Exploring the Impact of Digital Transformation Dimensions on Institutional Performance: Evidence from Jenin Municipality

Dr. Samer Mohammad Hassan Arqawi

College of Business and Economics, Palestine Technical University – Kadoorie, Palestine
s.arqawi@ptuk.edu

Abstract

This study examines the impact of digital transformation strategies on institutional performance in Palestinian local authorities, using Jenin Municipality as a case study. The study focuses on three main dimensions of digital transformation: the technological, human, and creative dimensions. Data was collected through a structured questionnaire distributed 94 employees. The data was analyzed using SPSS and Smart PLS to assess the relationship between the dimensions of digital transformation and institutional performance.

The results showed a moderate level of implementation of digital transformation practices. However, a statistically significant impact was observed, especially from the human and creative dimension. These findings highlight the critical role of strategic planning and digital infrastructure readiness in enhancing institutional performance.

The study recommends taking practical steps to improve institutional performance, including establishing specialized digital transformation units, conducting ongoing digital skills training, enhancing technological infrastructure, and creating work environments that foster creativity within local authorities.

Keywords: Digital Transformation, Institutional Performance, Local Authorities, Human Capital, Creative Dimension.

استكشاف أثر أبعاد التحول الرقمي على الأداء المؤسسي: أدلة من بلدية جنين

الملخص

تناولت هذه الدراسة أثر استراتيجيات التحول الرقمي على الأداء المؤسسي في الهيئات المحلية الفلسطينية، من خلال دراسة حالة بلدية جنين. تركّز الدراسة على ثلاثة أبعاد رئيسة للتحول الرقمي، وهي: البُعد التكنولوجي، والبُعد البشري، والبُعد الإبداعي. تم جمع البيانات باستخدام استبانة مُنظمة وُزعت على عينة مكوّنة من 94 موظفًا. وقد جرى تحليل البيانات باستخدام برنامجي SPSS و SmartPLS لتقييم العلاقة بين أبعاد التحول الرقمي والأداء المؤسسي.

أظهرت النتائج أن مستوى تطبيق ممارسات التحول الرقمي كان متوسطًا، إلا أن الدراسة كشفت عن وجود أثر دال إحصائيًا، ولا سيّما من البعدين البشري والإبداعي. وتُبرز هذه النتائج الدور الحاسم للتخطيط الاستراتيجي وجاهزية البنية الرقمية في تعزيز الأداء المؤسسي.

وتوصي الدراسة باتخاذ خطوات عملية لتحسين الأداء المؤسسي، من أبرزها: إنشاء وحدات متخصصة بالتحول الرقمي، وتنفيذ برامج تدريب مستمرة في المهارات الرقمية، وتعزيز البنية التحتية التكنولوجية، وتهيئة بيئات عمل محفزة للإبداع داخل الهيئات المحلية.

الكلمات المفتاحية: *التحول الرقمي، الأداء المؤسسي، الهيئات المحلية، رأس المال البشري، البُعد الإبداعي.*

1. Introduction

In the era of the Fourth Industrial Revolution, digital transformation has emerged as a strategic necessity for modern public institutions, enabling them to enhance performance, optimize service delivery, and meet citizens' evolving expectations (Abu Ghabn & Al-Madhoun, 2023). No longer confined to the realm of information technology, digital transformation has evolved into a comprehensive institutional strategy that integrates technological infrastructure, human capital development, and creative dimension across all organizational levels (Khuwathrah, 2021).

In Palestine, digital transformation has received increasing attention from policymakers and researchers alike, particularly in the local government sector, where municipalities face growing pressure to adopt digital solutions that enhance transparency, reduce bureaucracy, and improve responsiveness (Almusaddar & Nasrallah, 2023). This shift is further motivated by the strategic vision of the Ministry of Local Government (2025–2030), which aims to build an integrated digital system capable of streamlining public services, engaging citizens, and fostering sustainable local development. Given these dynamics, Jenin Municipality presents a relevant case study for exploring how digital transformation, through its technological, human, and creative dimensions, can contribute to institutional performance within Palestinian local authorities. This study, therefore, seeks to evaluate the municipality's digital readiness, identify transformation gaps, and analyze the strategic role of digital capabilities in driving performance improvements.

2. Research Problem and Questions

Despite the launch of the National Digital Transformation Strategy (2025–2030) by the Palestinian Ministry of Local Government, most local authorities continue to experience critical implementation gaps. These include limitations in digital infrastructure, a shortage of qualified personnel, low cybersecurity readiness, and a lack of collaboration with academic institutions and the private sector. According to official data (Ministry of Local Government, 2023):

- Only 55.8% of municipalities possess a medium-level digital infrastructure.
- 79% do not offer integrated digital services.
- 86% lack effective digital evaluation systems.
- 58.1% have no IT-specialized staff.

Such deficiencies significantly hinder the ability of local authorities to deliver high-quality digital services and respond effectively to citizens' increasing expectations.

Research Gap: Although several studies have examined digital transformation in ministries and private sector organizations, few empirical studies have explored the integrated impact of digital transformation dimensions, especially the creative dimension, on institutional performance within Palestinian local authorities. Most existing literature has either focused on a single dimension or failed to analyze its role in local governance contexts.

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Main Research Question

How do the technological, human, and creative dimensions of digital transformation influence institutional performance in Palestinian local authorities? Jenin Municipality is used as a case study.

Sub-questions:

- What is the level of implementation of digital transformation dimensions (use of digital technologies, development of human resources, digital creative dimension) in Palestinian local authorities, as perceived by the study sample?
- What is the perceived level of institutional performance in Palestinian local authorities, as viewed by the study participants?
- Is there a statistically significant effect ($\alpha \leq 0.05$) of implementing the dimensions of digital transformation (technological, human, and creative) on institutional performance in Palestinian local authorities—Jenin Municipality as a case study?
- What are the proposed actionable recommendations to enhance the implementation of digital transformation dimensions to improve institutional performance and service delivery in Palestinian local authorities?

