

**Digital Transformation Requirements and Employee Job Performance: Evidence from Naftal’s LPG District in Chlef, Algeria**



**Exigences de la transformation numérique et performance professionnelle des employés : données empiriques du district GPL de Naftal à Chlef, Algérie**

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**Abstract:**

This study aims to identify the impact of digital transformation on job performance at Naftal Corporation, Liquefied Petroleum Gas (LPG) District, Chlef. The descriptive-analytical method was employed. To achieve the study objective, a questionnaire was designed to collect data from a sample of 134 respondents, and the data were processed using the Statistical Package for the Social Sciences (SPSS). The study reached a number of findings, most notably that the organization exhibits manifestations of digital transformation through the widespread use of technology across all its departments and its adoption of advanced digital technologies, particularly since 2020. The results indicate a significant positive relationship between digital transformation requirements and job performance ( $R = 0.741$ ,  $R^2 = 0.548$ ,  $p < 0.001$ ). Furthermore, the study found a statistically significant effect of the requirements of digital transformation (technologies, data, human resources, and processes) on improving the job performance of employees at Naftal Corporation, LPG District, Chlef Province.

**Keywords:** Digital transformation; digital transformation requirements; job performance; digital technologies; human resources; Naftal Corporation; Algeria.

**Résumé:**

Cette étude vise à identifier l'impact de la transformation numérique sur la performance professionnelle au sein de la société Naftal, district de gaz de pétrole liquéfié (GPL) de Chlef. La méthode descriptive et analytique a été employée. Pour atteindre l'objectif de l'étude, un questionnaire a été conçu afin de collecter les données auprès d'un échantillon de 134 répondants, et les données

ont été traitées à l'aide du progiciel statistique pour les sciences sociales (SPSS). L'étude a abouti à un certain nombre de résultats, notamment le fait que l'organisation présente des manifestations de la transformation numérique à travers l'utilisation généralisée de la technologie dans tous ses départements et son adoption de technologies numériques avancées, en particulier depuis 2020. Les résultats indiquent une relation positive significative entre les exigences de la transformation numérique et la performance professionnelle ( $R = 0,741$ ,  $R^2 = 0,548$ ,  $p < 0,001$ ). L'étude a également révélé un effet statistiquement significatif des exigences de la transformation numérique (technologies, données, ressources humaines et processus) sur l'amélioration de la performance professionnelle des employés de la société Naftal, district GPL de la wilaya de Chlef.

**Mots-clés :** Transformation numérique ; exigences de la transformation numérique ; performance professionnelle ; technologies numériques ; ressources humaines ; Société Naftal ; Algérie.

### **Introduction:**

The contemporary business world is characterized by rapid transformation and change as a result of the continuous advancement of digital technologies, including communication networks and modern digital technologies. These developments have made such technologies key tools in the information and knowledge age and have turned them into a strategic driver for organizations, as they enable the improvement and modernization of services and the adoption of advanced systems that support competitiveness, thereby ensuring business continuity in a dynamic and constantly changing environment.

The acceleration of these transformations has intensified competition and generated new challenges for organizations, requiring them to improve their job performance and achieve excellence in providing products and services through the adoption of modern digital technologies. Job performance is considered an important topic with a strategic and dynamic dimension on which organizational efficiency is based, enabling institutions to achieve their objectives in the work environment and employees to perform their tasks efficiently and with high quality. Digital transformation is one of the most prominent of these developments; indeed, it constitutes a principal driver of organizational progress through the integration of digital technology into all areas of activity. This fundamentally changes the way work is performed and affects organizational structures and business models. It is not limited to digitizing documents or automating tasks; rather, it extends to bringing about cultural changes that require rethinking traditional management methods and adopting a digital culture capable of keeping pace with global transformations. It provides innovative tools and solutions that contribute to improving job performance and developing work methods in order to achieve a high level of efficiency and productivity, in addition to increasing the effectiveness of communication among the various administrative levels within the organization. Accordingly, the following research problem is posed:

**What is the impact of digital transformation on job performance at Naftal Corporation, Liquefied Petroleum Gas (LPG) District, Chlef?**

To answer this research problem, the following sub-questions are posed:

- What are the concepts of digital transformation and job performance?
- What are the requirements for implementing digital transformation?
- Is there a statistically significant effect, at a significance level, of technologies on job performance at Naftal Corporation, LPG District, Chlef?

- Is there a statistically significant effect, at a significance level, of human resources on job performance at Naftal Corporation, LPG District, Chlef?

### **Research Hypotheses:**

To address the research problem, namely, what is the impact of digital transformation on job performance at Naftal Corporation, LPG District, Chlef, and after aligning the previous studies reviewed with the topic of the current study, the following hypotheses were formulated:

Main hypothesis: There is a statistically significant effect, at a significance level, of digital transformation requirements on improving the job performance of employees at Naftal Corporation, LPG District, Chlef Province.

This main hypothesis includes the following sub-hypotheses:

1. First sub-hypothesis: Technologies have an effect on job performance at Naftal Corporation, LPG District, Chlef.
2. Second sub-hypothesis: Data have an effect on job performance at Naftal Corporation, LPG District, Chlef.
3. Third sub-hypothesis: Human resources have an effect on job performance at Naftal Corporation, LPG District, Chlef.
4. Fourth sub-hypothesis: Processes have an effect on job performance at Naftal Corporation, LPG District, Chlef.

