

The Relationship between Transformational Leadership and Digital Transformation Support in Educational Institutions:Tiaret University as a model.

علاقة ممارسة القيادة التحويلية على دعم التحول الرقمي بمؤسسات
التعليم العالي - جامعه تيارت نموذجاً-

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Abstract :

This study aimed to examine the relationship between the dimensions of transformational leadership and digital transformation support in the university of Tiaret , from the perspective of faculty members and teaching staff. To verify the hypotheses, a questionnaire was used as a data collection tool, with a sample size of 144 employees from the College of Economic, Commercial, and Management Sciences. Out of the distributed questionnaires, 61 were returned, with 83 being discarded and 19 excluded, resulting in 42valid questionnaires for analysis. The data was analyzed using SPSS software, and the results indicated that the practice of transformational leadership in the Algerian university was moderate. Furthermore, there was a significant positive correlation between the practice of transformational leadership and support for digital transformation.

Key words: Transformational leadership, digital transformation, Algerian university.

JEL classification:M12 , I23

1.Introduction :

In light of rapid developments and changes worldwide, most countries have focused on the importance of educational institutions as key indicators and providers of the necessary frameworks and qualified human resources to meet societal needs. Leadership in educational institutions, particularly transformational leadership, is considered one of the crucial pillars that shape their future direction and aspirations, especially in driving internal and external change within the institution. Therefore, the need for change and development in leadership and its practice in Algerian universities has become essential to keep pace with various modern trends and directions in administrative, economic, social, and cultural domains. Digital transformation in educational institutions is one of the significant contemporary trends and a key element of the Fourth Industrial Revolution, the era of digitalization, creativity, and innovation. One of the main requirements to deal with these developments and changes is to strategically change the approach, think differently, and plan for a new style to support and achieve digital transformation, while modifying classical management methods and seeking new leadership concepts that can meet challenges and ensure sustainability. Transformational leadership is a new approach with a clear future vision that leverages effective management and contributes to enhancing the digital culture and supporting digital transformation.

1.1.The research problem: Does the practice of transformational leadership affect the support for digital transformation at Ibn Khaldoun University in Tiaret?

1.2.Study hypotheses: Based on the stated problem, the following main hypotheses are formulated:

H0: There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between the level of transformational leadership variables and digital transformation from the perspective of university employees.

H1: There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between the level of transformational

leadership variables and digital transformation from the perspective of university employees.

1.3. Study significance: The significance of the study stems from the significance and novelty of the study variables and their relationship. Transformational leadership is one of the modern management concepts that has gained significant attention from researchers. Digital transformation, on the other hand, is one of the most researched topics due to the technological revolution. Achieving digital transformation requires the search for a digital transformational leader who practices transformational leadership in all its dimensions.

2. Transformational leadership:

2.1. Concept of transformational leadership: Leadership, as a general concept, is the ability to influence others and direct their behavior towards achieving shared goals. It is the responsibility of the leader towards the group being led to reach the predetermined goals. It is the process of mobilizing a group of people towards a common vision or goal by stimulating their choices (Al-Qadi, 2015, p. 229). Several leadership styles have emerged recently, including transformational leadership, which is considered one of the modern concepts in leadership. It was first introduced in 1978 by James McGregor Burns, a renowned American historian and political scientist. Transformational leadership focuses on primarily motivating individuals through team exchange, compensation, and the use of management exceptions (Al-Malouki & Mas'i Mohammed, 2020, p. 139). Thus, the concept of transformational leadership distinguishes between two types of leadership: the first type focuses on self-interest and exchange of benefits with subordinates to achieve results, while the second type emphasizes its relationship with subordinates by motivating and empowering them to achieve the desired goal.

- Due to the varying perspectives and philosophies of researchers, definitions of transformational leadership have diversified. Here are some of them:

- Transformational leadership is considered a creative leadership that seeks to consolidate the values of justice, equality, and transparency, among other values. The concept of transformational leadership is associated with the ethical transformation of the organization. James

MacGregor Burns, the founder of the theory of transformational leadership, proposed that the basic principle in this theory is the development of employees in the organization, improving their performance, and deepening their self-awareness to rise above self-interest for the public good (**Manal Sobhi Hassan, 2020, p. 07**).