3. Study Objectives

This study aims to achieve the following objectives:

- To identify the degree of implementation of digital transformation across its various dimensions (use of digital technologies, development of human resources, digital creative dimension) in Palestinian local authorities from the perspective of employees.
- To assess the level of participants' awareness regarding institutional performance policies in Palestinian local authorities based on the views of the study sample.
- To examine the existence of a statistically significant effect at the significance level ($\alpha \leq 0.05$) between the implementation of digital transformation dimensions (use of digital technologies, development of human resources, digital creative dimension) and the level of institutional performance in Palestinian local authorities.
- To propose actionable recommendations for activating the role of the digital transformation in enhancing institutional performance and improving the quality of services provided to citizens in Palestinian local authorities.

4. Significance of the Study

The significance of this study stems from its vital scientific topic and practical application in the field of digital transformation, including its three dimensions: the use of digital technologies, the development of human resources, and digital creative dimension. The study addresses a crucial strategic issue, namely, the efficiency of institutional performance in delivering services to citizens within Palestinian local authorities.

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Scientific Significance

The scientific importance of the study lies in the novelty of its topic and the nature of its variables. It seeks to fill an existing research gap related to evaluating digital transformation strategies within Palestinian local authorities and analyzing the relationship between digital transformation and institutional performance in the public sector. This importance is further underscored by the limited number of previous studies addressing this subject in the Palestinian context, particularly at the level of ministries and local authorities. The study also responds to contemporary challenges posed by the fast-paced and successive waves of the digital revolution, which necessitate addressing digital transformation as a strategic requirement for modernizing governmental performance.

Practical Significance

The practical importance of the study lies in offering actionable indicators that aid decision-makers in Palestinian local authorities, especially the Ministry of Local Government—in understanding how to enhance institutional performance and the quality of public services through the improved use of digital technologies in administrative processes. The anticipated findings are expected to guide efforts toward the development of digital transformation policies in line with international best practices, enhance performance efficiency, and increase citizen satisfaction with the services provided.

5. Delimitations of the Study

This study was applied to employees working in Palestinian local authorities to ensure appropriate representation of the local government sector within the study framework. Jenin Municipality was selected as a major case study due to its classification as one of the largest and most influential municipalities in the northern West Bank. The selection of Jenin Municipality is justified by its demographic size, the diversity of services it offers, and the challenges it faces in digital transformation efforts. Its selection is also reinforced by its administrative status, direct oversight by the Ministry of Local Government, and its possession of a minimum institutional and organizational capacity that enables an in-depth study of the technological, human, and creative dimension of digital transformation strategies within a locally representative context at the national level.

6. Conceptual Model of the Study

Based on the research problem, questions, and hypotheses, the conceptual model of this study is designed to analyze the relationship between the two main variables:

- Independent Variable: Digital transformation, represented through three key dimensions: Use of digital technologies, Human resource development, and creative dimension.
- Dependent Variable: Institutional performance: This model seeks to clarify how each of the digital transformation dimensions contributes to enhancing institutional performance within the context of Palestinian local authorities, with Jenin Municipality serving as the focal case study.

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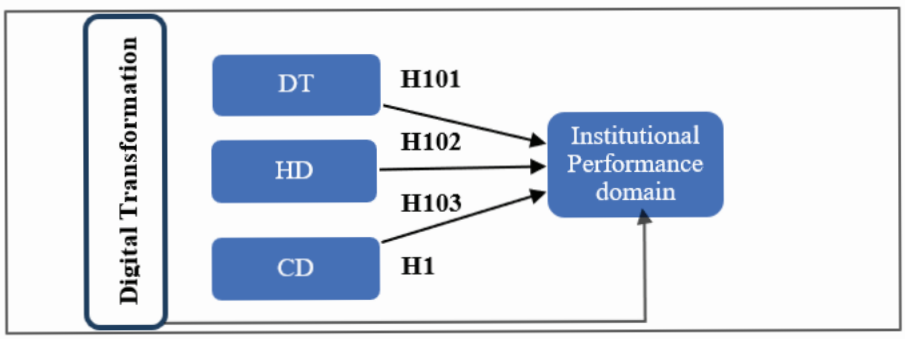

Source: Prepared by the researcher based on a review of previous

Figure 1: Study Model Subject of Research

7. Research Hypotheses:

In alignment with the research problem, its questions, and the conceptual model, the following hypotheses have been formulated:

Main Hypothesis (H_0):

There is a statistically significant effect ($\alpha \leq 0.05$) of the technological, human, and

creative dimension of digital transformation on institutional performance in Palestinian local authorities.

Sub-Hypotheses:

- **H1**: There is a statistically significant effect ($\alpha \leq 0.05$) of the technological dimension of digital transformation on institutional performance in Palestinian local authorities.
- **H2:** There is a statistically significant effect ($\alpha \leq 0.05$) of the human dimension of digital transformation on institutional performance in Palestinian local authorities.
- **H3:** There is a statistically significant effect ($\alpha \leq 0.05$) of the creative dimension of digital transformation on institutional performance in Palestinian local authorities.

8. Theoretical Framework and Literature Review:

The theoretical framework provides the scientific and methodological foundation on which this study is based, analyzing digital transformation and its impact on institutional performance in Palestinian local authorities. It aims to present a comprehensive understanding of the concept of digital transformation, its dimensions, stages, and its influence on the efficiency and effectiveness of government institutions, particularly in the context of improving the quality of public service delivery to citizens. In light of rapid technological changes, digital transformation has become an imperative rather than an option for public institutions. It is increasingly viewed as a strategic tool for enhancing transparency, facilitating access to services, and reducing operational costs (World

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Bank, 2023). The Organization for Economic Co-operation and Development (OECD, 2022) also emphasizes that digital transformation contributes to institutional performance improvement by promoting automation, supporting decision-making processes, and increasing operational efficiency, ultimately elevating the quality of public services provided by government agencies. Within the Palestinian context, the Ministry of Local Government has been actively working to implement the Digital Transformation Strategy for the Local Government Sector (2025–2030). This strategy seeks to improve the quality of digital services, enhance technological infrastructure, and develop cybersecurity systems (Ministry of Local Government, 2023). However, field reports reveal substantial gaps in the implementation of this strategy. Data from the Association of Palestinian Local Authorities (APLA, 2022) indicate that more than 79% of local authorities do not provide integrated digital services, posing a significant barrier to achieving the intended goals of digital transformation.

