

The Impact of Digital Transformation in the Egyptian Private Universities on Achieving Organizational Excellence, Using the German University in Cairo as a Model

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Abstract

Considering contemporary developments and challenges, to achieve organizational excellence, universities must undergo digital transformation, relying on knowledge of and integrating information technology into all their fields and services.

This study aimed to examine the impact of four dimensions of digital transformation: strategic requirements, organizational culture requirements, human resource requirements, and technological and legislative requirements for achieving organizational excellence in Egyptian private universities, using the German University in Cairo as a case study. To achieve study objectives, the descriptive analytical method was used. Questionnaires were distributed among 199 faculty members, chosen using a stratified random sample, from various university faculties. Of these, 185 valid responses were retrieved, a response rate of 92.6%. The study found that the impact of digital transformation on achieving organizational excellence is statistically significant. The combined dimensions of digital transformation explain the 74.7% variance in organizational excellence.

The research contributes important insights into the impact of digital transformation on achieving organizational excellence. Its theoretical and practical implications were discussed.

Keywords: digital transformational, organizational excellence, private universities

1. Introduction

In today's digital world, following new technological trends and embracing digital transformation is essential for organizations to remain competitive (Astapciks, 2023), especially universities focusing on its importance to the elevation of nations and the advancement of human values and skills (Al-Dajani & Al-Aeur, 2013). Digital transformation helps higher educational institutions advancing their technical competencies, transforming educational practices and administrative processes into technical ones, focusing on cutting costs, and raising the quality of work and the ease of access to students (Al-Zayn, 2016). The technological and digital revolution's invasion of all sectors, especially the education sector, has rendered traditional educational models unsuitable (Abdulhamed, 2021). In this context, digital transformation has imposed on private universities to take advantage of modern technologies to improve efficiency and flexibility and innovate and create to move toward success and excellence (Al-Shuhna, 2021).

Organizational excellence has emerged as a development of the quality movement that aims to help organizations reach the highest levels of performance and achieve unprecedented results that outperform their competitors by investing in their internal strengths, which are human, material, and technological elements and continuously improving them (Mandoor, 2014). The importance of digital transformation is shown as an essential element of organizational excellence and its sustainability. Therefore, digital transformation has become a contemporary orientation compatible with the nature of the changes and requirements of this era to achieve organizational excellence.

1.1 Statement of the Problem

The increasing challenges universities face include the knowledge revolution, the technological revolution, and the intensity of competition among institutions to achieve an advanced presence in international rankings. This

calls for universities to work toward continuous development by applying contemporary methods in university administration, including digital transformation, an important factor for developing organizational performance in pursuing organizational excellence. As the criteria for excellence are now at the forefront of the goals that organizations seek to achieve, there is no survival in the competitive world without excellence.

Private universities play an important role in the higher education system in Egypt, as they are partners in providing greater opportunities for education and scientific research. For universities to face these challenges, they must provide a distinguished educational environment and achieve a high level of teaching and learning. Hence, adopting the concept of digital transformation and understanding the requirements for its success have become an urgent necessity imposed by the challenges of the modern era. In this regard, Egypt has made great efforts to keep pace with this global trend. Some Egyptian private universities, including the German University in Cairo, have achieved procedural steps toward digital transformation.

The current study focuses on investigating the reality of applying digital transformation requirements in private universities and its impact on achieving organizational excellence using the German University in Cairo, one of the leading private universities in Egypt, as a case study.

2. Theoretical Background

2.1 Digital Transformation

Digital transformation is now vital for an organization to survive in a competitive world (Kane et al., 2015). The concept goes beyond the digitization or just the organization's employees' use of computers and the Internet in their daily work. Digital transformation describes the organization's use of technology in managing its business, services, and activities, processing and analyzing its data, communicating between its members, and performing its transactions fully electronically; all of this must be done in a secure, protected data environment. Digitization is the conversion of data into digital content that can be transferred, processed, and stored (Khamis & Hassan, 2022). According to Martin and Xie (2022), digital transformation in education is defined as leveraging digital technologies to enable major educational improvements, enhance learner and instructor experiences, and create new instructional models through policies, planning, partnerships, and support. Digital transformation is being driven by technology trends and changes that are enabling a new approach to everything from how digital architectures are being incorporated to how campus leaders interact with the IT organization, all targeting improved student outcomes, more effective teaching and learning methods, new research capabilities, and an evolution in business models (Grajek & Betsy, 2019). Digital transformation implementation requires a clear strategy and prioritization supported by financial resources, leadership, and active participation of all employees in the organization. (Schwerner, 2017).

Therefore, for universities to achieve digital transformation and successfully integrate digital technology into their business, they need several requirements. The current study focuses on four main requirements as follows.

