		
	Above 10	3.72		
Administrative level	Under head division	3.72	0.683	Not significant
	Head division	3.64		
	Manager and above	3.73		
Academic qualification	Diploma	3.74	0.919	Not significant
	Bachelors	3.68		
	postgraduate	3.72		

Table (4.12) shows the results of the one-way ANOVA analysis, and the p-value for all variables in the table indicates that it is greater than 0.05. Except for the years of experience variable, it had a value of less than 0.05 and is therefore statistically significant, meaning there are statistically significant differences in the study sample's answers regarding the level of digital leadership due to the years of experience variable. To find out which group made the differences, the researcher conducted Scheffe's post-hoc comparisons test, and the results were as follows:

Table 4.13: Scheffe's Post-Hoc comparisons for group differences

Comparisons	P-value	(Sig)
Under 5 years ------- Between 5 and 10	0.034	Significant
Under 5 years -------- Above 10	0.447	Not Significant
Between 5 and 10 --------- Above 10	0.088	Not Significant

It is clear to us from table (3.14) that the reason for the statistically significant differences in answers in the averages of the answers of the study sample is due to the difference between the youngest age group (under 5 years) and the next age group (between 5 and 10 years), In favor of those with less than 5 years of experience, this category is the highest in terms of arithmetic average. While the difference between the remaining categories is not statistically significant.

The researcher attributes this result to the fact that the new employees lack the ability to judge the capabilities of their direct managers in the field of digital transformation, and perhaps they were not involved in the digital transformation process in a way that would qualify them to judge the capabilities of their managers, and thus they tend to give high ratings to their managers compared to the rest of the categories.

Based on these results, the sixth null hypothesis was partially rejected, and therefore the answer to the eighth question is that there are statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership in the Ministry of Education due to the gender, and years of experience, while there are no differences due to the rest of the demographic variables (age, administrative level, educational qualification).

Chapter Five: Results and Recommendations

5.1 Introduction

This chapter presents the results reached by the researcher, provides a presentation and discussion of these results, and then presents recommendations based on these results. This chapter also includes recommendations for future studies.

5.2 Study Findings

The researcher summarizes the results of the study as follows:

First: Results of the opinions of the study sample members on the level of digital leadership and digital transformation.

Digital leadership:

The results of the study showed that the overall score for the level of digital leadership in the Ministry of Education was medium, with a weighted average of 3.70 and a standard deviation of 0.68. The results for the dimensions of digital leadership (digital competencies, visionary leadership, and innovation) showed that the digital competencies came with an arithmetic average of 3.82 and a medium level. Innovation was also at a medium level, with an arithmetic average of 3.68, while visionary leadership was also medium, with an arithmetic average of 3.59. Therefore, the level of digital leadership at the Palestinian Ministry of Education from the viewpoint of its employees was medium.

Digital transformation:

The results of the study showed that the overall score for the level of digital transformation in the Ministry of Education was medium, with a weighted average of 3.36 and a standard deviation of 0.65. The results for the dimensions of digital transformation (plans and strategies, technology and infrastructure, organizational culture, and human resources) showed that technology and infrastructure came in at a medium level, with an average of 3.51. Organizational culture also came at a level of medium, with an average of 3.50. The level of plans and strategies also came at a level of medium, with an average of 3.59. The level of human resources was medium, with an average of 2.96. Therefore, the level of digital transformation at the Palestinian Ministry of Education, from the viewpoint of its employees, was medium.

Second: Results of testing the study hypotheses

The result of the First hypothesis: There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of digital leadership on digital transformation in the Ministry of Education in Palestine.

The result of the second hypothesis: There is a statistically significant effect of digital competencies on digital transformation in the Ministry of Education in Palestine.

The result of the third hypothesis: There is a statistically significant effect of the visionary leadership on digital transformation in the Ministry of Education in Palestine.

The result of the fourth hypothesis: There is a statistically significant effect of the innovation on digital transformation in the Ministry of Education in Palestine.

The result of the fifth hypothesis: There are statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the gender variable. While there are no statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the demographic variables (age, years of experience, administrative level, educational qualification).

The result of the sixth hypothesis: There are statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, and years of experience). while there are no statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education, due to the different demographic variables (age, administrative level, and academic qualification).

The result of the main hypothesis: There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of the digital leadership and its dimensions (digital competence, visionary leader, innovation) on the digital transformation (planning and strategies, technology and infrastructure, Organizational culture, human resources) in the Ministry of Education in Palestine.

5.3 Discussion

In this part, the results reached by the study are discussed, as follows:

First: Discussing the results of the opinions of the study sample members on digital leadership and digital transformation**.**

Digital leadership:

The study sample has assessed the level of digital leadership at the Palestinian Ministry of Education, revealing a weighted average of 3.70 and a standard deviation of 0.68, indicating a medium level with a relative weight of 74%.

The current study was consistent with the study by Abu Hayya (2021), as the results of the study showed that the level of digital leadership in UNRWA schools in the Gaza Strip was moderate. The researcher attributes the consistency of the current study with this study to the fact that both studies were conducted in the Palestinian context, where institutions are subject to almost the same circumstances in terms of training employees to lead digital transformation in their institutions. On the other hand, the lack of financial support for institutions may constitute an obstacle to providing the necessary training to provide employees with digital skills and capabilities that enable them to lead in the digital age. In addition, both studies were conducted in the Palestinian education sector.