- Transformational leadership is defined as a process that aims to uplift both the leader and the followers to achieve higher levels of motivation and ethics. Transformational leadership seeks to enhance the sense of followership by relying on ethical ideas and values such as freedom, justice, equality, peace, and humanity (**Al-Maliji, 2022, p. 481**).

- Devanna and Tichy define transformative leadership as engaging in processes that involve sequential steps, including recognizing the need for change and making it an organizational practice. Podsacoff and others argue that most approaches generally share the ability to clarify vision, expedite the acceptance of collective goals, and provide individual support. An effective leader seeks to change core values and followers' directions, and Aptail has the readiness to perform at higher levels than those set by the organization (**Ibrahim Othman, 2010, p. 41**).

Based on the previous discussion, transformative leadership can be defined as a modern managerial approach practiced by transformative leaders who aim to introduce change and transformation from the current reality to the future. This is achieved through the availability and support of various skills and competencies and their efficient and effective utilization, resulting in the achievement of goals with minimum cost and effort.

2.2. The significance of transformative leadership: It lies in making change an organizational practice, which can be summarized in the following points (**Al-Ghamdi, 2021, p. 14**) :

- Striving to develop the capabilities of employees and empower them, aligning their goals with the organization's goals ,
- Transformative leadership works towards creating a clear vision for the organization and It is considered one of the successful leadership styles in hierarchical organizations due to its ease of application.

- It can bring about radical changes within the organization that help in sustainability and progress towards improvement, Transformative leadership has proven its effectiveness in many countries around the world.

2.3.The dimensions of transformative leadership: There are foundations and principles upon which transformational leadership, like other leadership styles, is based. These foundations and principles define its characteristics and features. Here are the four most important principles of transformational leadership.

a.Emotional and charismatic influence: It requires the leader to possess a clear vision and a strong sensitivity to the organization's overarching message. It also involves instilling a sense of pride and esteem in the hearts of subordinates, which leads to building trust and high respect from them. This can manifest in the manager's behavior or traits (**LamineHassab, 2021, p. 66**), where the transformative leader should embody very high ethical characteristics and possess a high charisma that earns trust and profound respect.

b.Individual considerations: The importance of this dimension lies in the transformative leader giving special attention to the individual needs of their subordinates and developing and enhancing their performance level (**Hayet, Mostefaoi, & Allali, 2022, p. 131**). The leader cares about their subordinates to achieve their interests and address various personal challenges. This principle also emphasizes the leader's attention to their subordinates, understanding the principle of individual differences, and dealing with each individual in a way that suits their interests. The leader works on training and guiding them to achieve further growth and development (**Al-Malih, 2019, p. 14**).

c.Intellectual stimulation: The transformative leader works on stimulating the intellectual capabilities of their subordinates and encourages them to extract and express their hidden knowledge and ideas. They expand the employees' awareness and elevate their thinking to reach creativity and assist them in accomplishing their specific tasks, ultimately aiming for innovation. This helps in solving the problems they face (**Al-Ghamdi, 2021, p. 18**).

d.Inspirational motivation: It focuses on the leader's actions and behaviors that generate a sense of challenge among subordinates and encourages team spirit and commitment to organizational goals **(Zaid & Miftah, 2019, p. 172)**. These behaviors of the transformative leader create influence, enthusiasm, and motivation among their subordinates.

3. Digital Transformation:

The world has witnessed various eras since the beginning of the digital age, such as the Industrial Revolution, economic and regional blocs. The current working society is now entering what is known as the digital age or the Digital Age, where information holds utmost importance in influencing development **(Jasim, 2010, p. 49)**. The digital economy is considered the culmination of the interaction between technological advancement and the economic system **(Al-Najjar, 2002, p. 15)** , as stated by Bill Gates. We are now buying technology as a tool for transforming information and communication and within the digital economic system, which affects human society, economic relations, and daily life **(Aloui, 2021)**.

3.1.Definition of Digital Transformation: The rapid development and revolution in information technology and communication have opened new horizons for societies, providing better capabilities through modern techniques in work environments, allowing for progress in providing services with better quality and efficiency. The concept of digital transformation can be defined as the pursuit of organizational strategies, the development of innovative business models, and the management and implementation of investments in technologies, talent development, process reorganization, creating new values and experiences for customers, employees, and stakeholders **(Al-Musailhi, 2021, p. 12)**.