A. Strategic requirements

Digital transformation begins by building a digital strategy. Each university must develop a strategy for digital transformation for the entire institution, provided that the learner is the strategy's focus (Kuzu, 2020). That strategy is based on understanding the broader role of digital transformation, and it is not a goal in itself, nor a luxury or an option. Rather, it is necessary to keep pace with global developments, and its adoption may contribute to achieving education and research goals more efficiently (Khalid et al., 2018).

B. Organizational culture requirements

Spreading the culture of digital transformation is one of the most important requirements for digital transformation in universities because it contributes to supporting and advocating change in the provision of university activities. The prevailing organizational culture in universities must be changed as an essential step to spread the new culture that supports technology integration into university life in all its sectors (Al-Aqbali, 2019; Yassin, 2015).

C. Human resources requirements

Human resources is a vital aspect that makes it difficult for organizations to implement digital transformation without it, as it is necessary to provide qualified cadres capable of using information technology. Planning and implementing the vision also requires human competencies, scientific and practical expertise, with faith in change and development (Khurana & Al-Olama, 2016).

D. The technological and legislative requirement

For the digital vision to be translated into reality, the organization must work on modernizing the university's information technology infrastructure and providing modern devices while providing the necessary technical

support for users by specialized human competencies capable of managing the digital system in a way that ensures the continuation of the digital service provided to members of the university's community (Khurana & Al-Olama, 2016). The organization must also work to provide the necessary legislative and legal procedures to secure digital transactions and protect the data of beneficiaries at the university, which encourages them to use electronic services safely (Abdul-Salam, 2011).

E. The importance of digital transformation in higher education

Digital transformation has become a means to develop the performance of universities and improve the various dimensions of the educational process. Therefore, the importance of digital transformation in higher education is represented in the following: (Khamis & Hassan, 2022)

- Shifting toward and supporting modern education patterns, such as digital education, virtual education, and smart education, which contributes to upgrading the system and levels of thinking among university students.
- Providing the necessary protection and security for information in digital education.
- Employ innovative and creative solutions in solving problems.
- Enhancing the ability to plan for a better future.
- Creating a new atmosphere of creativity, excellence, and competition to reach the best results.

2.2 Organizational Excellence

Organizational excellence is critical for the development of organizations (Felicio et al., 2022). An organization that does not seek excellence and development in its work is doomed to decline and disappear (Siddeg, 2019). According to Arussy (2008), excellence is a state of quality or a condition of sustained superiority. Thus, organizational excellence is expressed when organizations can overcome high expectations. Organizational excellence has also been defined as the growth and strength of the organization in various fields, which in turn satisfy all stakeholders and achieve organizational prosperity on a long-term basis (Shirvani & Iranban, 2014). Organizational excellence includes all aspects of the organization, as the dimensions of organizational excellence are represented in each of the following elements:

A. Leadership excellence

Leadership is the process of social influence on the perception and attitudes of subordinates to obtain the best positive behavior of the organization (Njoku, 2013). Leadership directly affects organizational excellence by developing the capabilities of individuals and encouraging them to move toward creativity and excellence (Borghini, 2005). Leadership excellence represents the ability to take advantage of institutional opportunities, provide development opportunities, accept the challenge, and work in a way that helps institutions to face various processes and crises (Nasser, 2021).

B. Human resources excellence

Human resources excellence refers to the availability of qualified human elements with high efficiency, who have the skills, knowledge, and experience that distinguish the organization from others, as it is difficult for others to imitate or possess them, which contributes to achieving organizational excellence in all its fields (Zaid & Al-Shujaa, 2022).

C. Organizational structure excellence

The organizational structure represents the capacity of the structural framework that connects the units of the organization, defines the relationships between divisions and the expected cooperation between the parts of the organization, and clarifies the lines of authority and responsibility in a way that helps to carry out the various activities to achieve the required organizational goals (Al-Soudi, 2008). Organizational structure excellence means having flexible organizational structures commensurate with the requirements of outstanding performance.

D. Strategy excellence

Achieving organizational excellence requires an effective strategy where the organization implements its vision through a clear strategy supported by policies, necessary plans, and operations in the light of clear and quantitative work plans according to a clear time frame (Zahran, 2022).

E. Excellence in resources and partnership

Excellence in resources and partnership means managing partners, suppliers, financial and material resources, and technology to support the organization's strategies and build its capabilities (Zaid & Al-Shujaa, 2022).

Strong partnerships enable organizations to bring results that could not be achieved by a single partner operating alone and reduce duplication of efforts. A successful partnership enhances the impact and effectiveness of action through combined and more efficient use of resources, promotes innovation, and is distinguished by a strong commitment from each partner. (Organization for Economic Cooperation and Development [OECD], 2006).

Some of the previous studies whose results and recommendations have influenced the present article are described in the following paragraphs. Abdulhameed (2021) discussed the requirements for achieving digital transformation at Al-Azhar University to meet the challenges of the fourth industrial revolution. The study's results indicated the availability of some requirements for digital transformation and the lack of others. The study suggested a set of basic requirements for digital transformation: dissemination of digital culture, digital infrastructure and digital legislation, digital management, digital teacher preparation, digital content, and digital student.