### **Significance of the Study:**

The significance of this study lies in addressing digital transformation as one of the contemporary topics receiving increasing attention from organizations and researchers. Organizations have come to recognize the importance of employing digital technologies to develop their Processes and improve working methods, in order to keep pace with technological changes and respond to the requirements of the modern environment. On the other hand, job performance is particularly important because it is one of the fundamental indicators reflecting employees' ability to perform their tasks and achieve the required results efficiently and effectively. This makes it possible to determine the extent to which digital transformation contributes to facilitating task performance, improving work quality, and enhancing employees' ability to adapt to new work requirements, thereby supporting the achievement of organizational objectives and raising the level of organizational performance.

### **Objectives of the Study:**

The study aims to:

- Identify the requirements for implementing digital transformation in organizations.
- Highlight the dimensions of job performance.
- Propose a set of recommendations and suggestions related to the subject of the study by drawing the attention of the managers of the Algerian economic organizations under study.

### **Method Used in the Study:**

To address the research problem, the descriptive-analytical method was adopted, given the nature of the topic, namely the impact of digital transformation on job performance at Naftal

Corporation, LPG District, Chlef. The descriptive approach is used to describe the phenomenon under study without intervention by the researcher, followed by analyzing and interpreting the study results.

## **1. Theoretical Framework of the Study:**

### **1.1. Definition of Digital Transformation:**

The concept of digital transformation is a subject of debate among writers and researchers due to the diversity of definitions and differences in views concerning it. The following are some of the most prominent definitions:

Digital transformation is defined as the adoption of new strategies and business models enabled by a multitude of new information technologies (Furr, Ozcan, & Eisenhardt, 2022, p. 597).

Herbert (HERBERT) emphasizes that it is important for organizations to recognize that digital transformation should not be regarded as a simple extension, but rather as a business project extending from the general manager to the assistant; everyone must join it because all services will be affected (ADNANI & HAMOU, 2020, p. 145).

It is also defined as a comprehensive transformation process that leads an organization to integrate technologies into all its activities in order to improve its performance. It is a data-driven approach that relies heavily on the use of a set of complex algorithms, with the purpose of enhancing the acquisition of new prospects, facilitating transactions with customers, and ensuring their loyalty through the optimal use of the organization's various functions (marketing, supply chain, finance, human resources, etc.) (Taqawa & Bouchama, 2023, p. 422).

Based on the preceding definitions, it can be concluded that digital transformation is the process by which an organization moves from a traditional system to a digital system based on information technology and digital technologies across its various activities, thereby contributing to the development of work models and methods and improving performance.

### **1.2. Requirements for Achieving Digital Transformation:**

Implementing digital transformation requires a number of requirements, namely technologies, data, human resources, and, finally, processes, as detailed below:

- **Technologies:** Digital transformation is built on an integrated system that includes operating systems, storage media, and software operating within technical environments and information centers that enable all assets to be used with continuous operational efficiency. It also requires ensuring an appropriate level of service for employees, customers, and suppliers through professional teams responsible for managing the technological system and network infrastructure, whether local or cloud-based (Boutoura & El Wafi, 2022, p. 522).
- **Processes:** Establishing an effective technological structure includes developing the internal and external performance of organizations to ensure optimal implementation of digital transformation, while establishing policies and procedures covering all interconnected activities and processes of the company, in addition to modern technologies and processed data (Quraini, 2022, p. 475).
- **Data:** Organizations should manage and analyze data regularly and effectively to ensure the provision of accurate and reliable information and procedures, while using appropriate tools for statistical analysis, data exploration, and forecasting (Yasser, 2019, p. 214). Data should also be continuously monitored to ensure their uninterrupted flow and utilization in accordance with the organization's objectives and expectations (Radoua, 2022, p. 142).

- **Human Resources:** The human element is one of the fundamental dimensions of the success of any system, program, or organization in general. It is also a key requirement for implementing digital transformation through the provision of qualified human resources trained in the use of digital technology and in using and analyzing data to make effective decisions. Planning visions and implementing them also require human competencies, as well as scientific and practical expertise, together with a belief in change and development (Khalil & Jad, 2023, p. 04).

## **1.2. Definition of Job Performance:**

The concept of job performance has received considerable attention in the scientific literature because of its importance across various disciplines and research fields. This has led to multiple perspectives and differences among researchers in determining a unified and precise definition. Accordingly, the following are some of the most important definitions in this field:

Job performance is defined as actions related to organizational objectives that can be measured in terms of an individual's contribution to organizational effectiveness (Yong-Chung, Emperatriz García-Salirrosas, & Manuel, 2025, p. 03).

It is also defined as employees' ability to carry out the tasks, duties, and responsibilities assigned to them in the shortest possible time and at the lowest cost in order to achieve the maximum level of production within an integrated organizational environment characterized by an appropriate work climate and the availability of administrative instructions within an organizational structure, taking into account all surrounding changes (Belhout, 2025, p. 431).

Job performance is a concept encompassing behaviors controlled by employees in achieving organizational objectives (Ramos-Villagrasa, Juan R., & Linda, 2019, p. 02).

Based on the preceding definitions, it can be concluded that job performance represents a set of behaviors, tasks, and actions performed by employees within the framework of their jobs, which are reflected in the extent to which organizational objectives are achieved efficiently and effectively, with optimal use of available time, costs, and resources.

## **1.4. Dimensions of Job Performance:**

Performance encompasses a set of behaviors and practices that reflect an individual's technical knowledge in their field of specialization, as well as their skills and ability to adapt to changing circumstances and interactive interpersonal relationships with others. These reflect the various dimensions of performance, as follows:

**Task Performance:** Conway argues that task performance depends on the extent to which an individual understands their job on the basis of cognitive abilities, including technical knowledge or principles necessary to ensure job performance and the ability to deal with multiple tasks; skills, including the application of technical knowledge to accomplish the task successfully without supervision; and habits, including the innate ability to respond to assigned work, which may facilitate or hinder performance (Kafi & Moulay, 2021, p. 520).