Digital Transformation: Concept, Importance, Benefits, and Dimensions

Building on the previous discussion, this section of the theoretical framework focuses on analyzing the concept of digital transformation and its impact on institutional performance in Palestinian local authorities. It includes a review of relevant literature, theoretical models, and prior studies, based on the Digital Transformation Strategy issued by the Ministry of Local Government. The Concept and Importance of Digital Transformation: Digital transformation has become a necessity in the modern era, with fifth-generation technologies representing a qualitative leap in the evolution of digital systems and communication networks. This transformation is characterized by a high level of collaborative organization across multiple sectors and a flexible and inclusive structure for all stakeholders. Moreover, it aligns with strategic objectives and investment feasibility (Khuwathrah, 2021). It is a comprehensive term used to describe developments and improvements within ministries and government bodies. Its impact spans various organizational functions and involves introducing new technologies to enhance efficiency. Generally, digital transformation is defined as the use of digital technologies to deliver services and conduct business by replacing manual processes or updating outdated technologies with modern, advanced systems (Al-Nahhas & Dabbah, 2022). It also refers to the integration of digital technology into all business areas, fundamentally changing how institutions operate and deliver value to citizens (Daniotti et al., 2020). In the public sector, it is defined as a government initiative aimed at transforming essential services from traditional to electronic formats using advanced technologies (Abu Ghabn & Al-Madhoun, 2023). This widespread presence reveals two key facts: first, that digital transformation already exists to varying degrees in all institutions; and second, that its presence is steadily increasing and will flourish in the future. It serves as the natural platform for all advanced technological applications, from engineering and industrial simulation to 3D printing, automation, artificial intelligence, and beyond (Al-Nahhas & Dabbah, 2022). In essence, digital transformation extends beyond these fields to encompass any area

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involving modern or emerging technology, limited only by human creative dimension and problem-solving ability. It will significantly contribute to national economies and public and private sector institutions through its added value.

Benefits of Digital Transformation: According to Radwan (2022), digital transformation offers a wide range of benefits for individuals and government institutions. It enables the delivery of innovative services and supports the expansion of economic institutions' reach to broader segments of the population, thereby strengthening government–society interaction. Additionally, digital transformation reduces costs and administrative burdens through operational efficiency and streamlined procedures. It enhances service quality and simplifies access, resulting in improved citizen experiences. It also reduces pressure on ministries and public bodies, particularly with growing populations and increasing service demands. By speeding up processes and reducing bureaucratic barriers, digital transformation enhances service quality. Moreover, it serves as an effective tool in minimizing and potentially eliminating corruption, thereby promoting integrity and transparency in public administration.

Dimensions of Digital Transformation: Numerous studies—including Abu Ghabn & Al-Madhoun (2023); Sawwat & Al-Harbi (2022); Salam (2022); Ghoneim. (2023); and Kraus et al. (2021)—identify three key dimensions of digital transformation:

Use of Digital Technologies: This dimension forms the cornerstone of digital transformation. It involves integrating devices, operating systems, storage media, and software within advanced technological environments and data centers to ensure sustainable efficiency. It requires high-quality service for all stakeholders—including employees, citizens, clients, and suppliers—through specialized technical teams managing local or cloud-based digital infrastructure. In local authorities, this dimension involves using modern tools to enhance administrative efficiency, citizen interaction, and sustainable local development. It includes systems for resource management, e-services, and data analytics for informed decision-making, which promotes transparency, governance, and improved public service delivery. Technologies such as cloud computing, IoT, AI, and GIS are widely adopted to develop smart solutions that improve urban and community management, strengthen infrastructure, and align services with societal needs, contributing to sustainable development.

Human Resources: This dimension is a critical pillar of digital transformation. It includes all institutional staff—both leadership and operational—responsible for implementing tasks in digital work environments. The success of transformation heavily depends on developing staff skills, fostering a creative dimension and flexibility, and empowering employees to use digital tools effectively. This involves preparing personnel for digital workplaces by improving technical competencies and redesigning workflows to meet digital demands. Such efforts enhance productivity and strategic goal achievement. Abu Ghabn & Al-Madhoun (2023) emphasize the importance of integrating human resources effectively to ensure institutional sustainability.

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Digital Creative dimension: This core dimension of transformation refers to adopting and developing creative solutions based on modern technology to improve institutional processes, offer new services, and enhance operational efficiency. It focuses on leveraging advanced tools, such as AI, cloud computing, and big data analytics, to transform business models and service delivery mechanisms. Digital creative dimension is a primary driver of competitive advantage by redefining traditional processes and creating new pathways for performance improvement.

Institutional Performance Excellence in Palestinian Local Authorities

Institutional performance excellence in Palestinian local authorities is a fundamental pillar for ensuring the delivery of high-quality public services and promoting sustainable development. Amid growing economic, political, and administrative challenges, these authorities strive to improve their efficiency and effectiveness by adopting the principles of good governance, enhancing transparency and accountability, and implementing strategic planning and resource management effectively.

The importance of achieving institutional excellence is particularly evident as citizen expectations rise and environmental changes—both local and global—accelerate. This compels local authorities to modernize their management practices and foster a creative dimension in service delivery. Adopting modern administrative practices and data-driven policy-making plays a crucial role in improving institutional performance, boosting citizen satisfaction, and enhancing the adaptability of local authorities to challenges with flexibility and sustainability. Despite the diversity of definitions related to institutional performance excellence, this diversity stems from the various dimensions addressed by researchers. Some define it as a result of individual behavior within institutions, while others view it as a reflection of how successfully an organization achieves its objectives Another perspective sees excellence as a set of planned efforts based on standards aiming for continuous improvement, responding to performance drivers, and achieving sustainable competitive advantage (Al-Ibrahim & Al-Jaroudi, 2020). From these perspectives, institutional performance excellence emerges as an interactive outcome of multiple organizational, administrative, and human factors. All aim to achieve efficiency and effectiveness, respond to community needs with a creative dimension and flexibility, and elevate organizational responsiveness. As such, evaluating performance excellence serves as a key tool to identify weaknesses, address them, and develop institutional models while maximizing resource utilization to achieve higher performance levels. Moreover, performance assessment highlights institutional capabilities and identifies strengths that can be leveraged to enhance competitive advantage. Hence, performance evaluation is essential for achieving operational efficiency, minimizing resource waste, and ensuring continuous improvement and excellence.