- According to Wikipedia, it refers to the adoption of digital technology to transform services or business operations, by replacing non-digital or manual processes with digital ones or replacing old digital technology with newer digital technologies, allowing for digital solutions **(Al-Mutairi)**.

. The digital transformation in universities is defined as the process of transitioning and transforming traditional universities into digital universities through the extensive use of information technology and communications within the university. It involves replacing physical elements and processes with virtual ones and offering all its services in digital form to enhance its ability to respond to contemporary external challenges (Zabi & Baiaish, 2021, p. 153).

3.2.Dimensions of digital transformation in educational institutions: The dimensions of digital transformation in educational institutions include the following (Suleiman & Mohammed Reda Abu Hussein, 2022, p. 293):

a. First Dimension: Educational Dimension: It includes:

- **Teaching:** Relying on digital platforms, contemporary educational standards, and digital technology in teaching is an important element for digital transformation.

- Innovative Pedagogical Approaches:** The use of digital educational resources and various technological academic innovations opens new horizons for faculty members and students, creating stimulating and more independent learning methods.

- Digital Literacy and Digital Skills:** Digital transformation requires new skills and competencies in technology and communication.

- Educational Management Process:** Using technology and contemporary methods in education enhances and improves the quality of educational outcomes.

b.Second Dimension: Infrastructure: Digital transformation has diverse aspects in infrastructure depending on the supported dimension, including:

- Digital infrastructure for teaching, Security and data infrastructure.

- Digital infrastructure for educational institutions: There should be an intelligent and flexible platform capable of handling administrative, teaching, and urgent research processes.

c.Third Dimension: Curriculum: This dimension involves updating the curriculum and mastering modern methods and

techniques to deliver content through digital learning, expanding the use of information and communication technology. The aim of the update is to meet the requirements of the job market and improve student outcomes through the expansion of multiple platforms, information accessibility, and 24-hour availability.

d.Fourth Dimension: Leadership: It includes:

- Improving processes and the work environment for academic and administrative staff.
- Major financial investments in adopting cutting-edge technologies.
- Rapid and accurate restructuring of the academic model and administrative guidance and making essential decisions.

e.Fifth Dimension: Human Resources: The strategic importance of human resources has increased with the interaction of employees as the first touch points in the face of environmental changes (Al-Jamous, 2013, p. 193) . There is a dual relationship between digital transformation and human resources. On one hand, digital transformation contributes to enhancing productivity, and on the other hand, the digital skills and capabilities of human resources are essential factors enabling academic digital transformation.

f.Sixth Dimension: Information: The effectiveness of management depends on the efficiency and effectiveness of communication channels within the institution. The quality of data and information is a key factor in organizational performance. The quality of information dependson the means used in communication (**Ismail, 2012, p. 141**).

After information has proven its value in the digital transformation of academic institutions, it enriches the internal process of formulating and implementing strategic goals. Additionally, updating and renewing information from a teaching perspective contributes to creating educational materials within digital formats.

4. The methodological procedures of the study:

4.1.Study Methodology: The study adopted a descriptive-analytical approach, describing and analyzing the phenomenon of transformative leadership in supporting digital transformation at Ibn Khaldoun University in Tiaret, Algeria, from all its aspects. The study aimed to discover the relationship between variables and draw

general conclusions using the methodological tools employed, such as a questionnaire.

4.2.Study Population and Sample: The study population consisted of 230 individuals, representing all the employees affiliated with the Faculty of Economic and Management Sciences at Tiaret University. The research sample consisted of 144 individuals from the study population, determined using the Herbert Arkin equation as shown in the table below:

Table(01): Herbert Arkan's equation for calculating the sample size.

Herbert Arkan's equation	$n = \frac{x(1-x)}{\frac{x(1-x)}{N} + \frac{\alpha^2}{\delta^2}}$
n	Sample volume.
x	The percentage of the phenomena under study in the sample is 50%.
N	Community size in our study = 230
α	The permissible error rate is 5%.
δ	The standard deviation corresponding to the confidence factor with which the results are generalized is: 95%, and thus the standard deviation is equal to: 1.96.

Source: Prepared by the researcher according to the Herbert Arkan'sequation.