**Contextual Performance:** This is also referred to as extra-role performance because it is not directly connected with performance itself; rather, it measures aspects of performance related only to specific tasks. Research has indicated the extent to which employees can contribute within the work context and indirectly maximize and increase organizational effectiveness. In some studies, contextual performance has been classified into two groups. The first includes dimensions that enhance the performance of specified tasks, namely organizational affiliation, volunteering, hard

work, and support for organizational goals. The second consists of dimensions that facilitate interaction among individuals, cooperation, and helping others (Jankingthong & Suthinee, 2012, p. 117).

**Adaptive Performance:** Adaptive performance refers to behavior that reflects an individual's efficiency and ability to change their behavior in order to meet changing environmental requirements and continuously move from one state to another. In light of rapid changes in work requirements resulting from technological innovations, downsizing, mergers, and restructuring, adaptive performance has become increasingly prominent. It requires individuals to be able to learn quickly and adapt to new situations so that they can compete for new jobs and tasks (Raheb & Shabi, 2023, p. 697).

## **2- The Impact of Digital Transformation on Job Performance at Naftal Corporation, Liquefied Petroleum Gas (LPG) District, Chlef**

### **2.1. Field Study Methodology**

#### **2.1.1. Study Population and Sample**

The statistical population subject to the study includes all employees of Naftal Corporation, LPG District, Chlef Province, numbering 175 persons. Because temporal, human, and administrative constraints made it impossible to reach all of them, the current study relied on convenience sampling. Care was taken to ensure good representation of the study population by distributing 150 paper questionnaires. After retrieval, 134 valid questionnaires were obtained for statistical analysis, representing 76.57% of the study population, which The sample comprised 134 employees, representing 76.57% of the target population.

### **2.2. Questionnaire as a Data Collection Instrument**

#### **2.2.1. Structure of the Field Study Questionnaire**

The questionnaire consists of two parts. The first part concerns personal and job-related data: gender, age, educational level, experience, and job position. The second part includes two axes. The first contains 20 statements measuring the independent variable, namely digital transformation requirements, distributed across four dimensions: technologies (infrastructure), processes, data, and human resources. The second axis concerns the dependent variable, job performance, which contains 15 statements.

Five response options were provided to respondents for each statement, on the basis of which the ranges of arithmetic means for the statements and variables were determined: the first range, from 1.00 to less than 1.80, indicates a very low level of agreement; the second range, from 1.80 to less than 2.60, indicates a low level of agreement; the third range, from 2.60 to less than 3.40; the fourth range, from 3.40 to less than 4.20; and the fifth and final range, from 4.20 to 5.00.

#### **2.2.2. Statistical Methods for Testing the Validity of the Study Instrument**

Internal consistency validity test for the study variables: The results of this test are presented in Tables (1) and (2).

**Table 1: Pearson Correlation Coefficients for Internal Consistency Validity of the Digital Transformation Requirements Axis**

| <b>Dimension</b>              | <b>Item</b> | <b>Pearson correlation</b> | <b>Sig.</b> |
|-------------------------------|-------------|----------------------------|-------------|
| Technologies (Infrastructure) | 1           | 0.786**                    | 0.000       |
| Technologies (Infrastructure) | 2           | 0.825**                    | 0.000       |
| Technologies (Infrastructure) | 3           | 0.769**                    | 0.000       |
| Technologies (Infrastructure) | 4           | 0.702**                    | 0.000       |
| Technologies (Infrastructure) | 5           | 0.772**                    | 0.000       |
| Processes                     | 6           | 0.774**                    | 0.000       |
| Processes                     | 7           | 0.798**                    | 0.000       |
| Processes                     | 8           | 0.752**                    | 0.000       |
| Processes                     | 9           | 0.702**                    | 0.000       |
| Processes                     | 10          | 0.703**                    | 0.000       |
| Data                          | 11          | 0.830**                    | 0.000       |
| Data                          | 12          | 0.769**                    | 0.000       |
| Data                          | 13          | 0.717**                    | 0.000       |
| Data                          | 14          | 0.711**                    | 0.000       |
| Data                          | 15          | 0.820**                    | 0.000       |
| Human Resources               | 16          | 0.801**                    | 0.000       |
| Human Resources               | 17          | 0.823**                    | 0.000       |
| Human Resources               | 18          | 0.813**                    | 0.000       |
| Human Resources               | 19          | 0.763**                    | 0.000       |
| Human Resources               | 20          | 0.585**                    | 0.000       |

\*\*.: Significant at the 5% level

\*.: Significant at the 1% level

**Source:** Prepared by the researchers based on SPSS results.

All Pearson correlation coefficients are statistically significant at the 0.01 (1%) significance level, as the probability value (Sig.) was 0.000, it does not exceed the 5% significance level. These correlation coefficients range between 0.585 and 0.830. Accordingly, the statements of the digital transformation requirements axis are valid and measure the dimensions to which they belong, making it possible to adopt them for accurate field measurement at the organization under study.