Requirements for Achieving Institutional Performance Excellence

According to Qaddahah & Al-Amri (2023), several key requirements are essential for achieving institutional excellence: Adopting a comprehensive strategic orientation that articulates the organization's core mission, vision, strategic goals, and target outcomes. Developing integrated

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policies that regulate work mechanisms and guide management in decision-making processes. Establishing effective and distinguished leadership that sets the necessary standards and foundations for implementing programs and institutional plans. Creating a flexible organizational structure capable of adapting to internal and external environmental changes to ensure high performance. Providing advanced human resource management systems covering planning, recruitment, performance development, evaluation mechanisms, and compensation structures. Developing a comprehensive performance evaluation system at both individual and team levels to measure achievements against set goals and standards. Commitment to these requirements is essential to achieving and sustaining institutional excellence in dynamic operational environments, especially within local authorities. Such strategies help improve operational efficiency, strengthen transparency, and elevate service quality. They also empower institutions to make data-informed decisions and enhance their resilience in addressing changes, ultimately ensuring exceptional performance and responsiveness to citizens` needs.

Review of Previous Studies and Research Gap: The researcher reviewed a set of previous studies related to the research topic, spanning both Arab and international contexts between 2020 and 2024. These studies are chronologically arranged as follows:

- **Wang & Sun, (2025):** This research investigated the impact of digital transformation strategy on organizational performance، focusing on the moderating role of cognitive conflict. The results emphasized a positive relationship between digital transformation strategy and both short- and long-term organizational performance.
- **Ghoneim (2023):** This study aimed to analyze the relationship between digital transformation and institutional performance efficiency in the banking sector in Port Said. It also tested the mediating role of organizational dexterity. Using a descriptive-analytical method, data were collected from 265 employees via a questionnaire. The results indicated a significant direct and indirect impact of digital transformation (human and technological components) on institutional performance. The study recommended enhancing human resource training and promoting digital training programs.
- **Abu Ghaban & Al-Madhoun (2023):** This study examined the role of digital transformation in achieving institutional excellence in Gaza Municipality using a descriptive-analytical approach. The results revealed a strong and statistically significant correlation between digital transformation dimensions (technological infrastructure, organizational structure, human resources, and strategic planning) and institutional excellence, with a correlation rate of 79.6%. It recommended decentralization and the development of digital services.
- **Abdel Aziz (2022):** The study sought to identify the requirements of digital transformation for achieving institutional excellence in NGOs. The results indicated high levels of both digital transformation requirements and institutional excellence, with a strong correlation between the two. It recommended infrastructure development and empowering human resources.

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- **Chouaibi et al. (2022):** This study explored the role of digital transformation practices on organizational performance (SHRM). The findings confirmed a positive impact of digital transformation, particularly the use of digital technologies and applications.

Research Gap: Despite increasing academic interest in the relationship between digital transformation and institutional performance excellence, the literature review reveals several gaps:

Absence of a comprehensive framework for analyzing digital transformation strategies in the context of Palestinian local authorities, which are characterized by unique administrative and organizational structures and limited resources.

Lack of balanced treatment of the three digital transformation dimensions (technological, human, creative); most previous studies focused on one or two dimensions without addressing their integration as a path to institutional performance improvement.

Few studies have explored the relationship between digital transformation dimensions and institutional performance excellence based on modern quality and excellence standards.

Most existing research focuses on sectors such as banking, education, or central government, without addressing local authorities.

Scarcity of applied field studies that consider the specific context of Palestinian local authorities and offer actionable models to promote digital transformation and achieve institutional excellence.

Contribution of the Current Study:

- Assessing the level of digital transformation strategy practices in Palestinian local authorities and their impact on institutional performance excellence.
- Examining the causal relationship between the three digital transformation dimensions (technological, human, and creative) and institutional performance excellence.
- Offering practical, actionable recommendations to support digital transformation efforts and enhance the achievement of institutional excellence objectives.

9. Methodology and Procedures

Research Design: This study adopted a descriptive-analytical approach, which is suitable for understanding current phenomena and analyzing relationships between variables in a structured, quantitative manner.

Study Population and Case Selection: The research population consists of employees working in the Palestinian local authorities. Due to the large size and dispersion of this population, Jenin Municipality was purposefully selected as a case study. It is classified as a Category 'A' municipality, directly supervised by the Ministry of Local Government, and is one of the largest municipalities in the northern West Bank in terms of population, scope of services, and administrative structure.

Sample Size and Sampling Technique: To determine the sample size, the formula proposed

by Tabachnick & Fidell (2001) was applied: $n \geq 50 + 8m$, where m is the number of independent variables. Given that, there are three independent variables (technological, human, and creative dimensions), the minimum required sample size was 74 participants. A structured questionnaire was distributed using a simple random sampling technique. A total of 102 responses were collected from a population of 190 employees, **according to the records of the Human Resources Department in the municipality under investigation**, and 8 responses were excluded due to the presence of outliers. Thus, the final valid sample size was 94 participants.

Data Analysis Tools: Data were analyzed using SPSS version 26 for descriptive statistics and reliability testing, and Smart PLS version 4 for structural equation modeling to test the research hypotheses.

10. Statistical Methods (Data Analysis Techniques)

To achieve the objectives of the study and analyze the data collected from the research sample, the data analysis procedures were divided into two main phases:

Phase One: Descriptive and preliminary statistical analysis using SPSS V.26.