By applying the study's data to the equation, the sample size becomes equal to 144 individuals from the employees in the faculty, representing 62.60% of the study population. The distribution of the questionnaire aligns with this number.

Out of the 144 questionnaires, 61 were retrieved, representing 42.36%, while 83 were lost, representing 57.64%. Additionally, 19 questionnaires were excluded due to their inconsistency with statistical analysis. Therefore, the number of valid questionnaires for analysis is 42, accounting for 29.16% of the total distributed questionnaires. These results can be generalized in practice.To identify the personal and occupational characteristics of the study sample, their distribution is as follows:

Table (02) : Distribution of individuals according to personal and occupational characteristics of the study sample:

Distribution of the study according to variable	Statement	Repetition	The ratio
Gender	Male	14	%33
	Female	28	%67
	the total	42	%100
Age	20-29 years old	00	%00
	30-39 years old	12	%28,6
	40-49 years old	22	%52,4
	50 and over	8	%19
	Total	42	%100
Qualification	PhD	31	%73,8
	MSc	09	%21,4
	Master	01	%02,4
	Bachelor's degree or less	01	%02,4
	Total	42	%100
Job title	University administration	00	%00
	Teaching Staff	29	%69
	Teaching and administrative staff	11	%26,2
	Administrative	02	%04,8
	Total	42	%100
Years of Experience	From 2-5 years	04	%09,5
	From 6-9 years	09	%21,4
	From 10-13 years old	11	%26,2
	14 years and over	18	%42,9
	Total	42	%100

Source: Prepared by the researcher based on the outputs of SPSS.

4.3. Stability and Validity of the Study Tool: To assess the consistency among the paragraphs of the study tool, the Cronbach's alpha coefficient was calculated for each set of items. Additionally, the overall degree of reliability was determined, and the validity of the instrument was evaluated by deleting certain questionnaire items.

Table (03): presents the stability coefficients for the dimensions and the questionnaire as a whole, using the Cronbach's alpha coefficient.

	The number of paragraphs	Cronbach stability coefficient – alpha	Test validity (self-truth)
Transformational Leadership	17	0,953	0,976
digital transformation	13	0,951	0,975
the questionnaire as a whole	30	0,971	0,985
Test validity = square root of stability coefficient.			

Source: Prepared by the researcher based on the SPSS outputs.

From the above tables, it can be observed that the overall stability coefficient of the questionnaire is very high, reaching 0.971. This value exceeds the recommended threshold of 0.7, indicating excellent stability of the study. Additionally, the validity of the instrument also achieved a high value, further confirming the validity of the study.

4.4.Discussion and Analysis of Transformational Leadership: To assess the dimensions of transformational leadership in the university, means, standard deviations, percentages, ranks, and overall trends were calculated and analyzed. The results are as follows:

Table (04): Means, standard deviations, and overall trends for the dimensions of transformational leadership.

dimensions of transformational leadership	The arithmetic mean	The standard deviation	The arrangement	general direction	Availability level
The overall level of ideal influence and leadership charisma.	3,2857	0,85642	02	Medium	Medium
The overall level of intellectual stimulation	3,6131	,80812 0	01	Medium	Medium
The overall level of individual considerations	3,0000	,90742 0	04	Medium	Medium
The overall level of inspirational motivation	3,1488	1,04628	03	Neutral	Medium
Transformational leadership	3,2619	0,79950	//	Medium	Medium

Source: Prepared by the researcher based on the results of the statistical analysis using SPSS. v21

The above table illustrates a moderate level of availability for transformational leadership, with a mean score of 3.2619 and a standard deviation of 0.79950. Each dimension of this leadership style was ranked in the following order: intellectual stimulation ranked first, followed by transformational leadership and charismatic appeal in the second rank. The third rank was for inspirational motivation, and the fourth and final rank was for individual considerations.

4.5. Discussion and Analysis of Digital Transformation: To assess the dimensions of digital transformation in the university, means, standard deviations, percentages, ranks, and overall trends were calculated and analyzed. The results are as follows:

Table (05): Means, standard deviations, and overall trends for the dimensions of digital transformation.

dimensions of digital transformation.	The arithmetic an.	The standard deviation.	The arrangement	general direction	Availability level
The overall level of engagement in driving .change	3,4286	,937510	01	Medium	Medium
The overall level of promoting, supporting, and accepting the digital culture.	3,1095	0,96394	02	Medium	Medium
The overall level of motivation to support .digital transformation	3,0714	0,95363	03	Medium	Medium
digital transformation	3,2032	0,88387	//	Medium	Medium

Source: Prepared by the researcher based on the outputs of SPSS.