**Table 2: Pearson Correlation Coefficients for the Validity of the Job Performance Axis**

| <b>Item</b> | <b>Pearson correlation</b> | <b>Sig.</b> | <b>Item</b> | <b>Pearson correlation</b> | <b>Sig.</b> |
|-------------|----------------------------|-------------|-------------|----------------------------|-------------|
| 21          | 0.598**                    | 0.000       | 29          | 0.709**                    | 0.000       |
| 22          | 0.524**                    | 0.000       | 30          | 0.648**                    | 0.000       |
| 23          | 0.730**                    | 0.000       | 31          | 0.751**                    | 0.000       |
| 24          | 0.634**                    | 0.000       | 32          | 0.596**                    | 0.000       |
| 25          | 0.750**                    | 0.000       | 33          | 0.690**                    | 0.000       |
| 26          | 0.736**                    | 0.000       | 34          | 0.663**                    | 0.000       |

|    |         |       |    |         |       |
|----|---------|-------|----|---------|-------|
| 27 | 0.764** | 0.000 | 35 | 0.609** | 0.000 |
| 28 | 0.755** | 0.000 |    |         |       |

\*\*.: Significant at the 5% level

\*.: Significant at the 1% level

**Source:** Prepared by the researchers based on SPSS results.

All Pearson correlation coefficients are statistically significant at the 0.01 (1%) significance level, as the probability value (Sig.) was 0.000, it does not exceed the 5% significance level. These correlation coefficients range between 0.524 and 0.764. Accordingly, the statements of the job performance axis are valid and measure the dimensions to which they belong, making it possible to adopt them for accurate field measurement at the organization under study.

**Reliability test based on Cronbach's Alpha coefficient:** The results are presented in Table (3).

**Table 3: Reliability of the Digital Transformation Requirements and Job Performance Variables**

| Dimensions and axes                                       | Number of items | Cronbach's Alpha |
|-----------------------------------------------------------|-----------------|------------------|
| Technologies (Infrastructure)                             | 5               | 0.829            |
| Processes                                                 | 5               | 0.799            |
| Data                                                      | 5               | 0.829            |
| Human Resources                                           | 5               | 0.797            |
| Independent variable: Digital transformation requirements | 20              | 0.915            |
| Dependent variable: Job performance                       | 15              | 0.917            |
| Overall reliability                                       | 35              | 0.948            |

Source: Prepared by the researchers based on SPSS results.

The Cronbach's alpha coefficients for the study axes and dimensions range between 79.7% and 91.7%, exceeding the 70% threshold. The overall reliability of all dimensions and study variables reached 94.8%, which means that if the questionnaire were administered again, results identical or close to those obtained in the current study would be expected.

### 2.3. Statistical Tests for Data Processing

The following were used: Pearson correlation coefficient; Cronbach's Alpha reliability test; a test to verify whether the variables follow a normal distribution; as well as frequencies and percentages, the arithmetic mean, standard deviation, and multiple Linear regression, using the Statistical Package for the Social Sciences (SPSS), Version 21.

### 2.4. Statistical Analysis and Description of the Field Study Results

#### 2.4.1. Statistical Analysis and Description of the Personal and Job-Related Characteristics of Respondents

The results are presented in Table (4).

**Table 4: Statistical Description of the Distribution of Respondents According to Their Personal and Job-Related Characteristics**

| Variable          | Category                             | Number | Percentage (%) |
|-------------------|--------------------------------------|--------|----------------|
| Gender            | Male                                 | 60     | 44.8           |
| Gender            | Female                               | 74     | 55.2           |
| Age               | Under 30 years                       | 36     | 26.9           |
| Age               | 31–40 years                          | 57     | 42.5           |
| Age               | 41–50 years                          | 32     | 23.9           |
| Age               | Over 50 years                        | 9      | 6.7            |
| Educational level | Secondary or lower                   | 19     | 14.2           |
| Educational level | University                           | 87     | 64.9           |
| Educational level | Postgraduate studies (PhD, Master's) | 28     | 20.9           |
| Experience        | Less than 5 years                    | 6      | 4.5            |
| Experience        | 5–15 years                           | 86     | 64.2           |
| Experience        | More than 15 years                   | 42     | 31.3           |
| Job level         | Manager                              | 1      | 0.7            |
| Job level         | Department Head                      | 5      | 3.7            |
| Job level         | Head of Service                      | 15     | 11.2           |
| Job level         | Executive Agent                      | 113    | 84.3           |

Source: Prepared by the researchers based on SPSS results.

Female respondents accounted for 55.2%, while male respondents accounted for 44.8%. Approximately half of the respondents were aged between 31 and 40 years, representing 42.5%, while 26.9% of respondents were under 30 years of age. Meanwhile, 23.9% of respondents were between 41 and 50 years old, whereas the lowest percentage, 6.7%, represented those over 50 years of age. In addition, nearly two-thirds of the respondents had a university-level education, accounting for 64.9%, while 20.9% held postgraduate degrees (Master's and PhD), and 14.2% had a secondary-level education.

Furthermore, nearly two-thirds of the respondents had between 5 and 15 years of experience, representing 64.2%, while those with more than 15 years of experience represented 31.3%; the lowest percentage, 4.5%, represented respondents with less than 5 years of experience. Regarding the positions held by the respondents included in the study, more than two-thirds of the sample were executive agents, representing 84.3%. Heads of services accounted for 11.2%, followed by department heads at 3.7%, while the remaining and lowest proportion, 0.7%, represented the manager.

#### **2.4.2. Presentation and Analysis of the Digital Transformation Requirements Dimension**

The statistical description and analysis of the use of digital transformation requirements across its four dimensions are presented as follows.

##### **Statistical Analysis and Description of the Technologies (Infrastructure) Dimension**

The results are presented in Table (5).