The Statistical Package for the Social Sciences (SPSS V.26) was utilized to conduct the primary statistical analyses, which included the following: Calculating arithmetic means and standard deviations, and computing relative weights for the items and dimensions. Measuring the internal consistency of the questionnaire using Cronbach's Alpha coefficient. Arithmetic means were used to evaluate the responses of the sample members based on a predefined interpretive criterion. The class interval was calculated according to the following formula: Class interval = (Upper limit of the scale – Lower limit)/Number of categories, Class interval = (5 – 1) / 3 = 1.33. Based on this, the classification of results was organized into three main levels:

- Low: 1.00 – 2.33.
- Moderate: 2.34 – 3.66.
- High: 3.67 – 5.00,

Phase Two: Structural Equation Modeling using Smart PLS 4. This phase utilized Smart PLS 4, a robust variance-based statistical method used for analyzing models involving complex relationships between variables (Rosseel & Loh, 2022). This stage focused on two major components: Measurement Model, which included examining the validity and reliability of the tool's components, and Structural Model, which involved testing the causal relationships among the variables.

Table 1: Likert Scale Levels

Level	Relative Weight (%)	Mean Score Range
Low	20% – 47%	1.00 – 2.33
Moderate	48% – 74%	2.34 – 3.66
High	75% – 100%	3.67 – 5.00

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Results of Questionnaire Implementation and Discussion:

This section presents the results related to the first research question, which states: "To what extent are the dimensions of digital transformation (use of digital technologies, human resources, and digital creative dimension) being implemented in Palestinian local authorities, as perceived by employees in the study sample—Jenin Municipality as a case study?"

The researcher utilized the following statistical methods: arithmetic mean, standard deviation, relative weight, ranking, and level classification to describe and interpret the degree of digital transformation implementation across its dimensions in Palestinian local authorities. The results are summarized and presented in **Table 2**, which highlights each dimension of digital transformation individually.

Table 2: Summary of Descriptive Statistical Analysis for the Dimensions of Digital Transformation

Code	Dimension	Mean	Standard Deviation	Relative Weight	Rank	Level
Tech_domain	Technological	3.2796	.90297	65.59%	3	Medium
Human_domain	Human	3.3441	.95605	66.88%	1	Medium
Creative_domain	Creative	3.3441	.95706	66.88%	1	Medium
Overall Statistical Values for the Digital Transformation Variable		3.321	0.9387	66.42%		Medium
Source: Prepared by the researcher based on the results of SPSS 26 statistical analysis output.						

Descriptive Analysis and Comparison with Previous Studies:

Descriptive Analysis of Digital Transformation Dimensions in Palestinian Local Authorities: Based on the results of Table (2), the overall mean score for the application of digital transformation dimensions was 3.321, with a standard deviation of 0.9387 and a relative weight of 66.42%, reflecting a moderate level of digital transformation across Palestinian local authorities. This suggests that, while progress is underway, authorities remain in the early to intermediate stages of digital maturity. Among the three dimensions, both the human and creative dimensions achieved the highest joint mean of 3.3441, indicating a growing emphasis on capacity building and the digital creative dimension. However, these efforts still fall short of driving deep institutional change. The technological dimension, with the lowest mean (3.2796), highlights the need to improve infrastructure

and technological deployment. The similar range of mean scores across dimensions implies balanced but insufficient implementation, while the relatively high standard deviations reveal disparities in adoption levels across and within institutions.

Comparison of Results with Previous Studies: These findings align with prior literature. Abu Ghaban & Al-Madhoun, (2023) found that human and technological capabilities significantly influence institutional excellence in Gaza Municipality، consistent with the present study's results regarding the human dimension. Similarly, Ghoneim (2023) highlighted that the synergy of human and technological resources enhances institutional efficiency, paralleling the multi-dimensional impact shown here. Additionally, Abdel Aziz (2022) emphasized the role of the creative dimension in digital transformation success within NGOs, echoing this study's finding that the creative dimension has a statistically significant effect on institutional performance.

Together, these parallels reinforce the reliability of the current findings and support the strategic integration of all three dimensions—technological, human, and creative—as key pillars for advancing digital maturity and institutional performance within Palestinian local authorities.

Results Related to the Second Research Question: The second research question states: "What is the level of respondents' perception of institutional performance in Palestinian local authorities, from the perspective of employees in the study sample?" To address this question, the researcher employed the following statistical methods: mean, standard deviation, relative weight, rank, and level. These tools were used to describe and interpret the level of institutional performance within Palestinian local authorities. The results are summarized in Table 3, which presents the analysis of the components of institutional performance separately.

Table 3: Summary of Descriptive Statistical Analysis for the Dimensions of Institutional Performance

Code	Dimension	Mean	Standard Deviation	Relative Weight	Rank	Level
Institutional Performance domain	Institutional Performance	3.2065	.91851	64.13%	3	Medium
Overall Statistical Values for the Institutional Performance Variable	-	3.2065	.91851	64.13%	3	Medium
Source: Prepared by the researcher based on the results of SPSS 26 statistical analysis output.						

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Descriptive Statistical Analysis – Institutional Performance Perception:

The descriptive statistical analysis results, as presented in Table 3, indicate that the level of employee perception regarding institutional performance in Palestinian local authorities is moderate. The calculated mean was (3.2065), with a standard deviation of (0.91851), and a relative weight of (64.13%). This places institutional performance in the third rank among the study dimensions. These results suggest that employees recognize the existence of institutional practices within their respective authorities; however, this recognition does not reflect a high level of excellence or institutional effectiveness. The mean score, which is close to the midpoint of the Likert scale, implies that local authorities are making efforts toward institutional performance enhancement, yet progress in this area remains limited. Furthermore, the relatively high standard deviation reflects a significant variation in respondents' opinions, which could indicate differences in institutional performance implementation among various authorities or a divergence in perception based on job function or administrative position. On the other hand, the relative weight of (64.13%) shows that institutional performance has not yet reached a level that can be deemed good or high. This underscores the need to strengthen institutional work by adopting more efficient administrative practices, improving planning, implementation, and evaluation processes, and reinforcing governance, transparency, and accountability principles. Based on the above, these findings highlight the importance of developing institutional and administrative frameworks within Palestinian local authorities and focusing on cultivating an effective and sustainable performance culture. This would contribute to improving service efficiency and achieving citizen satisfaction, aligning with public sector reform and digital transformation objectives.