The current study was inconsistent with the study by Al-Faris (2022), as the study showed that the level of evaluation of digital leadership in Kuwaiti hospitals came in a positive direction. The current study was also inconsistent with the study by Al-Fahdawi (2022), which concluded that there is a high level of digital leadership in Iraqi telecommunications companies. The current study was also inconsistent with the study by Al Tai-Baqir (2021), which showed that the level of digital leadership in the Najaf

Directorate in Iraq is high. The current study was also consistent with the study by Al-Shamrani (2023), where the level of digital leadership at the Saudi Red Crescent from the point of view of their employees was high. The researcher attributes the inconsistency of the results of the current study with the findings of these studies to the fact that the studies were applied in the context of institutions that have financial support that enables them to conduct the necessary training and support for employees and develop their capabilities, skills, and digital knowledge, in addition to the countries in which these studies were conducted. It is classified as a high-income country due to the availability of natural resources and wealth, and therefore the material, technical, and human capabilities will be at the highest level available in these countries.

Digital leadership:

The study sample has assessed the level of digital transformation at the Palestinian Ministry of Education, revealing a weighted average of 3.36 and a standard deviation of 0.65, indicating a medium level with a relative weight of 67.2%.

The results of this study align with a previous study conducted by Abu Hashish and al-Halimi (2023), revealing that the level of digital transformation in the Palestinian Ministry of Education in the Gaza Strip, as perceived by school principals, is moderate. This concurrence is attributed to both studies being implemented within the context of the Palestinian Ministry of Education, despite differences in the study samples and locations. While the prior study was conducted in the directorates of education in the Gaza Strip under the authority of the Ministry of Education, the current study was conducted within the ministry itself. The researcher sees that the weakness in the level of digital transformation implementation in the education directorates may stem from a weakness

in the level of implementation of digital transformation in the central branch of the Ministry of Education. Moreover, the current study was consistent with another study conducted by Sabah (2021), which indicated that the level of digital transformation in Khan Younis Municipality needs improvement.

The current study was inconsistent with the study by Al Najjar et al. (2023), which indicated that the level of digital transformation is high in non-governmental organizations, with a relative weight of 83.92%. The researcher attributes this to the fact that this study was conducted on non-governmental organizations while the current study was conducted on a government institution, as government institutions often face organizational structures that support centralization in decision-making, which may cause complexity in administrative procedures, which makes digital transformation processes more complex and slower. Compared to non-governmental organizations, it is also important to note that budget constraints and a lack of funding in government institutions may affect the process of implementing technology and training employees, as it requires large investments, while non-governmental organizations may allocate resources more freely to digital initiatives.

Moreover, the current study was also inconsistent with the study by Al-Jarboui (2022), which demonstrated that there was a high degree of digital transformation in Saudi Arabian training facilities. The study was inconsistent with the study by Al-Shehri and Abdel-Khair (2023), demonstrating that the level of digital transformation in the Saudi General Security sector is high. The researcher attributes this difference to the challenging conditions in Palestine as opposed to Saudi Arabia, which has the resources to facilitate digital transformation.

Second: Discussing the results of testing the study hypotheses

The first hypothesis result: There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of digital leadership on digital transformation in the Ministry of Education in Palestine.

These results constitute further evidence of the importance of digital leadership in implementing digital transformation. These results reinforce the broad understanding that success in digital transformation depends on the presence and development of effective digital leadership committed to achieving institutional goals in the era of technology and rapid change. A positive beta value of 0.588 indicates a direct and significant effect, indicating that an increase in digital leadership is associated with a corresponding increase in digital transformation.

The R square value of 43.7% shows that digital leadership can explain an important proportion of the variance in digital transformation, with the need for more explanatory variables. This highlights the significant effect that digital leadership can have on guiding and accelerating transformation processes. The results reinforce the ongoing need to develop digital leadership skills and promote this type of leadership in the context of government organizations.

The current study was consistent with the study by Al-Damaty (2023), which showed that digital leadership affects organizational improvisation, and the current study was consistent with the study by Al-Fahdawi (2022), as the study showed a positive and significant effect of digital leadership in achieving organizational brilliance. Also, the current study was consistent with the study by Al-Faris (2022), which showed a significant impact of digital leadership on the performance of employees in Kuwaiti

hospitals. The current study was consistent with the study by Al Tai-Baqir (2021), as the study showed an impact of digital leadership on the organizational culture of employees in the Najaf Directorate in Iraq. The current study was consistent with the study by Al-Shamrani (2023), which showed a significant positive effect of digital leadership on achieving institutional excellence.

The second hypothesis result: There is a statistically significant effect of digital competences on digital transformation in the Ministry of Education in Palestine.

These results constitute further evidence of the importance of digital competencies in implementing digital transformation. These results reinforce the broad understanding that success in digital transformation depends on the presence and development of effective digital competencies for leadership. A positive beta value of 0.174 indicates a direct and significant effect, indicating that an increase in digital competencies is associated with a corresponding increase in digital transformation.

The R square value of 43.6% shows that digital competencies can explain an important proportion of the variance in digital transformation. This highlights the significant effect that digital competences can have on guiding and accelerating transformation processes. The findings reinforce the ongoing need to develop digital skills, capabilities, and knowledge for leadership in organizations.

The current study was consistent with the study by Al-Fahdawi (2022), as the study showed a positive and significant effect of digital competencies in achieving organizational brilliance. The current study was consistent with the study by Min and Kim (2021), which showed the positive impact of digital transformation competencies on both platform development strategy and envelopment strategy. The current study was

consistent with the study by Zabolotska et al. (2021) on the importance of digital competence, as the researcher saw that the basis of transformations in education in Ukraine is digital literacy and digital competencies for all teachers.

The third hypothesis result: There is a statistically significant effect of visionary leadership on digital transformation in the Ministry of Education in Palestine.

These results constitute further evidence of the importance of visionary leadership in implementing digital transformation. These results reinforce the broad understanding that success in digital transformation depends on the presence and development of effective visionary leadership. A positive beta value of 0.173 indicates a direct and significant effect, indicating that an increase in visionary leadership level is associated with a corresponding increase in digital transformation level.

The R square value of 43.6% shows that visionary leadership can explain an important proportion of the variance in digital transformation. This highlights the significant effect that visionary leadership can have on guiding and accelerating transformation processes.