Al-Moslimany (2022) deliberated on the reality of digital transformation in Egyptian universities. Universities have taken satisfactory steps toward digital transformation. However, Egyptian universities face obstacles, as they still need more measures to implement digital transformation in their quest for digital transformation. The study ended with a proposed vision for digital transformation in Egyptian universities.

Aghayari et al. (2022) examined the components and indicators needed to develop a digital transformation strategy in the telecom industry. The study used the Delphi method to identify the indicators, and the fuzzy DANP technique to prioritize and affect. The study concluded that six components and 20 indicators were finalized and identified as indicators of high importance. (Governance, business model, culture, technology, customer, and workforce). The results show that governance has the highest impact.

Al-Sherif (2021) highlighted the foundations of the enabling environment for digital transformation, which are related to the foundations for awareness and enabling the digital teaching and learning environment, as well as identifying the requirements for digital transformation in education and its sustainability. The study concluded with a proposed vision for establishing an enabling environment for the success of digital transformation.

Limani et al. (2019) explored the implemented comparative measures and the challenges faced by higher educational institutions implementing the digital transformation of their processes. The research results showed a significant change in the interest in using digital technologies at HEIs.

Zahran (2022) examined the reality of institutional excellence in Egyptian universities, considering the European model (EFQM) criteria for institutional excellence and the innovation of the digital age. The study results showed that there are obstacles facing Egyptian universities and limiting the possibility of applying the European model (EFQM) criteria for institutional excellence in light of the development of the digital age. A set of proposed requirements for implementing the criteria of the European model for institutional excellence in Egyptian universities was developed in light of the development of the digital age.

Mandoor (2014) analyzed the requirements for achieving organizational excellence in Egyptian universities. The research relied on the descriptive methodology. It aims to arrive at basic requirements needed to achieve organizational excellence in Egyptian universities.

Al-Kubaisy and Al-Zbaidi (2022) examined the impact of human resources management practices on achieving organizational excellence in a sample from private colleges in Baghdad. The most prominent results were the significant impact of this practice on the dimensions of organizational excellence and the presence of the total effect in the dimensions of organizational excellence distinguished from the two practices of training & development and performance evaluation.

Abdul-Aziz (2022) discussed the digital transformation requirements for achieving institutional excellence in NGOs. The study showed a relationship between digital transformation requirements as a mechanism to achieve institutional excellence.

The current study agrees with previous studies in its emphasis on the importance of digital transformation for higher education institutions and the need to provide its requirements. In contrast, this study is the first study that focuses on digital transformation and its impact on achieving organizational excellence in private universities by identifying the extent to which the elements of digital transformation are available at the German University in Cairo and the extent of the impact of each element on improving its performance toward achieving organizational excellence.

The researcher has precisely considered the previous studies and has concluded the main hypothesis and the sub-hypotheses as follows:

H1 Digital transformation have a statistically significant impact on achieving organizational excellence. The following sub-hypotheses are derived from this hypothesis:

- H1.1 Digital transformation strategic requirements have a statistically significant impact on achieving organizational excellence.
- H1.2 Digital transformation organizational culture requirements have a statistically significant impact on achieving organizational excellence.
- H1.3 Digital transformation human resources requirements have a statistically significant impact on achieving organizational excellence.
- H1.4 Digital transformation technological and legislative requirements have a statistically significant impact on achieving organizational excellence.

3. Research Methodology

This study sought to examine the impact of digital transformation in Egyptian private universities on achieving organizational excellence, using the German University in Cairo as a case study.

3.1 The study sample

The researcher relied on a random sample of German University faculty members with a confidence factor of 95% and error limits of ± 5%. Its size was determined by the following equation:

$$n = \frac{Nz^2P(1-P)}{Ne^2 + Z^2P(1-P)}$$

where N = the size of the study population; n = the total sample; Z = standard error limits (1.96 at a 95% confidence level); P = the percentage of the number of vocabularies that have the characteristics of the study community (50%); and e = permissible sampling error in estimating the ratio (0.05). The study sample consisted of 199 survey lists valid for statistical analysis.