**Table (5): Statistical Description of the Technologies (Infrastructure) Variable**

| No.                           | Item                                                                                                                   | Mean | Standard Deviation | Degree of Agreement | Rank |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------|------|--------------------|---------------------|------|
| 1                             | Naftal collaborates with Microsoft Azure cloud computing services to preserve and store information.                   | 3.77 | 1.220              | High                | 1    |
| 2                             | The institution uses a hybrid cloud infrastructure (SaaS, PaaS, IaaS) in its internal and external transactions.       | 3.57 | 1.247              | High                | 3    |
| 3                             | The institution uses Data Centers to facilitate the storage and processing of big data.                                | 3.33 | 1.296              | Moderate            | 5    |
| 4                             | The institution relies on the SDCOM program to store information and deliver it to all departments of the institution. | 3.72 | 1.094              | High                | 2    |
| 5                             | The institution relies on the Web Pdr system to record breakdowns and take the necessary measures to address them.     | 3.48 | 1.129              | High                | 4    |
| Technologies (Infrastructure) |                                                                                                                        | 3.57 | 0.9250             | High                | --   |

**Source:** Prepared by the researchers based on SPSS results.

Respondents confirmed the high level of use of technologies and the attention devoted to infrastructure as part of the digital transformation requirements by the management of the institution under study, as indicated by the mean of 3.57. There is relatively high dispersion in their responses to the items of this dimension, as the standard deviations for all items exceeded 1, with particular reference to the dimension's standard deviation of 0.925. Regarding the arithmetic means of the individual items, they fall within the high range and correspond to the response categories ranging from "Agree" to "Moderate," with values ranging from 3.77 for Item 1 to 3.33 for Item 3. The results show that digital technologies and infrastructure constitute one of the requirements adopted by Naftal to support digital transformation; however, the level of their utilization varies from one technology to another. The leading positions of cloud computing services and the SDCOM program indicate that the institution places greater importance on information storage and exchange among departments, whereas the lower use of data centers indicates a relative limitation in their utilization compared with other technologies. The variation in respondents' answers also reflects differences in their level of familiarity with these technologies or the degree to which they interact with them. This indicates that the adoption of digital infrastructure is established, but is not implemented at the same level across all aspects. The findings confirm that Naftal has made progress in providing the technical requirements for digital transformation, while continuing to need further development of their integrated use to support the efficiency of internal Processes.

### **Statistical Analysis and Description of the Processes Dimension**

The results are presented in Table (6).

**Table (6): Statistical Description of the Processes Variable**

| No.       | Item                                                                                                                                              | Mean | Standard Deviation | Degree of Agreement | Rank |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------|---------------------|------|
| 6         | Information is transferred between the institution's departments using the SDCOM program to address customer problems.                            | 3.75 | 1.088              | High                | 3    |
| 7         | The workplace is connected to digital media and devices via the INTERNET.                                                                         | 3.63 | 1.038              | High                | 4    |
| 8         | The institution uses the Polycom RealPresence Desktop platform for remote communication and coordination among employees.                         | 3.82 | 1.032              | High                | 1    |
| 9         | The institution uses Edge Computing to reduce time and costs and increase service security.                                                       | 3.80 | 0.9790             | High                | 2    |
| 10        | Information is transferred among employees within the institution via email: <a href="mailto:NameLastname@Naftal.DZ">NameLastname@Naftal.DZ</a> . | 3.46 | 1.161              | High                | 5    |
| Processes |                                                                                                                                                   | 3.69 | 0.790              | High                | --   |

**Source:** Prepared by the researchers based on SPSS results.

Respondents confirmed the high level of smoothness and ease of Processes as part of the requirements of digital transformation by the management of the institution under study, as indicated by the mean of 3.69. There is a relatively high degree of dispersion in their responses to the items of this dimension, as the standard deviations for all items exceeded 1, with particular reference to the dimension's standard deviation of 0.790. Regarding the arithmetic means of the individual items, they fall within the high range and correspond to the “Agree” response category, with values ranging from 3.82 for Item 8 to 3.46 for Item 10. The findings indicate that the institution relies on digital tools to manage its internal Processes, thereby facilitating communication and coordination among employees and different departments. The use of remote communication platforms and edge computing technologies is particularly evident, contributing to reductions in costs and time and improving the speed of completing Processes. In contrast, the lower use of email compared with other means indicates variation in the use of digital communication channels within the institution. Accordingly, the results reflect a tendency toward developing traditional work methods and enhancing integration among digital tools, thereby supporting the smooth flow of internal Processes and the effectiveness of addressing customer problems.

### Statistical Analysis and Description of the Data Dimension

The results are presented in Table (7).

**Table (7): Statistical Description of the Data Variable**

| No. | Item | Mean | Standard Deviation | Degree of Agreement | Rank |
|-----|------|------|--------------------|---------------------|------|
|-----|------|------|--------------------|---------------------|------|

|      |                                                                                                                                       |      |        |          |    |
|------|---------------------------------------------------------------------------------------------------------------------------------------|------|--------|----------|----|
| 11   | The institution uses SMS text and voice messages to inform customers that their orders are ready and specify the collection location. | 3.39 | 1.280  | Moderate | 4  |
| 12   | The institution can retrieve customer data without having to enter it each time by using the SDCOM program.                           | 3.47 | 1.181  | High     | 3  |
| 13   | The institution uses Naftal Khadamat to communicate with customers.                                                                   | 3.75 | 1.044  | High     | 2  |
| 14   | The institution takes customer security updates into account when marketing its services digitally.                                   | 3.91 | 1.044  | High     | 1  |
| 15   | The institution exchanges and shares information and data transparently within the business network using Blockchain technology.      | 3.28 | 1.271  | Moderate | 5  |
| Data |                                                                                                                                       | 3.56 | 0.9010 | High     | -- |