The current study was consistent with the study by Al-Fahdawi (2022), as the study showed a positive and significant impact of visionary leadership in achieving organizational brilliance. The current study was also consistent with the study by Taylor et al. (2014), as the study identified meaningful links between visionary leadership and perceptions of organizational effectiveness. The study also showed that organizations led by visionary leaders achieve the highest levels of tangible organizational effectiveness. The current study was also consistent with the study by Groves (2006), which showed that visionary leaders facilitate greater organizational changes in their organizations.

The fourth hypothesis result: There is a statistically significant effect of innovation on digital transformation in the Ministry of Education in Palestine.

These results constitute further evidence of the importance of innovation in implementing digital transformation. These results reinforce the broad understanding that success in digital transformation depends on innovation. A positive beta value of 0.238 indicates a direct and significant effect, indicating that an increase in innovation level is associated with a corresponding increase in digital transformation level.

The R square value of 43.6% shows that innovation can explain an important proportion of the variance in digital transformation. This highlights the significant effect that innovation can have on guiding and accelerating transformation processes.

The current study was consistent with the study by Al Tai-Baqir (2021), as the study showed the positive impact of innovation as one of the dimensions of digital leadership on the organizational culture of workers in the Najaf Al-Ashraf Directorate in Iraq. The current study was also consistent with the study by Al-Shamrani (2023), which showed a significant positive impact of digital leadership, with its innovative dimension, on achieving institutional excellence. This study was also consistent with the study of Kostić (2018), which showed that innovations play a significant role in companies remaining in the market and withstanding the pressures of their competitors. The current study was consistent with the study by Al-Faris (2022), which showed a statistically significant effect of innovation on the performance of workers in Kuwaiti hospitals.

The fifth hypothesis result: There are a statistically significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the gender variable. While there are no statistically

significant differences in the answers of the study sample members towards assessing the level of digital transformation in the Ministry of Education due to the demographic variables (age, years of experience, administrative level, educational qualification).

The results indicate that the average estimates of the study sample of males are higher than the average estimates of females, with a difference of 0.16 in favor of males. The researcher attributes this result to the underrepresentation of females in leadership roles and variations in educational backgrounds and job roles among employees.

The researcher attributed the absence of a difference in the answers of the study sample members to assess the level of digital transformation due to the rest of the demographic variables (age, years of experience, administrative level, educational level) informing employees, regardless of their ages, years of experience, administrative level, or educational level, on the procedures that were taken by the Ministry of Education in the areas of digital transformation. This was reflected in the employees' ability to evaluate the level of digital transformation in the Ministry of Education.

The results of the current study were consistent with the study by Al Najjar et al. (2023), which showed that there were statistically significant differences in the average estimates of sample members about digital transformation due to the gender variable. The current study agreed with this study, which showed that there were no statistically significant differences in the average response of sample members regarding digital transformation due to the age group variable. The case study differed from this study, which showed that there were statistically significant differences in the average estimates of sample members about digital transformation due to the variable number of years of service. The researcher attributes the similarities and differences between the current study and the study by Al

Najjar et al. (2023) to the almost identical distribution of sample members in terms of gender and age groups. While differences appeared in percentages related to years of experience.

The results of the current study were consistent with the study by Mahmoud and Salah (2016), which showed that there were no statistically significant differences in the average estimates of the sample members about digital transformation due to the variables (years of service, job title, academic qualification, age), while the current study differed with this study, which showed that there were no differences due to the gender variable.

The sixth hypothesis result: There are a statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (gender, and years of experience). while there are no statistically significant differences in the answers of the study sample members towards assessing the level of digital leadership at the Ministry of Education due to the different demographic variables (age, administrative level, and academic qualification).

The results indicate that there is a significant difference in the answers of the study sample members due to the gender variable. The results showed that the average estimates of the study sample for males were higher than the average estimates for females, with a difference of 0.27 in favor of males. The researcher attributed this result to the lack of female representation in leadership roles and the difference in educational backgrounds and job roles among employees.

The results also indicate that there is a significant difference in the answers of the study sample members due to the variable years of experience. The results showed that the

reason for the statistically significant differences in the averages of the study sample's answers is due to the difference between the youngest age group (less than 5 years) and the next age group (between 5 and 10), and for the benefit of those with less than 5 years of experience, this group is considered the highest. While the difference between the remaining categories is not statistically significant, the researcher attributes this result to the fact that new employees lack the ability to judge the capabilities of their direct managers in the field of digital transformation and may not have participated in the digital transformation process in a way that qualifies them to judge the capabilities of their managers, and therefore they tend to give high ratings.

The results showed also that there is no significant difference in the answers of the study sample members due to the variables (age, academic qualification, administrative level).

This result was consistent with the study of Abu Hayya (2021) which concluded that there were no statistically significant differences in the degree of principals' practice in UNRWA schools in the southern governorates of Palestine due to the variable (scientific qualification). The current study was differed with this study, which concluded that there were no Statistically significant differences in the degree of principals' practice in UNRWA schools in the southern governorates of Palestine due to the variables (years of experience and gender). The researcher attributes this to the fact that the distribution of the study sample is almost similar in terms of academic qualifications and differs in terms of years of experience since educational jobs are of interest to officials in terms of the continuation of the employment process and differs in terms of the number of females and males.

These results were consistent with the study of Mahmoud and Salah (2016) which showed that there were no differences according to age on the results of the study.

This study was inconsistent with the study of Zhong (2016), which found that there was no statistically significant difference in the level of digital leadership among school principals attributable to the gender of teachers.