Table 1. A statement of the number of distributed and correct questionnaire lists

Statement	Quantity
Distributed survey list	200
Invalid survey list	15
Valid survey list	185
Percentage of questionnaire lists valid for statistical analysis	92.6%

3.2 The Research Framework

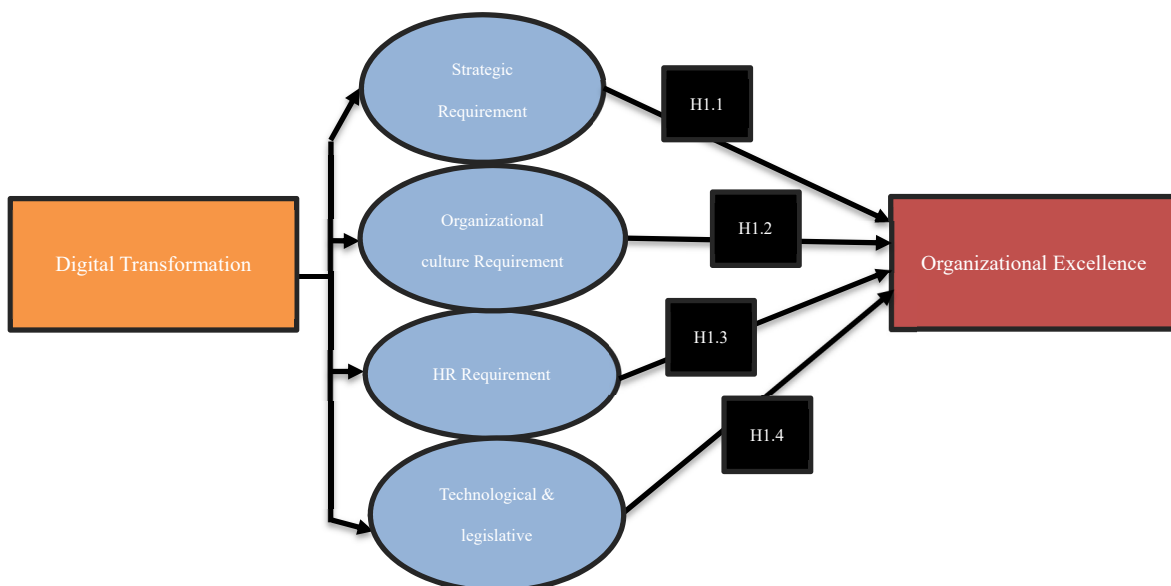


Figure 1. Research Framework

3.3 Instrument Design

The questionnaire was used in this study as the main tool for data collection based on the theoretical framework and previous studies, consisting of (45) items measuring the impact of digital transformation in Egyptian private universities on achieving organizational excellence. The questionnaire is divided into three main parts: the first part is the demographic variables with three categories: gender, academic degree, and track. The second part is the independent variable: “digital transformation” X, which consists of four dimensions with a total of (21) statements. The third part is the dependent variable: “Organizational excellence” Y, which consists of (5) dimensions with a total of (24) statements, using a five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree), where it’s given codes for each result (strongly agree=5, agree =4, neutral =3, disagree =2, strongly disagree =1).

4. Data Analysis and Interpretation

The researcher reviewed the data to ensure completeness and validity of data entry and statistical analysis and then discharged them using the computerized Statistical Package for Social Sciences (SPSS). The following statistical methods were used to answer the research hypotheses.

4.1 Reliability and Validity of the Study Instrument

To identify the validity and reliability of the tool used to measure sample responses, both the internal consistency coefficient, which measures the correlation between questionnaire paragraphs, and the Cronbach Alpha coefficient, to measure the stability of the paragraphs and dimensions of the questionnaire, are used.

4.1.1 Cronbach’s Alpha Coefficient

Table 2. Stability test (Cronbach’s Alpha coefficient values) for all questionnaire paragraphs

ser	Dimensions	Reliability	Validity
Digital transformation			
x1	Strategic requirements for digital transformation	0.829	0.910
x2	Organizational culture requirements for digital transformation	0.841	0.917
x3	Human resource requirements for digital transformation	0.826	0.908
x4	Technological and legislative requirements for digital transformation	0.863	0.928
Total dimensions : Digital transformation X		0.844	0.918
Organizational excellence			
y1	leadership excellence	0.852	0.923
y2	Human resources excellence	0.827	0.909
y3	Organizational structure excellence	0.836	0.914
y4	Strategy excellence	0.809	0.899
y5	Excellence in partnerships and resources	0.846	0.919
Total dimensions: Organizational excellence Y		0.832	0.912
Total: The impact of digital transformation in Egyptian private universities on achieving organizational excellence		0.864	0.929

Note. The accepted values for the Cronbach’s Alpha coefficient are about 70%.

Table 2 shows the following results:

- The coefficient of the total sample size was 0.864, which indicates the high degree of persistence of the study sample, reflected in its impact on validity, representing the stability square root (0.929).
- The value of the Cronbach Alpha coefficient ranges between (0.829: 0.863) for digital transformation, and the value of the Cronbach Alpha coefficient ranges between (0.809: 0.852) for organizational excellence.
- The Cronbach’s Alpha coefficient values of all dimensions are greater than 70%, which means a high degree of internal stability for all questionnaire paragraphs, enabling us to rely on these answers to achieve the study

objectives and analyze its results.