Comparison of Results with Previous Studies:

These findings align with prior literature. (Abu Ghaban & Al-Madhoun (2023) found that human and technological capabilities significantly influence institutional excellence in Gaza Municipality, consistent with the present study's results regarding the human dimension. Similarly, (Ghoneim (2023) highlighted that the synergy of human and technological resources enhances institutional efficiency—paralleling the multi-dimensional impact shown here. Additionally, Abdel Aziz (2022) emphasized the role of the creative dimension in digital transformation success within NGOs, echoing this study's finding that the creative dimension has a statistically significant effect on institutional performance. Together, these parallels reinforce the reliability of the current findings and support the strategic integration of all three dimensions, technological, human, and creative—as key pillars for advancing digital maturity and institutional performance within Palestinian local authorities.

Findings Related to the Third Research Question: The third research question explores whether there is a statistically significant effect at the significance level ($\alpha \leq 0.05$) for the application of digital transformation dimensions (use of digital technologies, human resources, and digital creative dimension) on institutional performance in Palestinian local authorities from the perspective of the

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study sample. To address this question, the structural model of the study was analyzed in two key phases: Measurement Model Assessment. This stage involves evaluating the acceptability of the measurement model by assessing both convergent validity and discriminant validity of the study instrument, as recommended by Hair et al., (2013). The measurement model ensures that the constructs accurately measure the variables they are intended to capture. As well as the Convergent Validity Assessment: In this phase, convergent validity is examined using the following statistical indicators: Factor loadings, Composite reliability (CR), Average Variance Extracted (AVE). These indicators confirm whether the items representing each latent construct are highly correlated, thus validating the internal consistency of each construct. The detailed results of this assessment are presented in Figure 2.

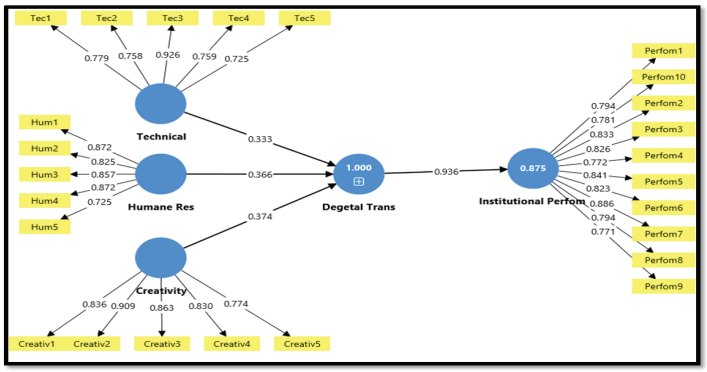

Figure 2: The Measurement Model Before Modifications

Source: Prepared by the researcher based on SmartPLS output.

The updated measurement model is presented in Figure 3. It consists of three main components representing the independent variable "Digital Transformation": the technological, human, and creative dimensions, which are linked to the dependent variable "Institutional Performance." To verify the convergent validity of the model, three key indicators were analyzed: factor loadings, composite reliability (CR), and average variance extracted (AVE), following the recommended criteria in the literature. Specifically, all AVE values exceeded the threshold of 0.50 as proposed by Joseph et al., (2013), while all CR values surpassed the recommended minimum of 0.70 as suggested by Hair et al., (2016). Accordingly, the model meets the accepted standards of convergent validity. Each item in the model showed factor loadings above 0.70, indicating a strong correlation between items and their respective latent constructs. Likewise, the high CR values confirm internal consistency among items, while AVE values above 0.50 indicate that more than half of the variance in each item is captured by the corresponding construct. Additionally, the path coefficient between digital transformation and institutional performance reached 0.936, reflecting a strong explanatory power of digital transformation components in predicting institutional performance. In summary, the revised measurement model satisfies all convergent validity criteria, and the strong relationships

among constructs confirm the conceptual coherence of the study framework. This demonstrates that the dimensions of digital transformation are essential determinants of institutional performance in Palestinian local authorities.

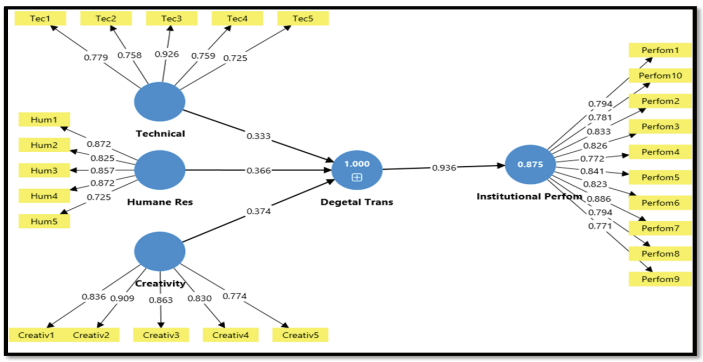

Figure 3: The Measurement Model After Modification

Source: Prepared by the researcher based on Smart PLS output.

The table below (Table 4) shows that the study model has met the standards of convergent validity according to the recommended values, indicating that the measurement model, after modification, has achieved adequate convergent validity, as illustrated in Table 4 below.

Table 4: Factor Loadings, Composite Reliability, and Average Variance Extracted (AVE) for the Study Constructs:

Construct	Items	Factor loading	Composite Reliability	(AVE)
technical dimension	Tec1	0.779	0.894	0.628
	Tec2	0.758		
	Tec3	0.926		
	Tec4	0.759		
	Tec5	0.725		
human resources dimension	Hum1	0.872	0.918	0.692
	Hum2	0.825		
	Hum3	0.857		
	Hum4	0.872		
	Hum5	0.725		
creative dimension dimension	Creativ1	0.836	0.925	0.711
	Creativ2	0.909		
	Creativ3	0.863		
	Creativ4	0.830		
	Creativ5	0.774		

institutional performance	Perfom1	0.794	0.951	0.661
	Perfom2	0.833		
	Perfom3	0.826		
	Perfom4	0.772		
	Perfom5	0.841		
	Perfom6	0.823		
	Perfom7	0.886		
	Perfom8	0.794		
	Perfom9	0.771		
	Perfom10	0.781		

Source: Prepared by the researcher based on Smart PLS output. Convergent Validity.

