



The Impact of Digital Transformation, Cybersecurity, and Innovation on Strategic Performance: A Moderated Mediation Analysis

Dr. Alaa Abbas Al-Tahrawi* Prof. Dr. Khaled Mahmoud Al-Shawabkeh**

Abstract

Purpose for paper that to discover how innovation mediates the connection among Strategic Performance (SP) and Digital Transformation (DT) in addition to Moderating role of cybersecurity (CS) in Jordan's private Universities. The study involved managers at senior and middle Managerial staff. The sample of the study was 250 directors at eighteen Jordanian private universities, through an electronic questionnaire. The sample was selected at random relative class, and the study relied on the quantitative approach of analytical descriptive method using structural equation modelling technique to analyze data and test hypotheses using the statistical program PLS- SEM. The results of the study revealed a statistically significant impact of DT on SP. They also revealed a significant impact of Innovation as a mediating factor in the connection among strategic performance and digital transformation in Jordanian private universities. Finally, the results revealed a lack of role for cybersecurity in modifying the link among DT & SP in Jordanian private universities. According to the results, Jordan's private universities must continue to pay attention to DT because it is concerned with a number of implications for strategic performance. And we must maintain and sustain a direction that promotes digital transformation and has clear future visions, continue attention to digital technologies along with the possession of equipment suited to those technologies' education ", as well as the need for continued attention to academic programs to maintain high levels of quality of education.

Keywords: Digital Transformation, Digital Strategy, Digital Capabilities, Strategic Performance, Balanced Scorecard, Innovation, Cybersecurity, Jordanian private universities.

*A researcher in digital transformation and strategic management. The World Islamic Sciences and Education University.6210506009 @std.wise.edu.jo

** Administration Department, The World Islamic Sciences and Education University.

1.Introduction:

The future of academic institutions in general and universities in particular is facing ongoing transformations in the age of DT and their reliance on Information and Communication Technologies (ICT) and digital technologies that are evolving steadily in conjunction with modern society, creating new problematic learning concepts based on virtual learning. This is why academic institutions of universities, colleges and training centers are working to modify and change their business models, affecting the way their services are provided in line with the requirements of the times by adopting a clear digital strategy towards the digital future. It is in this spirit that universities should consider the possibility of seeking to develop their capabilities and meet the requirements of the desired digital transformation in order to maintain their competitive advantage in the business environment in the face of challenges in the business environment as well as accelerated technological developments and changes.

Measuring the performance of university work is a pivotal research issue of global and high interest among researchers and interested people both from universities themselves and from institutions that work to classify such universities and may reach the interest of students and their families (Limani et al., 2019). Measuring SP is considered the most essential fundamental in providing critical development orientations and difference in the strategic path of universities by providing potential that contributes to empowering universities to reach their goals as planned and given the diversity of universities with different objectives, which has made it difficult to understand their outputs. They face difficulties in accurately measuring their performance, and there are many strategic performance measures including traditional ones such as financial ones, Reputations, source or resources, outputs, as well as modern metrics such as balanced scorecard, value added, reference comparison, SWOT analysis.

Innovation (INN) plays a crucial role in the environment of business, including universities, through a range of business activities, sustainable value can be added. and that this impression is recipient increased consideration to business org, as it is of great importance for the developing the internal processes as well as for determining performance costs, the creation of innovative services directly affecting the provision of a sustainable competitive advantage while allowing expansion to serve a range of segments and markets (Gazi, 2024, 23)

With regard to cybersecurity, which is one of the most fundamental pillars of any digital transformation in the organizations' business environment innovation and development opportunities, and as a strategic approach for organizations and individuals in the areas of planning, design and operation, it includes educational, social, economic and humanitarian aspects to maintain data, information, networks and software during transportation, conservation and accessibility.

1. LITERATURE REVIEW AND HYPOTHESES:

• *Digital Transformation (DT) & Strategic Performance (SP):*

Digital transformation has been studied by many researchers since its emergence in the 2000s in (2000) by Patel and McCarthy and was linked to digitization, but it currently refers to a phenomenon related to new uses of consumers, and unique things that directly affect business models in organizations. The first explicit definition of digital transformation emerged in (2004) Stolterman and Fors, which represents changes in digital technology that involve or affect all aspects of human life, and since then there has been no uniform definition of digital transformations in journals and scientific research. Researchers have focused on the different components of the concept, and three different terms are often met in the literature and sometimes used interchangeably: modeling (digitization), digitization (digitalization) and DT. The DT too defined as the adoption of a modern mentality & culture of Org in order to execute most recent digital technics developed by intention to make maximum value for consumers and to make sure creativities goods

according available information, upgrade operation process, by use resources effectively, and improved digital knowledge among workers, as well as the development of sustained model of business, that create a competitive advantage (Tanushev, 2022). In addition, digital transformation contributes to agility and flexibility by enhancing organizations' flexibility, enabling organizations to leverage market access and pursue continuous improvement strategies, leading them to adapt and innovate perfectly. By automate many hand-operated tasks and integrate data across the organization, it facilitates to team members operate further efficiently and higher cognitive capabilities (Liere et al, 2018, 124).