4.1.2 Internal Consistency

Table 3. Internal consistency using the coefficient of correlation Pearson for the dimensions of the independent variable “digital transformation X” and the dependent variable “organizational excellence Y”

N	Dimensions (digital transformation X)	Pearson Correlation	Sig.
1	Strategic requirements for digital transformation x1	0.732	Less than 0.01
2	Organizational culture requirements for digital transformation x2	0.672	Less than 0.01
3	Human resource requirements for digital transformation x3	0.882	Less than 0.05
4	Technological and legislative requirements for digital transformation x4	0.865	Less than 0.05

N	Dimensions (organizational excellence Y)	Pearson Correlation	Sig.
1	leadership excellence y1	0.771	Less than 0.01
2	Human resources excellence y2	0.836	Less than 0.01
3	Organizational structure excellence y3	0.804	Less than 0.01
4	Strategy excellence y4	0.596	Less than 0.01
5	Excellence in partnerships and resources y5	0.837	Less than 0.01

Table 3 shows the following:

-The digital transformation dimensions are strong and moderate, with a person’s correlation coefficients ranging from 0.672 to 0.882, at a level less than 0.05.

-The organizational excellence dimensions are strong and moderate, with a person’s correlation coefficients ranging from 0.596 to 0.837, at a level less than 0.01.

-When the degree of correlation is close to unity, the correlation is strong. In general, the correlation is weak if the correlation coefficient value is less than (0.30), moderate if the correlation coefficient value is between (0.30 0.70), and strong if the correlation coefficient value is greater than (0.70).

4.2 Descriptive Statistics

4.2.1 Demographic information of the participants

Table 4. Frequency distribution statistics for variable “gender”

Gender	Frequency	%	Rank
Male	60	32.4	1
Female	125	67.6	2
Total	185	100	-

Table 4 shows that variable (Female) takes the first order by percentage (67.6%), while (Male), by percentage (32.4%).

Table 5. Frequency distribution statistics for variable “academic degree”

Academic degree	Frequency	%	Rank
Lecturer	100	54.1	1
Assistant Professor	57	30.8	2
Professor	28	15.1	3
Total	185	100	-

Table 5 shows that most of the respondents were in the category Lecturer, accounting for 54.1%, came in first place, then Assistant Professor, accounting for 30.8%, and finally, Professor, accounting for 15.1%.

Table 6. Frequency distribution of the variable “academic track”

Academic track	Frequency	present	Rank
Scientific	49	26.5	2
Literary	136	73.5	1
Total	185	100	-

Table 6 shows that 73.5% of the respondents were in the literary academic track, while 26.5% were in the scientific track.

4.2.2 Mean and Standard Deviation

Table 7. Descriptive statistics of the dimensions of digital transformation.

N	Phrases	Mean	Std. Deviation	Relative importance	Rank importance
1	Strategic requirements	3.93	.47	78.6	1
2	Organizational culture requirements	3.81	.48	76.2	2
3	Human resource requirements	3.61	.66	72.2	4
4	Technological and legislative requirements	3.78	.57	75.6	3
Total: Digital transformation		3.80	0.43	76.14%	-

The general trend of the study sample is on the variable Digital transformation, indicating that it is toward the agreement, with a mean of 3.80 and a standard deviation of 0.43, with a relative importance of 76.14%. The most important dimensions are strategic requirements, organizational culture requirements, technological and legislative requirements, and human resource requirements, with a relative importance of 78.6%, 76.2%, 75.6%, and 72.2%, respectively.

Table 8. Descriptive statistics (mean, std. deviation, relative importance, and rank) of the dimensions of organizational excellence.

N	Phrases	Mean	Std. Deviation	Relative importance	Rank importance
1	leadership excellence	4.30	0.56	86	1
2	Human resources excellence	3.88	0.62	77.6	4
3	Organizational structure excellence	3.53	0.60	70.6	5
4	Strategy excellence	4.10	0.50	82	2
5	Excellence in partnerships and resources	3.90	0.51	78	3
Total: Organizational excellence		3.94	0.45	78.8%	-

Table 8 shows the following:

The general trend of the study sample is on the variable Organizational Excellence, indicating that it is toward agreement, with a mean of 3.94 and a standard deviation of 0.45 with a relative importance of 78.8%.

The most important dimensions are leadership excellence, strategy excellence, excellence in partnerships and resources, human resources excellence, and organizational structure excellence, with a relative importance of 86%, 82%, 78%, 77.6%, and 70.6%, respectively.

4.3 Study Hypotheses

In this section, the researcher focuses on testing the study’s main hypothesis and sub-hypotheses to address the dimensions of the research problem and its objectives. A simple regression analysis was used to test the hypotheses that digital transformation X (independent variable) directly impacts organizational excellence Y (dependent variable). Hence, the researcher was able to study the impact of independent variables combined, including the strategic requirements x1, the organizational culture requirements x2, the human resources requirements x3, and the technological and legislative requirements x4 on the dependent variable, organizational

excellence, and then test which of the four independent factors has more influence on the dependent one, using the multiple regression coefficients (model stepwise).