Results Summary: The results presented in Table 4 indicate that the factor loadings of the study items ranged from 0.725 to 0.926, all of which exceed the minimum acceptable threshold of 0.70 recommended by Hair et al. (2010). This suggests that all items are strongly correlated with their respective constructs and exhibit high convergent validity. Accordingly, all 25 indicators distributed across four main dimensions were retained. Furthermore, the values of Composite Reliability (CR) for all dimensions exceeded the threshold value of 0.70, ranging from 0.894 to 0.951, reflecting a high degree of internal consistency among the items measuring each construct. The Average Variance Extracted (AVE) values for all dimensions also surpassed the recommended minimum of 0.50, ranging from 0.628 to 0.711. This indicates that each construct explains more than 50% of the variance in its respective indicators, thus supporting the model's convergent validity. Based on these results, it can be concluded that the measurement model used in the study demonstrates high reliability and convergent validity, and is therefore suitable for subsequent structural equation modeling (SEM) analysis. This is visually illustrated in Figure 4: Results of Confidence Coefficient Test (AVE).

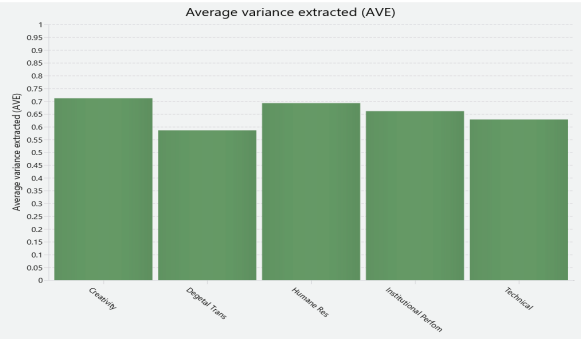

Figure 4: Average Variance Extracted (AVE) Test Results

Source: Prepared by the researcher based on SmartPLS output.

Table 5: Revised Measurement Model After Modification

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digital Trans	0.949	0.951	0.955	0.586
Technical	0.850	0.862	0.894	0.628
Humane Res	0.888	0.892	0.918	0.692
Creative dimension	0.898	0.898	0.925	0.711
Institutional Preform	0.943	0.945	0.951	0.661

Source: Prepared by the researcher based on SmartPLS output.

Table (5) shows that all four dimensions of the study model, in addition to the latent variable "digital transformation," achieved high levels of internal consistency, reliability, and convergent validity. The Cronbach's Alpha coefficients for the examined dimensions all exceeded the recommended minimum threshold of 0.70, ranging between 0.850 and 0.949, which reflects a high level of internal reliability for the items associated with each construct. Moreover, the composite reliability values (rho_a and rho_c) for all dimensions surpassed 0.86, indicating strong consistency among the items and their ability to accurately and reliably measure the latent construct. Regarding the Average Variance Extracted (AVE), all values exceeded the minimum required threshold of 0.50, ranging between 0.586 and 0.711. This implies that each construct explains an acceptable portion of the variance in its associated indicators and confirms the convergent validity of the model. Based on these results, it can be concluded that the modified measurement model demonstrates a high level of statistical quality and is valid for testing the structural model. The adequacy of the statistical measures indicates that all indicators meet the requirements for reliability and validity, enhancing the credibility of the adopted measurement tool. Accordingly, the measured variables can be reliably used to analyze the causal relationships between the dimensions of digital transformation and institutional performance in Palestinian local authorities. The results of the adjusted measurement model will be presented in Table (6).

Table 6: Results of the Revised Measurement Model

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digital Trans	0.949	0.951	0.955	0.586
Technical	0.850	0.862	0.894	0.628
Human Resources	0.888	0.892	0.918	0.692
Creative dimension	0.898	0.898	0.925	0.711
Institutional Preforms	0.943	0.945	0.951	0.661

Source: Prepared by the researcher based on SmartPLS output.

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Discriminant Validity Analysis: Discriminant Validity refers to the ability of measurement items or tools to distinguish between the assumed different constructs. There should be clear differences between the measures targeting various constructs in order to consider them indicative and reliable for effectively estimating these distinct constructs (Kline, 2016). The failure to identify discriminant validity issues could result in biased estimations of discrimination criteria between structural parameters in statistical models. Consequently, the model may be unable to correctly differentiate between factors, leading to formulations or analyses that do not align with the hypotheses concerning the relationships among the studied constructs. Therefore, in this stage, the assumptions are tested using the Fornell-Larcker Criterion, Cross Loadings, and the Heterotrait-Monotrait Ratio (HTMT) (Henseler et al., 2014). In this study, discriminant validity was assessed primarily using the Fornell-Larcker criterion as recommended by Fornell & Cha (1994). As shown in Table 7, the results indicate high correlations among the governance dimensions. According to the Fornell & Larcker criterion, the model demonstrates discriminant validity, which means that each construct in the model is distinguishable from the others. This supports the reliability of the measurement indicators in the research model.

Table 7: Fornell-Larcker Criterion Results and Comparison with the Shared Variance

Variables	Creative dimension	Digital Trans	Humane Res	Institutional Preforms	Technical
Creative dimension	0.843				
Digital Trans	0.921	0.765			
Human Res	0.787	0.942	0.832		
Institutional Preforms	0.875	0.936	0.858	0.813	
Technical	0.777	0.933	0.844	0.882	0.793

Source: Prepared by the researcher based on SmartPLS output.

Structural Model Evaluation : The structural model involves establishing connections and relationships between various constructs through a set of paths (hypotheses), which include direct, moderated, and indirect (mediated) relationships (Ringle et al., 2018). The structural model is evaluated by examining the following assumptions: collinearity issues, explanatory power, predictive power, and the significance and accuracy of relationships.