The above table indicates a moderate level of availability for digital transformation, with a mean score of 3.2032 and a standard deviation

of 0.88387. Each dimension of this transformation was ranked in the following order: involvement in initiating change ranked first, followed by enhancing support and acceptance of digital culture in the second rank. The third rank was for motivation to support digital transformation.

4.6. Testing the First Main Hypothesis:

*** Null Hypothesis: H0: There is no statistically significant correlation at a significance level ($\alpha \geq 0.05$) between the level of transformational leadership variables and digital transformation variables from the perspective of university employees.**

*** Alternative Hypothesis: H1: There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between the level of transformational leadership variables and digital transformation variables from the perspective of university employees.** To test this hypothesis, it was divided into four sub-hypotheses, each focusing on measuring the presence or absence of a correlation for each variable of transformational leadership in supporting digital transformation. The sub-hypotheses are as follows:

- **Sub-hypothesis 1:** There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between charismatic appeal as a variable of transformational leadership and support for digital transformation from the perspective of university employees.

- **Sub-hypothesis 2:** There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between intellectual stimulation as a variable of transformational leadership and support for digital transformation from the perspective of university employees.

- **Sub-hypothesis 3:** There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between individual considerations as a variable of transformational leadership and support for digital transformation from the perspective of university employees.

- **Sub-hypothesis 4:** There is a statistically significant correlation at a significance level ($\alpha \geq 0.05$) between inspirational motivation as a variable of transformational leadership and support for digital transformation from the perspective of university employees. To test the main hypothesis, simple regression analysis and variance

analysis were used to determine the potential impact of transformational leadership style on supporting digital transformation in the university.

a. Testing the Impact of Transformational Leadership on Supporting Digital Transformation: The results of testing this impact are presented in the following table:

Table (06) : Analysis of variance to confirm the validity of the tested model and the impact of transformational leadership on supporting digital transformation.

	Sum of squares	degrees of freedom	mean square	F-value significance level	Level of morale
Regression	22,204	1	22,204	90,385	0,000
The error	9,826	40	0,246		
Total	32,030	41	//		

Source: Prepared by the researcher based on the outputs of SPSS.

From the information in the table above, it is evident that the tested model's validity is confirmed. A Fisher's test was conducted, resulting in an F-value of 90.385 and a p-value of 0.000. The p-value is smaller than the assumed significance level of 0.05.

Table (07): Simple regression analysis to test the impact of transformational leadership on supporting digital transformation.

The variable	Regression coefficient	Standard (error S.E)	Regression coefficient (Beta)	The calculated	Level of significance	Statistical significance
The constant	0,201	0,325		0,618	0,540	//
Transformational leadership	0,920	0,097	0,833	9,507	0,000	There is an effect.

Coefficient of determination (R ²)	0,693	Simple linear regression model. $Y=0,201 + 0,920X_1+e_i$
Correlation (coefficient R)	0,833	

Source: Prepared by the researcher based on the outputs of SPSS.

Based on the statistical results presented in the tables above, it is evident that there is a statistically significant relationship between transformational leadership and digital transformation support from the perspective of employees. This is supported by the T-value of 9.507, with a p-value of 0.000, which is smaller than the assumed significance level of 0.05.

Furthermore, the same tables indicate a positive and significant correlation between transformational leadership and digital transformation support, as evidenced by the Beta coefficient of 0.833. The coefficient of determination (R-squared) is 0.693, indicating that 83.3% of the variance in digital transformation support can be explained by variance in transformational leadership, while the remaining 16.7% is explained by other variables. Additionally, an increase of one unit in the level of transformational leadership leads to an increase in digital transformation support by a value of 0.920. Based on these findings, we reject the null hypothesis (**H₀**) and accept the alternative hypothesis (**H₁**), which states that there is a statistically significant relationship between transformational leadership variables and digital transformation support from the perspective of employees.

b. Testing the Sub-Hypotheses:

- **The impact of idealized influence and leadership charisma on supporting digital transformation.**

To test the sub-hypothesis, a simple regression analysis and an analysis of variance (ANOVA) will be employed to examine the effect of transformational and transactional leadership on digital transformation support from the perspective of employees in the university.