5.4 Recommendations

Based on the findings of the study regarding digital leadership and digital transformation at the Palestinian Ministry of Education, the following recommendations were suggested:

1. Designing customized training programs for Ministry employees, focusing on technical risk management, data security, and analysis.
2. Increase efforts to enhance awareness of the importance of digital transformation among employees by creating digital platforms to exchange ideas and experiences among employees and publishing periodic publications and websites that explain the importance of digital transformation and its benefits.
3. Encouraging managers and employees to actively participate in developing digital solutions at the ministry level by launching internal competitions that encourage the proposal of innovative digital solutions, including financial incentives or promotions for employees who actively contribute to developing digital solutions.
4. Ensuring the integration of the software used in the ministry to ensure its security and data governance.
5. Enhancing communication between departments by holding periodic meetings for department representatives to exchange knowledge and identify opportunities for cooperation in the field of digital transformation and using electronic platforms to facilitate communication and the exchange of information.

6. Allocate sufficient administrative and financial resources to support the planning, monitoring, and implementation of digital transformation initiatives by preparing a special budget to support digital transformation initiatives and effectively directing human and financial resources towards priority projects.
7. Redesign traditional processes to improve efficiency and flexibility using digital technology by evaluating traditional processes and identifying opportunities to improve efficiency using digital technology. Implement gradual changes with periodic follow-up and evaluation.
8. Investing in hiring experts and specialists by employing experts in the field of digital transformation to provide specialized consultations and organizing workshops and training sessions with experts to transfer knowledge to employees.
9. Re-evaluating the rewards and promotions system by analyzing employees' competencies in the field of digital transformation and including them among the promotion conditions and restructuring the rewards system to encourage effective contribution to digital transformation.
10. Promoting a culture of continuous learning and adaptation among leaders in the Ministry of Education. By providing leaders with continuous and diverse educational opportunities, including training courses, workshops, and seminars, with the aim of developing their skills in understanding and appreciating current and future technological transformations. and improve their ability to anticipate, understand and guide the process of change in the digital environment.

5.5 Suggestions for Future Studies

1. Conducting comparative studies with ministries of education in countries in the region or the world to understand the similarities and differences in digital leadership and digital transformation strategies.
2. A study to evaluate the efficiency of current training programs in transferring digital skills and promoting digital transformation at the Palestinian Ministry of Education.
3. Study the role of emerging technology such as artificial intelligence and machine learning in enhancing digital leadership and digital transformation in Palestinian public sector institutions.

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Appendices

7.1 A letter requesting facilitation of the research mission from the Arab American University addressed to the Palestinian Ministry of Education.

Arab American University
Faculty of Graduate Studies

الجامعة العربية الأمريكية
كلية الدراسات العليا

2023/12/5

السادة وزارة التربية والتعليم المحترمين

تسهيل مهمة بحثية

تحية طيبة وبعد،

تُهديكم كلية الدراسات العُليا في الجامعة العربية الأمريكية أطيب التحيات، وبالإشارة الى الموضوع أعلاه، تشهد كلية الدراسات العُليا في الجامعة أن الطالب **صالح فلاح صالح عياش** والذي يحمل الرقم الجامعي 201912857 هو طالب ماجستير في برنامج التخطيط الاستراتيجي وتجنيد الأموال ويعمل على رسالة الماجستير الخاصة به بعنوان:

" تأثير القيادة الرقمية على تطبيق سياسة التحول الرقمي لدى وزارة التربية والتعليم في فلسطين "، تحت إشراف الدكتور أكرم حمدان .نأمل من حضرتكم الإيعاز لمن يلزم لمساعدته للحصول على المعلومات اللازمة للدراسة،علماً أن المعلومات ستستخدم لغاية البحث فقط وسيتم التعامل معها بغاية السرية، وقد أعطي هذه الرسالة بناءً على طلبه.

وتفضلوا بقبول فائق الاحترام

عميد كلية الدراسات العليا

د. نوار قطب

كلية الدراسات العليا
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7.2 A letter of approval to facilitate the researcher's research mission form Ministry of Education.

State of Palestine
Ministry of Education
Center for Educational Research and Development

دولة فلسطين
وزارة التربية والتعليم
مركز البحث والتطوير التربوي

الرقم : و ت /مذكرة داخلية/٥٧٧
التاريخ : 05 / 12 /2023م

حضرة الأخت نيفين مصلح المحترمة
مدير وحدة العلاقات الدولية والعامة

تحية طيبة وبعد،

الموضوع: تسهيل مهمة بحثية للباحث صالح فلاح صالح عياش

يهديكم مركز البحث والتطوير التربوي أطيب تحية، وبالإشارة إلى الموضوع أعلاه نعلمكم أن الباحث المذكور أعلاه من **الجامعة العربية الامريكية**، تقدم بطلب تسهيل مهمة لمركز البحث والتطوير التربوي؛ لإجراء دراسة بعنوان: "**تأثير القيادة الرقمية على تطبيق سياسة التحول الرقمي لدى وزارة التربية والتعليم في فلسطين**"، وسيقوم الباحث بتطبيق الدراسة على الموظفين الإداريين العاملين في وزارة التربية والتعليم. نرجو منكم التكرم بتسهيل مهمته.

رابط الاستبيان: https://moe.edu.ps/m/1427

مع الاحترام،

د. محمد مطر
/مدير عام مركز البحث والتطوير التربوي

نسخة: عطوفة وكيل الوزارة المحترم.
عطوفة الوكيل المساعد للشؤون التعليمية المحترم.
د. أكرم حمدان/ المشرف على الدراسة. البريد الإلكتروني: akram.hamdan@aaup.edu
الباحث صالح فلاح صالح عياش. البريد الإلكتروني saleh.ayyash@moe.edu.ps
د.مطر/د.س

7.3 Names of Arbitrators for The Questionnaire

الاسم	الرتبة	مكان العمل
أ.د نبيل جندي	أستاذ	جامعة الخليل
أ.د عادل ريان	أستاذ	جامعة القدس المفتوحة
د. محمد خلاف	أستاذ مساعد	جامعة البوليتكنك / الخليل
د. كمال مخامرة	استاذ مشارك	جامعة الخليل
د. أمجد شحادة	رئيس قسم	الادارة العامة للتقنيات وتكنولوجيا المعلومات/ وزارة التربية والتعليم
أ. صادق الخضور	مكلف/ وكيل مساعد للشؤون الطلابية	وزارة التربية والتعليم