Collinearity Issues: This refers to the existence of high correlations among explanatory variables within a predictive model, which may hinder the estimation of model parameters and the assessment of each variable's contribution to explaining the variance in the dependent variable (Atoyebi & Obilade, 2024). A VIF value below 3 (VIF < 3) indicates the absence of multicollinearity among the study variables (Legate et al., 2021).

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Table 8: Variance Inflation Factor (VIF) Values

Variables	VIF
Digital Trans -> Institutional Preforms	1.000
Creative dimension -> Digital Trans	2.978
Humane Res -> Digital Trans	4.090
Technical -> Digital Trans	3.928

Source: Prepared by the researcher based on SmartPLS output.

Explanatory Power of the Structural Model :Explanatory Power (R^2): The estimation of the explained variance (R^2) for the endogenous variables refers to the process of calculating the amount of variance (change) in the endogenous variables that can be accounted for by the exogenous or independent variables in the model. In other words, this estimation reflects the model's capacity to explain variations in the dependent constructs based on the input from the independent constructs (Kline, 2016). To assess the explanatory power of the model, the R^2 values are typically interpreted according to the following thresholds: weak = 0.25, moderate = 0.50, and substantial = 0.75 (Hair et al., 2019).

Table 9: Explanatory Power Test

Variables	R-square	R-square adjusted
Digital Trans	0.88	0.88
Institutional Preforms	0.875	0.874

Source: Prepared by the researcher based on SmartPLS output.

Interpretation of R^2 Results – Structural Model: According to Table 9, the digital transformation construct achieved a high explanatory power with an R^2 value of 0.88. This indicates that the three dimensions—technological, human, and creative—collectively account for a substantial. Portion of the variance in institutional performance. Specifically, institutional performance recorded an R^2 of 0.875 and an adjusted R^2 of 0.874. These values suggest that digital transformation effectively explains a significant proportion of the variation in institutional performance, and the model is statistically stable. In conclusion, the structural model demonstrates strong explanatory power and highlights the efficacy of the independent variables in accounting for the phenomena under investigation.

Statistical Results – Research Question Three: The results related to the third research question, which states: "Is there a statistically significant effect at the significance level ($\alpha \leq 0.05$) of applying the dimensions of digital transformation—namely the dimensions of digital technology use, human resources, and digital creative dimension—on institutional performance in Palestinian local authorities?". To answer this question, the study employed a two-stage evaluation process of the

structural equation modeling (SEM) approach, comprising the assessment of the measurement model and the structural model. The analysis revealed the following: The measurement model assessment confirmed the convergent validity of the research instrument based on the values of factor loadings, composite reliability, and average variance extracted (AVE), all of which met the recommended thresholds. The structural model results showed a strong and statistically significant impact of digital transformation on institutional performance. The path coefficient between digital transformation and institutional performance was 0.936, indicating a substantial effect. The R^2 value for institutional performance reached 0.875, suggesting that 87.5% of the variance in institutional performance can be explained by the three digital transformation dimensions. This high R^2 value confirms the strong explanatory power of the model. Therefore, the findings support the hypothesis that digital transformation, across its technological, human, and creative dimensions, have a significant and positive effect on institutional performance in Palestinian local authorities.

Table 10: Results of Testing the Main Hypothesis and Sub-Hypotheses

Variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Digital Trans -> Institutional Performance	0.936	0.937	0.016	59.305	0.000
Creative dimension -> Institutional Performance	0.350	0.349	0.021	16.700	0.000
Humane Res -> Institutional Performance	0.343	0.343	0.016	21.088	0.000
Technical -> Institutional Performance	0.312	0.312	0.015	20.935	0.000

Source: Prepared by the researcher based on SmartPLS output.

11. Statistical Results and Recommendations Based on Research Hypotheses:

- **Testing the Main Hypothesis of the Study:**

The results presented in Table (10) indicate a strong and statistically significant effect of digital transformation and institutional performance. The effect value reached (0.936), which is very high. The T-value was (59.305), well above the required threshold (1.96), while the P-value was (0.000), below the accepted significance level ($\alpha \leq 0.05$). These findings support the main hypothesis, asserting a significant impact of combined digital transformation dimensions (creative dimension, human resources, and technology) on institutional performance in Palestinian local authorities. Digital transformation is thus a key driver in enhancing institutional efficiency and performance.

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- **Sub-Hypothesis Analysis:**

Creative Dimension → Institutional Performance: A statistically significant and positive relationship was found. The results related to the third research question showed an effect value of (0.350), T-value of (16.700), and P-value of (0.000). This highlights the important role of the creative dimension in improving institutional performance.

Human Resources → Institutional Performance

The results showed a strong and positive effect, with an effect value of (0.343), T-value of (21.088), and P-value of (0.000). These findings emphasize the importance of investing in human resource development to achieve superior institutional performance.

Technical → Institutional Performance

This dimension also showed a statistically significant effect, with an effect value of (0.312), T-value of (20.935), and P-value of (0.000). This suggests that using digital tools and infrastructure helps improve the efficiency and quality of institutional performance.

Conclusion and Recommendations:

All results support acceptance of the main hypothesis and the three sub-hypotheses, confirming that digital transformation across its three dimensions (creative dimension, human resources, and technologies) is a core driver of institutional performance enhancement in Palestinian local authorities. A strategic digital transformation approach focusing on the creative dimension, HR development, and infrastructure upgrade is recommended.

Table 11: Dimension-Based Recommendations Table

Dimension	Effect Value (O)	P-value	Procedural Recommendation
Digital Transformation (overall)	0.936	0.000	Adopt digital transformation as a strategic framework; establish a digital transformation unit within each local authority and link it to performance KPIs.
Digital Creative dimension	0.350	0.000	Encourage the institutional creative dimension through internal platforms and reward systems for creative initiatives.
Human Resources	0.343	0.000	Implement continuous digital upskilling programs and empower staff to lead technological change.
Digital Technologies	0.312	0.000	Upgrade digital infrastructure and provide integrated smart systems to enhance efficiency and service quality.

Source: Prepared by the researcher based on the findings of the study related to the research topic.

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