H1: Digital transformation have a statistically significant impact on achieving organizational excellence.

Table 9. The impact of digital transformation on achieving organizational excellence by using linear regression

Independent variables	β	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
Constant	.629	4.068	0.01	467.170	.001	71.9%
Digital transformation	.848	21.614	0.01			

From Table 9, it is clear that:

1 - R2: coefficient of determination

We found that the independent variable (digital transformation) explains 71.9% of the total change in the dependent variable (organizational excellence).

2- Test of significance of the independent variable: t-test

The results of the previous table confirmed the existence of a statistically significant impact of all dimensions of digital transformation on achieving organizational excellence, based on the t-test, equal 21.614, at a significant level less than 0.01.

3- Test of the regression model reconciliation quality: F-test

To test the quality of the reconciliation model, the F-test was used, where the value of the test is 467.170, which is significant at a level less than 0.01, which indicates the quality of the impact of the regression model on achieving organizational excellence.

4 - Equation of the model:

$$Y = \beta_0 + \beta x$$

$$y = \text{constant} + x$$

$$\text{Organizational excellence} = 0.629 + 0.848 \text{ digital transformation}$$

So, we accept the statistical hypothesis, "Digital transformation have a statistically significant impact on achieving organizational excellence."

H1.1 : Digital transformation strategic requirements have a statistically significant impact on achieving organizational excellence.

Table 10. the impact of strategic requirements for digital transformation on achieving organizational excellence

Independent variables	β	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
constant	1.052	5.487	0.01	231.230	.001	55.8%
The Strategic requirements for digital transformation	0.747	15.206	0.01			

From Table 10, it is clear that:

1 - R2: coefficient of determination

We found that the independent variable The strategic requirements for digital transformation x1 explains 55.8% of the total change in the dependent variable achieving (organizational excellence).

2- Test of significance of the independent variable: t-test

The results of the previous table confirmed the existence of a statistically significant impact of the strategic requirements for digital transformation on achieving organizational excellence, based on the (t.Test) equal (15.206), at a significant level less than 0.01.

3- Test of the regression model reconciliation quality: F-test

The value of the test is 231.230, which is significant at a level less than 0.01, which indicates the quality of the impact of the regression model on achieving organizational excellence.

4 -Equation of the model

$$\text{Organizational excellence} = 1.052 + 0.747 \text{ the strategic requirements for digital transformation } x_1$$

The strategic requirements for digital transformation have a positive, statistically significant impact on achieving organizational excellence.

So, we accept the statistical hypothesis “Digital transformation strategic requirements have a statistically significant impact on achieving organizational excellence.”

H1.2: Digital transformation organizational culture requirements have a statistically significant impact on achieving organizational excellence.

Table 11. Impact of organizational cultural requirements for digital transformation x2 on achieving organizational excellence

Independent variables	β	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
constant	1.119	4.438	0.01	127.275	.001	41%
The Organizational culture requirements for digital transformation x2	0.640	11.282	0.01			

From Table 11, it is clear that:

1 - R2: coefficient of determination

We found that the independent variable The organizational culture requirements for digital transformation x2 explains 41% of the total change in the dependent variable achieving organizational excellence.

2- Test of significance of the independent variable: t. test

The results of the previous table confirmed the existence of a statistically significant impact of the organizational cultural requirements for digital transformation x2 on achieving organizational excellence, based on the t-test equaling 11.282, at a significant level less than 0.01.

3- Test of the regression model reconciliation quality: F-test

The value of the test is 127.275, which is significant at a level less than 0.01, which indicates the quality of the impact of the regression model on achieving organizational excellence.

4 -Equation of the model

$$\text{Organizational excellence} = 1.119 + 0.640 \text{ the Organizational culture requirements for digital transformation } x_2$$

The Organizational culture requirements for digital transformation x2 have a positive impact with statistically significant on achieving organizational excellence.

So, we accept the statistical hypothesis “Digital transformation organizational culture requirements have a statistically significant impact on achieving organizational excellence.”

H1.3: Digital transformation human resources requirements have a statistically significant impact on achieving organizational excellence.

Table 12. Impact of Human resource requirements for digital transformation x3 on achieving organizational excellence

Independent variables	β	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
constant	1.992	14.366	0.01	204.674	.001	52.8%
The Human resource requirements for digital transformation x3	0.727	14.306	0.01			

From Table 12, the following is clear:

1 - R2: coefficient of determination

We found that the independent variable The Human resource requirements for digital transformation x3 explains 52.8% of the total change in the dependent variable achieving organizational excellence.

2- Test of significance of the independent variable: t-test

The results of the previous table confirmed the existence of a statistically significant impact of The Human resource requirements for digital transformation x3 on achieving organizational excellence), based on the t-Test equaling 14.306, at a significant level less than 0.01.