7.4 The questionnaire in final form

Arab American University
Ramallah Site

الجامعـــة العربيـــة الأمريكيـــة
موقع رام الله

كلية الدراسات العليا
تخصص التخطيط الاستراتيجي وتجنيد الاموال

استبانة حول تأثير القيادة الرقمية على تطبيق سياسة التحول الرقمي لدى وزارة التربية والتعليم في فلسطين

الأخوة والأخوات المحترمون:

تحية طيبة وبعد،

يسعدنا مشاركتكم هذه الاستبانة والتي تهدف إلى التعرف على واقع القيادة الرقمية في وزارة التربية والتعليم، وواقع التحول الرقمي لدى الوزارة. لذا يرجى من حضرتكم تعبئة هذه الاستبانة لما لها من أهمية في إنجاز هذا البحث، وذلك استكمالاً لمتطلبات الحصول على درجة الماجستير في التخطيط الاستراتيجي وتجنيد الاموال من الجامعة العربية الامريكية، وبناءً عليه يرجى الإجابة على فقرات الاستبانة باهتمام وموضوعية، علماً بان إجاباتكم ستستخدم لأغراض البحث العلمي فقط.

شاكراً ومقدراً لكم حسن تعاونكم.

الباحث/ صالح فلاح صالح عياش

القسم الأول: البيانات الشخصية

يحتوي هذا القسم على البيانات الديموغرافية للموظفين الإداريين في وزارة التربية والتعليم الفلسطينية، يرجى وضع إشارة (٧) في الخانة التي تلائم وضعك.

النوع		ذكر		أنثى		
سنوات الخبرة		أقل من 5 سنوات		من 5 – 10 سنوات		أكثر من 10 سنوات
المؤهل العلمي		دبلوم		بكالوريوس		ماجستير فأعلى
المستوى الاداري		أقل من رئيس قسم		رئيس قسم		مدير فأعلى
العمر		أقل من 30		من 30-40		أكثر من 40

القسم الثاني: القيادة الرقمية.

ما مستوى القيادة الرقمية (الكفاءات الرقمية، الرؤية والتخطيط، الابتكار) في وزارة التربية والتعليم من وجهات نظر العاملين فيها؟

القيادة الرقمية: هي امتلاك القيادات الإدارية بوزارة التربية والتعليم رؤية مشتركة وقدرة على وضع الخطط لتنفيذها وامتلاك الكفاءات الرقمية اللازمة التي تؤهلهم لابتكار الأساليب الرقمية الحديثة لحل المشكلات وتطوير الأعمال؛ باستخدام التقنيات الرقمية لتسهيل تنفيذ التحول الرقمي في الوزارة.

يرجى قراءة كل عبارة في هذا القسم، وتحديد إلى أي درجة توافق على ما ورد فيها استناداً إلى وجهة نظرك بمستوى القيادة الرقمية في وزارة التربية والتعليم الفلسطينية، وذلك بوضع إشارة (√) في المكان المناسب الذي يمثل إجابتك عن الأبعاد الآتية.

الرقم	البند	أوافق بدرجة عالية	أوافق	محايد	معارض	أعارض بدرجة عالية
	المحور الأول: الكفايات الرقمية. **الكفايات الرقمية هي: الاستخدام الواثق والنقدي والمسؤول للتكنولوجيات الرقمية والتفاعل معها للتعلم والعمل، والمشاركة في المجتمع. ويتم تعريفه على أنه مزيج من معرفة ومهارات ومواقف.**					
	مسؤولي المباشر					
1	لديه اتجاهات إيجابية نحو التحول الرقمي في الوزارة.					
2	يتقن استخدام التكنولوجيا الرقمية المستخدمة في العمل اليومي، مثل برنامج الخدمات الذاتية (MenaME).					
3	يستخدم وسائل الاتصال الرقمية بشكل فعّال لتعزيز التفاعل بين أعضاء الفريق. (البريد الإلكتروني، الواتساب، الماسنجر، وغيرها).					
4	يتخذ الإجراءات المناسبة بشأن المخاطر والتهديدات					

	التي تنشأ عن استخدام التقنيات الرقمية في مجال عمله.					
5	يدير البيانات (تحليل وتنظيم وتخزين واسترجاع البيانات والمعلومات والمحتوى الرقمي) بتوظيف الأدوات الرقمية المناسبة.					
6	يضع إجراءات لحماية أمن البيانات والمعلومات والمحتوى الرقمي الخاص بمجال عمله.					
	المحور الثاني: الرؤية والتخطيط **يقوم القائد الرقمي بتطور رؤية بالتعاون مع موظفيه لتعزيز وتحسين الخدمات التي يقدمها في مجال عمله باستخدام التقنيات الرقمية. ويضع خطة بأهداف واضحة لتحقيقها.**					
	مسؤولي المباشر					
1	يبني استراتيجيات داعمة للتحول الرقمي في الوزارة.					
2	يحدد أولويات استثمار التكنولوجيا لتحسين الخدمات في مجال عمله.					
3	يعد خطة بأهداف واضحة لتحقيق الرؤية المشتركة للتحول الرقمي في مجال عمله.					
4	يشرك الموظفين في التخطيط للتحول الرقمي.					
5	يستطيع إدارة الموارد بشكل فعال لتحقيق أهداف التحول الرقمي.					
6	يقيم أثر التحول الرقمي على الأداء في مجال عمله، ويستفيد من النتائج.					
	المحور الثالث: الابتكار **يمكن وصف الابتكار بأنه الإبداع غير التقليدي لعمل فرد أو مجموعة، والذي يتميز بأفكار قابلة للتطبيق ومناسبة يتم**					

تطبيقها في سياقات محددة.						
مسؤولي المباشر						
1	يتبنى الأفكار الجديدة لتطوير العمل باستخدام التقنيات الرقمية.					
2	يمتلك مرونة عالية في التعامل مع مستجدات التحولات الرقمية.					
3	يظهر استعداده لتغيير الممارسات والأساليب التقليدية في مجال عمله لصالح الحلول الرقمية المبتكرة.					
4	يشجع الموظفين على ابتكار طرق رقمية جديدة في العمل.					
5	يتقبل الانتقادات المتعلقة بأساليب العمل داخل نطاق مسؤولياته.					
6	يشارك في تطوير الحلول الرقمية على مستوى الوزارة.					
7	يوظف مهارات حل المشكلة في التغلب على المعيقات التي تعترض التحول الرقمي في الوزارة					

القسم الثالث: التحول الرقمي.