Table (08): Analysis of variance (ANOVA) to validate the model - Effect of transformational and transactional leadership on digital transformation support

	Sum of squares	Degrees of freedom	The mean of squares	The level of significance for the F-statistic	The level of significance
Regression	12,693	1	12,693	26,256	0,000
Error	19,337	40	0,483		
Total	32,030	41	//		

Source: Prepared by the researcher based on the outputs of SPSS.

Based on the statistical results presented in the tables above, it is evident that the model's goodness of fit for testing the hypothesis is significant. The F-value is 26.256, with a p-value of 0.000, which is smaller than the assumed significance level of 0.05.

Table (09): Simple regression analysis - Examining the effect of transformational and transactional leadership on digital transformation support.

The variable	Regression Coefficient (B)	Standard Error (S.E)	Regression coefficient (Beta)	The level of significance for the T-statistic	The level of significance	Statistical significance
The intercept	1,069	0,430	//	2,484	0,017	//
Ideal influence and leadership charisma	0,650	0,127	0,630	5,124	0,000	There is an effect .
Coefficient of determination (R ²)	0,396	Simple linear regression model $Y=1,069+0,650X_1+e_i$				
Correlation coefficient ((R)	0,630					

Source: Prepared by the researcher based on the outputs of SPSS.

Based on the statistical results presented in the tables above, it is evident that there is a statistically significant relationship between transformational and transactional leadership and support for digital transformation from the employees' perspective. This is supported by the t- value of 5.124 and a p-value of 0.000, which is smaller than

the assumed significance level of 0.05. The same tables also indicate a positive linear relationship between transformational and transactional leadership and support for digital transformation from the employees' perspective. This is evidenced by the beta coefficient of 0.630 and the determination coefficient (R-squared) of 0.396, indicating that 63% of the variance in digital transformation support can be explained by the variables of transformational and transactional leadership, while the remaining 37% can be attributed to other factors. Additionally, a one-unit increase in the level of transformational and transactional leadership leads to a 0.650 increase in digital transformation support.

Based on this, we reject the null hypothesis (**H0**) and accept the alternative hypothesis (**H1**), which states that: **H1**: There is a statistically significant relationship at a significance level ($\alpha \leq 0.05$) between the level of idealized influence and leadership charisma in supporting digital transformation from the employees' perspective.

To test the sub-hypothesis regarding the impact of intellectual stimulation on supporting digital transformation, we will utilize simple linear regression analysis and analysis of variance (ANOVA) to examine the effect of intellectual stimulation as a variable of transformational leadership on supporting digital transformation at the university from the employees' perspective.

Table (10) : Regression Analysis of Variance to assess the validity of the model for testing the impact of intellectual stimulation on supporting digital transformation.

	Sum of squares	Degrees of freedom	Mean of squares	Level of significance of F	The level of significance
Regression	15,679	1	15,679	38,354	0,000
Error	16,351	40	0,409		
Total	32,030	41	//		

Source: Prepared by the researcher based on the outputs of SPSS.

Based on the results presented in the tables above, the validity of the hypothesis test model is established. This is supported by the F-value of 38.354 and a p-value of 0.000, which is smaller than the assumed significance level of 0.05. The hypothesis will be tested using the simple linear regression method, and the key results are summarized in the following table:

Table (11) : Summary of the simple linear regression analysis testing the impact of intellectual stimulation on digital transformation support.

The variable	The intercept	Intellectual stimulation	Coefficient of determination (R-squared)	Correlation coefficient (R)
Regression coefficient (B)	0,438	0,765	0,489	0,700
Standard Error (S.E)	0,457	0,124	Simple linear regression mode $Y=0,438+0,765X_1+e_i$	
Regression coefficient (Beta)	//	0,700		
The computed value of (T)	0,959	6,193		
The level of significance	0,343	0,000		
Statistical significance	//	There is an effect		

Source: Prepared by the researcher based on the outputs of SPSS.

The statistical results presented in the tables above indicate a statistically significant impact of intellectual stimulation on digital transformation support from the employees' perspective. This is supported by the T- value of 6.193 and a p-value of 0.000, which is smaller than the assumed significance level of 0.05.