3- Test of the regression model reconciliation quality: F-test

The value of the test is 204.674, which is significant at a level less than 0.01, which indicates the quality of the impact of the regression model on achieving organizational excellence.

4 -Equation of the model

Organizational excellence = 1.992 + 0.727 the Human resource requirements for digital transformation x3

The Human resource requirements for digital transformation x3 have a positive impact with statistically significant on achieving organizational excellence.

So, we accept the statistical hypothesis “Digital transformation human resources requirements have a statistically significant impact on achieving organizational excellence.”

H1.4 Digital transformation technological and legislative requirements have a statistically significant impact on achieving organizational excellence.

Table 13. The impact of technological and legislative requirements for digital transformation x4 on achieving organizational excellence.

Independent variables	β	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
constant	1.505	10.454	0.01	294.073	.001	61.6%
The technological and legislative requirements for digital transformation x4	0.785	17.149	0.01			

From Table 13, it is clear that:

1 - R2: coefficient of determination

We found that the independent variable The technological and legislative requirements for digital transformation x4 explains 61.6% of the total change in the dependent variable achieving organizational excellence.

2- Test of significance of the independent variable: t. test

The results of the previous table confirmed the existence of a statistically significant impact of the technological and legislative requirements for digital transformation x4 on achieving organizational excellence, based on the t-test equaling 17.149, at a significant level less than 0.01.

3- Test of the regression model reconciliation quality: F. test

The value of the test is 294.073, which is significant at a level less than 0.01, which indicates the quality of the impact of the regression model on achieving organizational excellence.

4 -Equation of the model

Organizational excellence = 1.505 + 0.785 The technological and legislative requirements for digital transformation x4

The technological and legislative requirements for digital transformation x4 have a positive impact with statistically significant organizational excellence.

So, we accept the statistical hypothesis “Digital transformation technological and legislative requirements have a statistically significant impact on achieving organizational excellence.”

Table 14. Multiple regressions (Model Stepwise) to test the impact of the digital transformation dimensions on organizational excellence.

Independent variables	B	t. test		F. test		R2
		Value	Sig.	Value	Sig.	
Constant	.398	2.206	0.01	132.910	.01	74.7%
x1-The strategic requirements for digital transformation	.283	4.294	0.01			
x2- The organizational cultural requirements for digital transformation	.190	3.971	0.01			
x3- The human resource requirements for digital transformation	.243	4.205	0.01			
x4- The technological and legislative requirements for digital transformation	.303	5.314	0.01			

From Table 14, it is clear that:

1 - (R2): coefficient of determination

We found that the independent variable (digital transformation) in all its dimensions explains (74.7%) of the total change in the dependent variable (organizational excellence).

2- Test of significance of the independent variable: t. test

The results of the previous table confirmed the existence of a statistically significant impact on all the dimensions of digital transformation. The technological and legislative requirements, the strategic requirements, the human resource requirements, and the organizational cultural requirements, on achieving organizational excellence based on the t-test equal 5.314, 4.294, 4.205, and 3.971, respectively at a significant level less than (0.01).

3- Test of the regression model reconciliation quality: F-test

The value of the test is (132.910), which is significant at a level less than (0.01), which indicates the quality of the impact of the regression model on achieving organizational excellence.

4-Equation of the model:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$$

organizational excellence = 0.398 + 0.283 strategic requirements x1 + 0.190 organizational cultural requirements x2 + 0.243 human resource requirements x3 + 0.303 technological and legislative requirements x4.

5. Discussion

This study presented a conceptual case that shows the impact of digital transformation in Egyptian private universities on achieving organizational excellence, using the German University in Cairo as a case study.

First: The results of the descriptive analysis of the digital transformation variable showed a high level of interest in the variable with its four dimensions and came in first place (the strategic requirements), followed by the organizational culture requirements, the technological and legislative requirements, and finally the human resources requirements. This indicates a clear strategy at the German University for digital transformation, as it is at the core of its mission and its executive and future strategies and is reflected in its objectives as having a vision for digital transformation is crucial for positive change among faculty members. This is supported by Limani et al. (2019) and Al-Maslmani (2022), who showed the importance of having strategic plans to make the necessary changes for digital transformation.

Regarding the organizational culture requirements, the results indicate a great interest in the German University in Cairo in spreading the culture of digital transformation. This may be because the dissemination of culture generates positive trends among individuals; thus, they will participate in its implementation. This is supported by Aghayari et al. (2022), who recommended the need to work on spreading the culture of digital transformation.

Regarding the technological and legislative requirements, the results showed the German University's awareness of the importance of digital transformation and the creation of all conditions within the university commensurate with the trend toward digital transformation, as the basis for this transformation is the availability of technological infrastructure. Also, the programs allocated to the university help its faculty members to interact,

have privacy, and preserve intellectual property. This is supported by Abdulhameed (2021), who showed the importance of providing legislative and legal measures to protect data and secure all digital transactions.