ما مستوى التحول الرقمي (الخطط والاستراتيجيات، ثقافة التحول الرقمي، المتطلبات التقنية، الموارد البشرية) في وزارة التربية والتعليم من وجهات نظر العاملين فيها؟

التحول الرقمي: تغير المنظمة في إدارة عملياتها وطريقة تقديم خدماتها الادارية من نظام تقليدي بسيط يعتمد على الاوراق، إلى نظام رقمي متقدم يعتمد على التقنيات الرقمية.

يرجى قراءة كل عبارة في هذا القسم، وتحديد إلى أي درجة تتفق مع ما جاء فيها استناداً الى مستوى تطبيق التحول الرقمي لدى وزارة التربية والتعليم من وجهة نظرك، وذلك بوضع إشارة (√) في المكان المناسب الذي يمثل اجابتك على البنود الواردة ادناه.

الرقم	البند	أوافق بدرجة عالية	اوافق	محايد	أعارض	أعارض بدرجة عالية
	المحور الأول: الخطط والاستراتيجيات **تحديد أولويات ووضع أهداف التحول الرقمي من ضمن الاهتمام الإداري ومن ثم التنفيذ وتحويلها إلى واقع.**					
1	تعتمد الوزارة في صياغة الخطط على اتباع استراتيجيات متوافقة مع التحول الرقمي.					
2	توفر الوزارة الدعم الإداري والمالي الكافي للتخطيط والمتابعة والتنفيذ للتحول الرقمي.					
3	تعمل الوزارة على تقييم وإعادة تصميم العمليات التقليدية لتكون أكثر كفاءة ومرونة باستخدام التكنولوجيا الرقمية.					
4	توفر الوزارة فرص للموظفين للمشاركة في التخطيط للتحول الرقمي وتنفيذ المبادرات الرقمية في الوزارة.					
	المحور الثاني: الثقافة التنظيمية **الثقافة التنظيمية هي مجموعة من القيم والمعتقدات والسلوكيات المشتركة التي تميز وتحدد هوية وطابع المنظمة.**					

1	تعزز الوزارة الوعي والفهم للتحول الرقمي وأهميته بين الموظفين. من خلال (منشورات، فيديوهات، وغيرها).					
2	تشجّع الوزارة ثقافة التواصل والتعاون المشترك بين الأقسام والوحدات في الوزارة لتعزيز ثقافة التحول الرقمي.					
3	تقدم الوزارة إرشادات ضمن دليل إجرائي أو منشورات أو فيديوهات لاستخدام البرامج الرقمية المستخدمة.					
4	تتيح الوازرة الوقت الكافي للتأقلم مع بيئة العمل الرقمية الجديدة.					
5	تسهل الثقافة التنظيمية الحالية في الوزارة عملية التحول الرقمي داخلها.					
المحور الثالث: المتطلبات التقنية. **ويتمثل البعد التقني للتحول الرقمي في المؤسسات بالتجهيزات المادية من أجهزة حاسوب وبرمجيات والبنية التحتية لشبكات الاتصالات اللازمة لاستخدام التطبيقات المختلفة.**						
1	توفر الوزارة مقومات وتجهيزات مناسبة لدعم التحول الرقمي (أجهزة حاسوب، انترنت، وغيرها).					
2	توفر الوزارة التطبيقات الرقمية الملائمة (البرمجيات، الأجهزة الذكية، الحوسبة السحابية وغيرها) لدعم التحول الرقمي.					
3	توفر الوزارة مختصون لتقديم الدعم الفني وحل المشكلات التقنية المرتبطة بالتحول الرقمي.					
4	توفر الوزارة منظومة لحماية أمن البيانات والمعلومات.					
5	توفر الوزارة نظام دخول موحد الى كافة البرمجيات المطبقة في الوزارة.					
المحور الرابع: الموارد البشرية. ***هو الجانب الحيوي الذي يركز على تأهيل وتطوير المهارات***						

	والخبرات البشرية في المؤسسة لتحقيق التحول الرقمي.					
1	تنفذ الوزارة دورات تدريبية لتأهيل الموظفين نحو التحول الرقمي.					
2	يتوفر لدى الوزارة خبراء ومختصين قادرين على انجاز التحول الرقمي.					
3	تشجع الوزارة روح المبادرة والاطلاع واكتساب المعارف لدى الموظفين لتواكب التحول الرقمي.					
4	توفر الوزارة فرص الترقية مع منح المكافئات للمتميزين في أدائهم الداعم للتحول الرقمي.					

انتهت فقرات الاستبانة

الباحث: صالح فلاح عياش

7.5 The questionnaire in its final English fo

Arab American University
Ramallah Site

الجامعـــة العربيـــة الأمريكيـــة
موقع رام الله

Postgraduate Studies

Specialization: Strategic Planning and Fundraising

The Effect of Digital Leadership in Implementing the Digital Transformation Policy of the Palestinian Ministry of Education

Dear Participant, we are pleased to invite you to participate in this questionnaire, which aims to explore the effect of digital leadership on the implementation of digital transformation and understand the status of digital leadership and digital transformation within the Ministry of Education. Therefore, we kindly request your cooperation in completing this questionnaire as it holds significant importance for the completion of this research, part of the requirements for obtaining a master's degree in Strategic Planning and Fundraising from the Arab American University. Your responses will be used solely for research purposes. Thanks for your participation.