Furthermore, the tables show a positive linear relationship between intellectual stimulation and digital transformation support, as evidenced by the positive beta coefficient of 0.700. The determination coefficient (R^2) of 0.489 indicates that the variation in intellectual stimulation explains 48.9% of the variation in digital transformation support, while the remaining 51.1% is explained by other factors. Based on that, we reject the null hypothesis **H0** and accept the alternative hypothesis **H1**, which states that there is a statistically significant relationship at a significance level ($\alpha \leq 0.05$) between the level of the variable of intellectual stimulation in supporting digital transformation from the employees' perspective.

.The impact of individual considerations on supporting digital transformation: To test the sub-hypothesis, simple linear regression analysis and analysis of variance (ANOVA) will be conducted to examine the effect of individual considerations as a variable of transformational leadership on supporting digital transformation at the university from the employees' perspective.

Table (12): Analysis of Variance for Regression Analysis to ensure the validity of the model for testing the impact of individual considerations on supporting digital transformation.

	Sum of squares	Degrees of freedom	Mean of squares	Level of (significanceF)	The level of significance
Regression	20,639	1	20,639	72,477	0,000
Error	11,391	40	0,285		
Total	32,030	41	//		

Source: Prepared by the researcher based on SPSS outputs.

Based on the data in the tables above, the validity of the hypothesis testing model is evident. A Fisher test was conducted, and the obtained F-value was 72.477, with a probability value of 0.000, which is smaller than the assumed significance level of 0.05.

Table (13): Simple regression analysis tests the impact of individual considerations on digital transformation support.

The variable	The regression coefficient (B)	The standard error (S.E)	The regression coefficient (Beta)	The calculated value of (T)	Level of significance	Statistical significance
The intercept	0,857	0,288	//	2,982	0,005	//
Individual considerations	0,782	0,092	0,803	8,513	0,000	There is an effect.
Coefficient of determination (R ²)			0,644			Simple linear regression model Y=0,857+0,782X ₁ +ei
(Correlation coefficient (R			0,803			

Source: Prepared by the researcher based on SPSS outputs.

The statistical results in the tables above indicate that there is a statistically significant impact of individual considerations on digital transformation support from the perspective of employees. This is evident from the T-value, which is 8.513, with a probability value of 0.000, which is smaller than the assumed significance level of 0.05. Furthermore, it is evident from the same tables that there is a positive linear relationship between individual considerations and

digital transformation support from the perspective of employees. This is supported by the positive **beta** coefficient, which is **0.803**, and the determination coefficient (**R²**) of **0.644**, indicating that **64.4%** of the variation in digital transformation support can be explained by individual considerations, while **35.6%** is explained by other variables.

.The impact of inspirational motivation on supporting digital transformation: To test the sub-hypothesis, we will employ simple linear regression analysis and analysis of variance (ANOVA) to examine the effect of inspirational motivation as a variable of transformational leadership on supporting digital transformation at the university from the employees' perspective.

Table (14): Analysis of Variance for Regression Analysis to ensure the validity of the model for testing the impact of inspirational motivation on supporting digital transformation.

	Sum of squares	Degrees of freedom	Mean of squares	Level of (significanceF)	The level of significance
Regression	20,143	1	20,143	67,780	0,000
Error	11,887	40	0,297		
Total	32,030	41	//		

Source: Prepared by the researcher based on SPSS outputs.

Based on the data in the above tables, the validity of the hypothesis testing model is evident, as indicated by the obtained value of F, which is 67.780, with a probability value of 0.000, which is smaller than the assumed significance level of 0.05.

Table (15): Simple linear regression analysis of the effect of sensory stimulation on digital transformation support.

The variable	Regression coefficient (B)	The standard error (S.E)	The regression coefficient (Beta)	The calculated value of (T)	Level of significance	Statistical significance
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The intercept	1,094	0,270	//	4,056	0,000	//
Inspirational stimulation	0,670	0,081	0,793	8,233	0,000	There is an effect.
Determinati on coefficient (R ²)	0,629	Simple linear regression mode Y=1.094+0,670X ₁ +e _i				
Correlation coefficient (R)	0,793					

Source: Prepared by the researcher based on SPSS outputs.