Finally, regarding the human resources requirements, the results showed the university's interest in implementing training programs for faculty members to develop their abilities and skills to use digital technology in teaching. This is due to the university's realization that the success of digital transformation depends more on the people participating in it than on technology. This is supported by El Sherif (2021), who indicated that developing and preparing the digital teacher well is important for establishing and enabling the environment for digital transformation.

Second: The results of the descriptive analysis of the organizational excellence variable showed a high level of interest of the variable with its five dimensions, the highest of which were related to (leadership excellence, strategy excellence, and excellence in partnerships and resources) and the least were related to (human resources excellence and organizational structure excellence). This indicates that the university administration has leadership skills that push toward organizational excellence. Excellence does not happen except by finding a distinguished leadership that has the capabilities, characteristics, and skills that enable it to bring about change. It is considered an important factor for motivating faculty members toward excellence in work, which in turn leads to organizational excellence. This is supported by Mandoor (2014), who indicated that leadership is an important and influential factor in organizational excellence.

As for the human resources excellence dimension, the results showed the university's keenness to qualify and train its faculty members and develop their skills to deal with modern technologies and provide opportunities for learning and training, as well as their participation in decision-making, which in turn is reflected in achieving organizational excellence. This is recommended by Zahran (2022).

Regarding the organizational structure excellence dimension, the results reflect the university's continuous updating of the organizational structure in line with digital development, and this is consistent with the recommendations of Al-Kubaisy and Al-Zbaidi (2022), who showed that the excellence of organizational structure is an important factor in organizational excellence.

For the strategy excellence dimension, the results indicate the interest of the university administration in building an integrated strategy that reflects its directions and outlook and achieves its goals to obtain competitive positions and enhance its market share among universities.

Concerning the excellence in partnerships and resources dimension, the results reflect the university's interest in enhancing interaction with community institutions in the light of the organization's social responsibility by achieving the community's goals and interests as one of the basic criteria for achieving organizational excellence. It also reflects the university's investment of its own resources and employing them to serve the beneficiaries and achieve their satisfaction, which is approved by Mandoor (2014).

Testing the main hypothesis (H1) showed an impact of digital transformation at the level of ($\alpha \leq 0.01$) on achieving organizational excellence. The combined dimensions of digital transformation explain (74.7%) variance in organizational excellence. This confirms the German University's keenness to achieve organizational excellence through the commitment to applying digital transformation requirements. This result expresses the aim of the study.

Interestingly, achieving organizational excellence is closely linked to the existence of a clear strategy for digital transformation, as the strategic requirements positively affect organizational excellence. The researcher explains that a vision, a tangible goal, and clear plans for managing and implementing the digital transformation process and directing resources to achieve them have contributed to achieving organizational excellence. In addition, the study has confirmed a statistically significant impact of organizational culture requirements on achieving organizational excellence. This can be explained by the university's keenness in spreading digital organizational culture, including the culture of e-learning and the culture of using technology and the Internet, in addition to its interest in conducting educational training courses on the importance of digital transformation in education that had a major role in convincing the university community members of the digital transformation process and the positive participation in it which led to the university's ability to respond to the requirements of organizational excellence. Moreover, the human resources requirements have a positive impact on achieving organizational excellence. This can be reflected in the university's concern for human resources through training them and developing their capabilities in using digital technology, in addition to motivating them, significantly impacting organizational excellence. Finally, digital transformation technological and legislative requirements have a statistically significant impact on achieving organizational excellence. The availability of the basic infrastructure for digital transformation in terms of providing modern devices and various programs, in addition to the necessary

legislative frameworks for the security and integrity of information and its intellectual property rights, has contributed to organizational excellence.

6. Conclusion and Limitations

Given that digital transformation is considered one of the main pillars for achieving organizational excellence, this study revealed important insights by highlighting the impact of digital transformation in achieving organizational excellence at the German University in Cairo (GUC). Theoretically, the study contributes to drawing the attention of researchers to carry out many studies in the field of organizational excellence by applying digital transformation concepts. This study is also one of the first to examine the impact of digital transformation on achieving organizational excellence in private universities. Practically, the results of this study will increase the awareness of managers and decision-makers of the importance of digital transformation as a modern management tool to enhance organizational excellence and provide them with the necessary information about the requirements for achieving it. The study's findings showed that all the dimensions of digital transformation—namely, the strategic, organizational culture, the human resources, and technological and legislative requirements—are significantly related to organizational excellence in the German university in Cairo.

Some of the current study's limitations can be investigated in the future. First, the research was applied in private universities; however, a comparative study between the public and private universities will give us more results about the impact of digital transformation on achieving organizational excellence. In addition, the researcher relied on a case study, which reduces generalization. Finally, only faculty members were included in the sample, which provides a limited perspective.

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