Section 1: Personal Information

This section contains demographic data for administrative employees at the Palestinian Ministry of Education. Please check (√) the box that corresponds to your status.

Gender	Male ☐	Female ☐	
Years of experience	Less than 5 years ☐	From 5 - 10 years ☐	More than 10 years ☐
Qualification	Diploma ☐	Bachelor's ☐	Postgraduate Studies ☐
Administrative level	Employee ☐	Head division ☐	Manager and above ☐
Age	Less than 30 ☐	From 30-40 ☐	More than 40 ☐

Section Two: Digital Leadership

Please read each statement in this section and indicate to what extent you agree with the content based on your perspective regarding the level of digital leadership at the Palestinian Ministry of Education. Place a check mark (√) in the appropriate place that represents your response to the following axes.

Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

First axis: Digital Competencies						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
My direct manager						
1.	Has positive attitudes towards digital transformation in the ministry.					
2.	Proficiently uses digital technology employed in daily work, such as the Self-Service Program (MenaME).					
3.	Effectively utilizes digital communication tools to enhance interaction among team members (email, WhatsApp, Messenger, etc.).					
4.	Takes appropriate measures regarding the risks and threats arising from the use of digital technologies in the field of work.					
5.	Manages data (analyzing, organizing, storing, and retrieving data, information, and digital content) using suitable digital tools.					
6.	Implements procedures to safeguard the security of data, information, and digital content related to the work domain					

Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

Second axis: visionary leadership						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
My direct manager						
1.	Builds supportive strategies for digital transformation in the ministry.					
2.	Identifies technology investment priorities to enhance services in his/her field of work.					
3.	Develops a plan with clear goals to achieve the shared vision of digital transformation in his/her field.					
4.	Engages employees in planning for digital transformation.					
5.	Effectively manages resources to achieve digital transformation goals.					
6.	Evaluates the impact of digital transformation on performance in his/her field and benefits from the results.					

Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

Third axis: Innovation						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
My direct manager						
1.	Adopts new ideas to enhance work using digital technologies.					
2.	Demonstrates high flexibility in dealing with the challenges of digital transformations.					
3.	Shows willingness to change traditional practices and methods in his/her field for innovative digital solutions.					
4.	Encourages employees to innovate new digital approaches in their work.					
5.	Accepts criticism related to work methods within his/her scope of responsibilities.					
6.	Participates in the development of digital solutions at the ministry level.					
7.	Applies problem-solving skills to overcome obstacles hindering digital transformation in the ministry.					

Section Three: Digital Transformation

Please read each statement in this section and indicate to what extent you agree with the content based on your perspective regarding the level of digital transformation at the Palestinian Ministry of Education. Place a check mark (√) in the appropriate place that represents your response to the following axes.

Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

First axis: plans and strategies						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
1.	In formulating plans, the Ministry relies on following strategies compatible with digital transformation.					
2.	The Ministry provides sufficient administrative and financial support for planning, monitoring, and implementing digital transformation.					
3.	The Ministry is evaluating and redesigning traditional processes to be more efficient and flexible using digital technology.					
4.	The Ministry provides opportunities for employees to participate in planning digital transformation and implementing digital initiatives in the Ministry.					

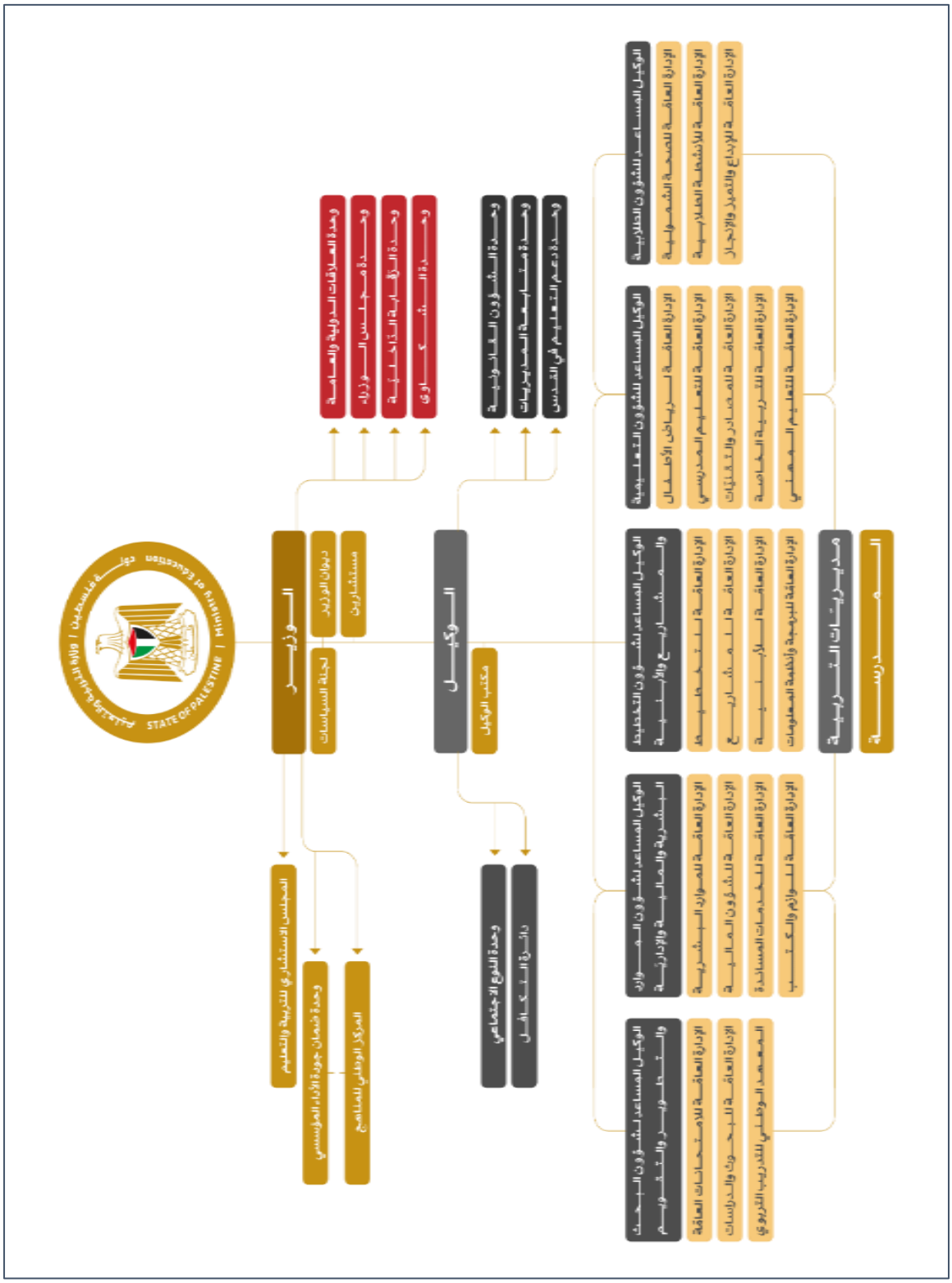
Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