**Source:** Prepared by the researchers based on SPSS results.

Respondents confirmed the high level of attention to and concern for data security, confidentiality, and quality as part of the digital transformation requirements by the management of the institution under study, as indicated by the mean of 3.56. There is a relatively high degree of dispersion in their responses to the items of this dimension, as the standard deviations for all items exceeded 1, with particular reference to the dimension's standard deviation of 0.901. Regarding the arithmetic means of the individual items, they range from high to moderate and correspond to the “High” and “Moderate” response categories, with values ranging from 3.91 for Item 14 to 3.28 for Item 15. The results highlight that Naftal pays attention to data management and protection within digital transformation practices, with variation in the level of implementation of the mechanisms adopted. Customer data protection and the security of digital transactions represent prominent aspects of this dimension, whereas the use of certain advanced technologies for information exchange within the institution remains less prevalent. This also reflects differences in the maturity of digital data-related practices, making the strengthening of data-exchange mechanisms and their integrated utilization an important factor in supporting the efficiency of internal Processes and improving the quality of services provided to customers.

### **Statistical Analysis and Description of the Human Resources Dimension**

The results are presented in Table (8).

**Table (8): Statistical Description of Management Support for the Human Resources Variable**

| No. | Item                                                                                               | Mean | Standard Deviation | Degree of Agreement | Rank |
|-----|----------------------------------------------------------------------------------------------------|------|--------------------|---------------------|------|
| 16  | The institution has a specialized team for developing and producing software.                      | 3.49 | 1.249              | High                | 4    |
| 17  | The institution provides training programs that help employees develop their digital capabilities. | 3.66 | 1.143              | High                | 2    |

|                 |                                                                                                                                       |      |        |          |    |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|------|--------|----------|----|
| 18              | The institution has digital monitoring devices in the workplace.                                                                      | 3.38 | 1.200  | Moderate | 5  |
| 19              | Do you perceive a tangible transition from the use of paper to the use of digital technology?                                         | 3.57 | 1.072  | High     | 3  |
| 20              | The institution uses the Novach program to facilitate human resources management processes, such as payroll and inventory management. | 3.66 | 0.9810 | High     | 1  |
| Human Resources |                                                                                                                                       | 3.55 | 0.8420 | High     | -- |

**Source:** Prepared by the researchers based on SPSS results.

Respondents confirmed the high level of attention to and concern for the readiness, competence, and awareness of human resources as part of the digital transformation requirements by the management of the institution under study, as indicated by the mean of 3.55. There is relatively high dispersion in their responses to the items of this dimension, as the standard deviations of most items exceeded 1, with particular reference to the dimension's standard deviation of 0.842. Regarding the arithmetic means of the individual items, they range from high to moderate and correspond to the “High” and “Moderate” response categories, with values ranging from 3.66 for Item 20 to 3.38 for Item 18. The results indicate that human resources at Naftal receive attention within the requirements of digital transformation, although this attention varies across organizational, technical, and training-related aspects. The use of digital systems in human resources management and the provision of training programs are prominent aspects supporting digital work, whereas the development of digital skills and the enhancement of awareness of modern technologies remain areas requiring greater attention. The lower evaluation of digital monitoring devices also indicates differences in the availability of technical tools supporting work. The findings reflect the institution's orientation toward developing the capabilities of its human resources and keeping pace with the requirements of digital transformation, while emphasizing the importance of technical training and qualification to ensure the effective use of digital systems and improve the performance of internal Processes.

**The four dimensions of digital transformation are ranked as follows:**

**Table (9): Standard Statistical Description of the Digital Transformation Requirements Dimension**

| No.                                 | Dimension                     | Mean | Standard Deviation | Degree of Agreement | Rank |
|-------------------------------------|-------------------------------|------|--------------------|---------------------|------|
| 1                                   | Technologies (Infrastructure) | 3.57 | 0.9250             | High                | 2    |
| 2                                   | Processes                     | 3.69 | 0.7900             | High                | 1    |
| 3                                   | Data                          | 3.56 | 0.9010             | High                | 3    |
| 4                                   | Human Resources               | 3.55 | 0.8420             | High                | 4    |
| Digital Transformation Requirements |                               | 3.59 | 0.7070             | High                | --   |

**Source:** Prepared by the researchers based on SPSS results.

Respondents confirmed the high level of attention to the requirements of digital transformation in the institution under study, as indicated by the mean of 3.59. There is moderate dispersion in their responses to the dimensions of this axis, as the standard deviations of all dimensions did not exceed 1, with particular reference to the overall axis standard deviation of 0.707. Regarding the arithmetic means of all dimensions, they fall within the high range and correspond to the “Agree” response category, ranging from 3.69 to 3.55. The Processes dimension ranked first, followed by Technologies (Infrastructure), while Data and Human Resources ranked third and fourth, respectively.

#### 2.4.3. Statistical Analysis and Description of the Job Performance Dimension

The statistical description and analysis of job performance availability are presented in Table (10).