The statistical results in the above tables indicate a significant statistical effect of sensory stimulation on digital transformation support from the employees' perspective. This is supported by the obtained value of T, which is 8.233, with a probability value of 0.000, smaller than the assumed significance level of 0.05. Furthermore, the same tables show a positive correlation between sensory stimulation and digital transformation support from the employees' perspective, as indicated by the coefficient of determination (**Beta**), which is 0.793. The determination coefficient (**0,629=R²**), indicating that the variation in sensory stimulation explains 62.9% of the variation in digital transformation support, while the remaining 37.1% is explained by other variables.

Based on these results, we reject the null hypothesis (**H0**) and accept the alternative hypothesis (**H1**), which states that there is a statistically significant correlation at a significance level of ($\alpha \leq 0.05$) between sensory stimulation and digital transformation support from the employees' perspective.

C. Collective impact of transformative leadership variables on digital transformation support: we can use multiple regression analysis to determine the collective impact of transformative leadership variables on digital transformation support from the perspective of university employees

Table (16) : Results of multiple regression analysis on the impact of transformative leadership variables on digital transformation support.

	atypical transactions		standard transactions beta	Calculated (T) value	Moral level	Statistical significance
	B	SE				
.Constant	0,329	0,366	//	0,900	0,374	//
Perfect influence and leadership charisma	0,015	0,136	0,366	0,112	0,911	non function
Intellectual arousal	0,261	0,146	0,136	1,785	0,082	non function
Individual considerations	0,313	0,183	0,146	1,716	0,095	non function
Inspirational stimulation	0,299	0,150	0,183	1,997	0,053	non function
Correlation coefficient (R)	,846	Multiple Regression Model: $Y = 0.329 + 0.015X_1 + 0.261X_2 + 0.3137X_3 + 0.299X_4 + e_i$				
Determination coefficient (R ²)	,715					
Calculated (F) value	23,207					
Moral level	,000					
	0	Statistically function at a level ($\alpha = 0.05$)				

Source: Prepared by the researcher based on SPSS outputs.

It is evident from the above table that there is a statistically significant correlation among the transformative leadership variables in supporting digital transformation, as indicated by the F-value (23.207) with a significance level of 0.000. Additionally, the determination coefficient (0.715) suggests that transformative leadership variables explain 71.5% of the variance in digital transformation support.

However, it is also evident from the same table that there is no statistically significant effect at the significance level ($\alpha \geq 0.05$) for all dimensions of transformative leadership in supporting digital transformation. The significance levels for the mentioned variables were higher than the assumed significance level of 0.05.

5. Conclusion: The rapid development witnessed globally, especially with the information and communication technology revolution and the new approach to business modeling, opens up future prospects for educational institutions. These institutions need to have better resources and consider digital transformation as an inevitable necessity. This can be achieved through the adoption of modern digital management techniques, reliance on advanced technology, and changing traditional work methods and educational practices to facilitate administrative and academic work. In order for Algerian universities to reach this level, it is necessary to rely on leadership positions that support digital transformation. The practice of transformative leadership is considered necessary to lead this transformation and give it the green light for successful implementation. Through a field study conducted at Ibn Khaldoun University in Tiaret, **the results of the study** generally revealed a statistically significant correlation at the significance level ($\alpha \geq 0.05$) among the dimensions of transformative leadership and digital transformation. According to the university staff's perspective, the practice of transformative leadership was found to be moderate, with each dimension of this model ranked in the following order: intellectual stimulation, transformational influence, leadership charisma, emotional stimulation, and individual considerations. It also appeared that there is a moderate level of digital transformation, with each dimension of this model ranked as follows: participation in creating change, promoting and supporting digital culture, motivation to support digital transformation. This indicates that Ibn Khaldoun University is moving in the right direction, with a clear strategic plan to achieve digital transformation.

6. Recommendations and suggestions: Based on the obtained results, the following recommendations are presented:

- Creating an organizational climate that promotes the practice of transformative leadership at Ibn Khaldoun University in Tiaret.

- Pay attention to the human element and invest in it by providing employees with more freedom through empowerment and involving them in change processes.
- Create a digital leadership culture within the organization .
- Educational institutions should choose a future-oriented digital strategy to achieve high levels of performance.

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