Second axis: Organizational Culture						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
1.	The Ministry promotes awareness and understanding of digital transformation and its importance among employees. Through (publications, videos, etc.).					
2.	The Ministry encourages a culture of communication and cooperation between departments and units in the Ministry to enhance the culture of digital transformation.					
3.	The Ministry provides instructions in a procedural guide, publications, or videos for using the digital programs used.					
4.	The Ministry allows sufficient time to adapt to the new digital work environment.					
5.	The current organizational culture in the Ministry facilitates the process of digital transformation within it.					
Third axis: Technology and Infrastructure						
1.	The Ministry provides appropriate components and equipment to support digital transformation (computers, Internet, etc.).					
2.	The Ministry provides appropriate digital applications (software, smart devices, cloud computing, etc.) to support digital transformation.					
3.	The Ministry provides specialists to provide technical support and solve technical problems related to digital transformation.					
4.	The Ministry provides a system to protect the security of data and information.					
5.	The Ministry provides a unified access system to all software applied in the Ministry.					

Note: 1 refer to **strongly disagree**; 2 refer to **disagree**; 3 refer to **neutral**; 4 refer to **agree**; 5 refer to **strongly agree**.

Forth axis: Human Resources						
No.	***Items***	***1***	***2***	***3***	***4***	***5***
1.	The Ministry implements training courses to qualify employees towards digital transformation.					
2.	The Ministry has experts and specialists capable of achieving digital transformation.					
3.	The Ministry encourages the spirit of initiative, knowledge, and acquisition of knowledge among employees to keep pace with digital transformation.					
4.	The Ministry provides promotion opportunities and rewards those who excel in their performance in support of digital transformation.					

7.6 Organizational structure of Ministry of Education



الملخص

تهدف هذه الدراسة الى التعرف على تأثير القيادة الرقمية على تنفيذ سياسة التحول الرقمي لدى وزارة التربية والتعليم الفلسطينية. وباستخدام المنهج الوصفي التحليلي، استهدفت الدراسة 473 موظفاً إدارياً من العاملين في الفرع الرئيسي لدى وزارة التربية والتعليم الفلسطينية. وباستخدام الاستبانة كأداة لجمع البيانات، تم تحليل استجابات 252 مشاركًا باستخدام برنامج (SPSS v.23).

وتشير النتائج إلى أن تقييم مستوى القيادة الرقمية ومستوى التحول الرقمي في وزارة التربية والتعليم الفلسطينية جاء بدرجة متوسطة. وتشير النتائج الى وجود تأثير إيجابي للقيادة الرقمية وابعادها (الكفايات الرقمية، القيادة ذي الرؤية، الابتكار) على التحول الرقمي.

وكشفت الدراسة عن وجود فروق ذات دلالة إحصائية في إجابات أفراد عينة الدراسة نحو تقييم مستوى التحول الرقمي في وزارة التربية والتعليم تعزى لمتغير الجنس. بينما لا توجد فروق ذات دلالة إحصائية في إجابات أفراد عينة الدراسة نحو تقييم مستوى التحول الرقمي تعزى لاختلاف المتغيرات الديموغرافية (العمر، سنوات الخبرة، المستوى الإداري، المؤهل العلمي).

وكشفت الدراسة عن وجود فروق ذات دلالة إحصائية في إجابات أفراد عينة الدراسة نحو تقييم مستوى القيادة الرقمية في وزارة التربية والتعليم تعزى لاختلاف المتغيرات الديموغرافية (الجنس، وسنوات الخبرة). بينما لا توجد فروق ذات دلالة إحصائية في إجابات أفراد عينة الدراسة نحو تقييم مستوى القيادة الرقمية في وزارة التربية والتعليم تعزى لاختلاف المتغيرات الديموغرافية (العمر، المستوى الإداري، المؤهل العلمي).

وقدمت الدراسة مجموعة من التوصيات أهمها: تخصيص الموارد الإدارية والمالية الكافية لدعم مبادرات التحول الرقمي، تصميم وتنفيذ برامج تدريبية مخصصة لموظفي الوزارة، زيادة الجهود لرفع مستوى الوعي لدى الموظفين بأهمية التحول الرقمي. للتحول الرقمي، وتشجيع المشاركة الفعالة في تطوير الحلول الرقمية، والاستثمار في توظيف الخبراء والمتخصصين في مجال التحول الرقمي.