**Table (10): Statistical Description of the Job Performance Variable**

| No. | Item                                                                                         | Mean | Standard Deviation | Degree of Agreement | Rank |
|-----|----------------------------------------------------------------------------------------------|------|--------------------|---------------------|------|
| 21  | I possess the technical knowledge necessary to perform my job duties.                        | 3.61 | 1.061              | High                | 7    |
| 22  | I employ my knowledge and skills to successfully complete the tasks assigned to me.          | 3.72 | 0.9450             | High                | 3    |
| 23  | I can efficiently handle multiple tasks associated with my work.                             | 3.54 | 1.135              | High                | 9    |
| 24  | I can complete my job duties without the need for continuous supervision.                    | 3.80 | 1.010              | High                | 1    |
| 25  | I am able to perform the tasks assigned to me in accordance with the requirements of my job. | 3.59 | 1.005              | High                | 8    |
| 26  | I contribute to supporting and achieving the institution's objectives.                       | 3.69 | 1.171              | High                | 5    |
| 27  | I assist my colleagues when needed in performing their work.                                 | 3.42 | 1.178              | High                | 11   |
| 28  | I make sure to cooperate with my colleagues to accomplish joint tasks.                       | 3.33 | 1.231              | Moderate            | 13   |
| 29  | I make an extra effort when working conditions require it.                                   | 3.25 | 1.223              | Moderate            | 15   |
| 30  | I demonstrate commitment to the institution where I work.                                    | 3.68 | 1.066              | High                | 6    |
| 31  | I adapt quickly to changes occurring in my work environment.                                 | 3.28 | 1.174              | Moderate            | 14   |
| 32  | I learn quickly when new technologies are introduced into the workplace.                     | 3.72 | 0.9310             | High                | 4    |
| 33  | I can change my performance style in accordance with new work requirements.                  | 3.37 | 1.108              | Moderate            | 12   |
| 34  | I deal flexibly with continuous changes in the nature of work.                               | 3.54 | 1.066              | High                | 10   |

|                 |                                            |      |        |      |    |
|-----------------|--------------------------------------------|------|--------|------|----|
| 35              | I can transition efficiently to new tasks. | 3.75 | 0.9770 | High | 2  |
| Job Performance |                                            | 3.55 | 0.7400 | High | -- |

**Source:** Prepared by the researchers based on SPSS results.

Employees of the institution under study reported a high level of job performance, as indicated by the mean of 3.55. There is a relatively high degree of dispersion in their responses to the items of this dimension, as the standard deviations of most items exceeded 1, with particular reference to the dimension's standard deviation of 0.740. Regarding the arithmetic means of the individual items, they range from high to moderate and correspond to the “High” and “Moderate” response categories, with values ranging from 3.80 for Item 24 to 3.25 for Item 29.

The findings show that the level of job performance among employees of Naftal reflects a good capacity to fulfill professional obligations. However, this performance is not evenly distributed across the various job-related practices, as aspects related to autonomy and task completion rank higher than those related to initiative, cooperation, and adaptation to new developments. It can be inferred that improving job performance requires attention to the behavioral and adaptive aspects of work, enabling employees to improve their response to changing work requirements and strengthen their contribution to achieving the institution's objectives.

#### 2.4.4. Testing the Study Hypotheses

The results of the normality assessment are presented in Table 11

**Table (11): Normality Test**

| Variables                     | Skewness Coefficient | Kurtosis Coefficient |
|-------------------------------|----------------------|----------------------|
| Technologies (Infrastructure) | -0.400               | -0.636               |
| Processes                     | -0.616               | 0.4780               |
| Data                          | -0.464               | -0.385               |
| Human Resources               | -0.254               | -0.534               |
| Digital Transformation        | -0.194               | -0.366               |
| Job Performance               | -0.197               | -0.966               |

**Source:** Prepared by the researchers based on SPSS results.

The skewness and kurtosis values fall within the commonly accepted ranges for assessing approximate normality, providing support for the use of parametric statistical procedures.

**Table (12): Study Hypothesis Testing**

| Hypothesis | Independent Variable                | Dependent Variable | Correlation Coefficient R | Coefficient of Determination R <sup>2</sup> | Calculated T | Sig.  |
|------------|-------------------------------------|--------------------|---------------------------|---------------------------------------------|--------------|-------|
| Main       | Digital Transformation Requirements | Job Performance    | 0.741                     | 0.548                                       | 12.662       | 0.000 |

|                       |                               |                 |       |       |        |       |
|-----------------------|-------------------------------|-----------------|-------|-------|--------|-------|
| First Sub-hypothesis  | Technologies (Infrastructure) | Job Performance | 0.450 | 0.202 | 5.788  | 0.000 |
| Second Sub-hypothesis | Processes                     | Job Performance | 0.560 | 0.314 | 7.772  | 0.000 |
| Third Sub-hypothesis  | Data                          | Job Performance | 0.684 | 0.468 | 10.782 | 0.000 |
| Fourth Sub-hypothesis | Human Resources               | Job Performance | 0.734 | 0.539 | 12.418 | 0.000 |

**Source:** Prepared by the researchers based on SPSS results.

The results presented in the preceding table are as follows:

- **Testing the Main Hypothesis:** The results show that the significance value (Sig. = 0.000) does not exceed the 5% significance level, with a calculated T value of 12.662, which is greater than the tabulated T value of 1.96. The correlation coefficient R is 0.741, 74.1%, indicating a positive direct relationship between digital transformation requirements and job performance. The coefficient of determination ( $R^2 = 0.548$ ) indicates that digital transformation requirements statistically account for 54.8% of the variance in job performance in the sample, while the remaining 45.2% is attributable to factors not included in the study. On this basis, the main hypothesis is accepted.
- **Testing the First Sub-hypothesis:** The results show that the significance value (Sig. = 0.000) does not exceed the 5% significance level, with a calculated T value of 5.788, which is greater than the tabulated T value of 1.96. The correlation coefficient R is 0.45, 45%, indicating a positive direct relationship between technologies (infrastructure) and job performance. The coefficient of determination  $R^2$  is 0.202, meaning that the coefficient of determination ( $R^2 = 0.202$ ) indicates that the model accounts for 20.2% of the variance in job performance by technologies (infrastructure), while the remaining 79.8% is attributable to factors not included in the study. On this basis, the first sub-hypothesis is accepted.
- **Testing the Second Sub-hypothesis:** The results show that the significance value (Sig. = 0.000) does not exceed the 5% significance level, with a calculated T value of 7.772, which is greater than the tabulated T value of 1.96. The correlation coefficient ( $R = 0.560$ ) indicates a positive relationship between processes and job performance. The coefficient of determination ( $R^2 = 0.314$ ) indicates that the model accounts for 31.4% of the variance in job performance, while the remaining 68.6% is attributable to factors not included in the study. On this basis, the second sub-hypothesis is accepted.
- **Testing the Third Sub-hypothesis:** The results show that the significance value (Sig. = 0.000) does not exceed the 5% significance level, with a calculated T value of 10.782, which is greater than the tabulated T value of 1.96. The correlation coefficient  $R = 0.684$ , 68.4%, between data and job performance. The coefficient of determination  $R^2 = 0.468$ , meaning that 46.8% of the increase in job performance is explained by data, while the remaining 53.2% is attributable to factors not included in the study. On this basis, the third sub-hypothesis is accepted.
- **Testing the Fourth Sub-hypothesis:** The results show that the significance value (Sig. = 0.000) does not exceed the 5% significance level, with a calculated T value of 12.418, which is greater than the tabulated T value of 1.96. The correlation coefficient  $R = 0.734$ , 73.4%, indicating a

positive direct relationship between human resources and job performance. The coefficient of determination  $R^2 = 0.539$ , meaning that 53.9% of the increase in job performance is explained by human resources, while the remaining 46.1% is attributable to factors not included in the study. On this basis, the fourth sub-hypothesis is accepted.

### **Conclusion:**

The findings indicate a significant positive association between digital transformation requirements and self-reported job performance among employees, thereby facilitating work and improving the efficiency of resource utilization. This transformation also affects job performance by enabling employees to accomplish their tasks more effectively, enhancing the speed of access to information, and improving communication and coordination within the institution. Accordingly, the use of digital technologies has become an important factor in supporting job performance and keeping pace with the requirements of the modern work environment.

### **The study reached a set of findings, the most important of which are as follows:**

1. Successful digital transformation requires an integrated set of requirements, including effective technical infrastructure, sound data management, qualified human resources, and process redesign.
2. Digital transformation contributes to facilitating task performance by providing the information necessary for work, accelerating the completion of procedures, and reducing the effort and time spent carrying out job responsibilities.
3. The study showed that deriving actual benefits from digital transformation requires attention to the human aspect alongside the technical aspect, through continuous training and the development of employees' digital skills, enabling them to use the adopted technologies effectively.
4. Successful digital transformation in institutions depends on defining a clear vision and specific objectives that take into account the institution's resources and capabilities, together with an integrated implementation plan to achieve this vision.
5. Digital transformation does not affect only the performance of core tasks; it also extends to behavioral aspects related to work by enhancing cooperation, coordination, and communication among employees and supporting their contribution to achieving the institution's objectives.
6. The study showed that the Naftal Liquefied Petroleum Gas (GPL) District has manifestations of digital transformation through the widespread use of technology across all its departments and its adoption of advanced digital technologies, beginning in 2020.
7. There is a high level of digital transformation requirements and job performance among employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.
8. There is a statistically significant effect, at the significance level, of digital transformation requirements on improving the job performance of employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.
9. Technologies (infrastructure) have an effect on improving the job performance of employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.
10. Processes have an effect on improving the job performance of employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.
11. Data have an effect on improving the job performance of employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.
12. Human resources have an effect on improving the job performance of employees of the Naftal Liquefied Petroleum Gas (GPL) District in Chlef Province.

**Based on the findings reached, the following recommendations are proposed:**

1. Work toward concluding agreements with institutions specialized in providing cloud computing services, with the aim of ensuring efficient and secure preservation and storage of information and benefiting from flexible and scalable storage solutions that are compatible with the institution's needs and the requirements of its activities.
2. Adopt a unified digital system for exchanging information among the various departments, thereby contributing to accelerating data flows, facilitating coordination among employees, and improving the speed of task completion.
3. Encourage the institution to employ Edge Computing technologies in data processing because they provide rapid response, reduce data-transfer costs, and enhance security by processing data close to its sources of generation, thereby reducing reliance on transferring data through networks.
4. Conduct periodic assessments of the level of digital technology use within the institution in order to identify technical and skills-related difficulties and needs and take appropriate measures to improve the benefits derived from these technologies in performing tasks.
5. Adopt cloud computing service models, namely SaaS, IaaS, and PaaS, in the institution's various internal and external transactions because they provide flexibility in accessing applications and digital resources and facilitate their updating and maintenance by service providers, thereby reducing the costs of managing infrastructure and software.
6. Organize specialized training courses on digital transformation technologies and mechanisms for their use within the institution, with the aim of developing employees' knowledge and digital skills, enhancing their ability to deal with modern technologies, and positively affecting their level of job performance.
7. Strengthen a culture of innovation within the institution by encouraging digital initiatives, motivating employees to put forward creative ideas, and transforming feasible ideas into practical projects that serve the institution's objectives.

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