Numerous scholars have extensively studied strategic performance as vital and essential Case in org, like all organizations' endeavor currently, especially as the external environment is disrupted and increased competition and many challenges to sustain and further improve its performance reflects to expanse to which the Org. ability to achieve its objectives is reflected. It is also a very important indicator on which many resolutions are based and with developments in the business environment, especially at the strategic level, a new concept has emerged that takes into account the strategic dimension and the dynamic of performance, which is the strategic performance that depicts the organizations' future performance and their ability to reach their objectives in addition to the organizations' long-term orientations (Abdel Razek, 2015, 189). Also, Santos and Brito (2012) provide a picture of strategic performance components and give a clear and integrated picture of those components and the objectives of both organizational performance, financial performance and the organization's strategic performance, which are customer and user satisfaction and environmental and social performance. Moreover, Tahir and Jamal (2020) considers the strategic performance of the organizations as a measure of the organization's success and progress in applying strategies and continuous commitment in achieving the desired goals through a

sophisticated and innovative performance aimed at continuous improvement and finding the added value of the organization and its customers and employees enabling the optimal utilization of capabilities and capacities and the efficient and effective use of the Organization's resources differently from competitors in the same field. Performance is an important measure of the Organization's achievement of its objectives and identification of imbalances that impede the achievement of the Goals.

The purpose of this paper is to explore the relationship between digital transformation and in different, complex and competitive work environments, as the research evaluates the relation between digital transformation and strategic Performance by positive significant.

A study in Gaza demonstrated the role of digital transformation in enhancing competitive advantage at the University College of Applied Sciences from the perspective of heads of administrative and academic departments. The study used a descriptive and analytical approach. The study demonstrated that the level of digital transformation and competitive advantage was high, in addition to a strong correlation between digital transformation and its dimensions and enhancing competitive advantage (AL-Wahidi, 2025).

A study in Saudi Arabia showed that most participants strongly agree that digital transformation significantly affects the academic achievement for faculty members in king Abdul-Aziz University, the results also indicate the possibility of achieving the requirements of this transformation with the aim of improving the efficiency of the academic performance of faculty members at the university (AL-Sawat & Al-Harbi, 2022).

Also, in Egypt there's a study that aims to identify the impact of digital transformation on the SP of industrial companies, and concluded that there is a statistic significant effect of the approach as one of the requisite to implementing digital transformation, which contributes to improving the level of strategic

performance in industrial companies listed on the Egyptian Stock Exchange. (Atiya, 2022).

Al-Khatib and Al-Shawabkeh's (2022) study showed that digital transformation has a very positive impact on human resources management. However, digital HRM is considered a mediating variable in the relationship between digital transformation and strategic excellence, or it may be a partial mediator. Furthermore, Merdin et al, (2023) found that DT has developed into a vital component in driving business changes to create org. value. This means that DT leads to changes in a company's digital systems, and calls for a rethink of workflow, as hand-operated processes can be converted into fully digital processes. The evolving model also includes elements relevant to environmental and social responsibility, energy administration, and goods recovery activity, making it suitable for companies of all sizes and in various sectors.

• *The relationship between digital transformation and strategic performance and innovation.*

Regarding the Innovation, Organizations strive to continue efforts to keep pace with accelerated Cutting-edge technologies comes from external surroundings by capturing favorable opportunities and avoiding surrounding threats. The Innovation considers most important pillars that business org. seeks to build on and via which sustained value add through range of trade practices, and that this meaning gets increased and growing consideration to the org. working environment, as it is of great importance for business development and the determination of performance costs, Innovation is considered a translation of new and useful ideas to apply and work to reflect those ideas to reality by applying them to contribute to finding values needs and desires (Elsbach & Hargdon, 2006) Majid (2017) explains that INN is a vital ability for business organizations, as via this ability organization seeks to modernize and develop their procedures, in addition to improving their human

resources. This enhances its efficiency and allows it to develop existing products or innovate new products to maintain competitiveness.

In addition, from his part, Gao et al. (2023) explained through his study, which aims to present a paradigmatic conceptualization of two organizations investing in DT, focusing on effect of digitalization industry and the digitalization for companies on institutional innovation, is a critical research topic. The impact of DT on enhancing INN outcome was also assessed. The result showed that digitization for companies and the level of INN in the regional digital industry can significantly affect the level of INN. As well paper of Rummaidi and Abo Zaid (2021) that came up with exploring the mediating goal of both strategic vigilance and organizational INN in the relationships among DT and achieving strategic goals at Egypt Air, showed that there is a high level of accessibility of DT prerequisite at the company. As Digital security is obtainable, in addition to an organizational culture that supports this transformation.

Additionally, there's a result from scientific study some digital communication technologies were identified through the examination of the relationship among the use of digital technologies and the innovation performance of small and micro companies in South Africa, such as the use of social media and mobile phones to surf the Internet, contribute positively to enhancing innovation (Gaglio et al., 2022). Moreover, study of Al-Obaid (2020), aimed to explore relationships among INN and performance and investigate whether INN influences performance. Performance was analyzed through its various dimensions, which include internal and external factors affecting it, while innovation was addressed through its dimensions. The results showed that new business ideas and proposals are presented by Syrian organizations, and according to the paper, employees should be encouraged to innovate by being trained in innovation techniques.

- *Cybersecurity (CS) & Digital Transformation (DT) & Strategic Performance (SP).*

Cybersecurity is based on the Latin word "Cyber", and its meaning is hypothetical and continues to be used as a description of space that includes computing networks and that means information space (Baalbaki, 2004, 243). Accordingly, cybernetic, "automatic control science", has been derived. Cybersecurity means the security of information space, i.e., the protection and security of Internet-related information and communications networks (Al Jafnawi, 2021, 85). The concept of cybersecurity has emerged with the emergence of hacks and attacks, and this concept has become increasingly widespread with the expansion of reliance on Internet networks, it is in this spirit that business organizations must maintain the security of their information and ensure their protection during their transfer and preservation and cybersecurity measures can be broadly classified into major types and include measures focusing on application security, Network security, operational security, cloud security, user training and information security. Some of these measures include password protocols, authentication, firewalls, data encryption methodologies, malware scanners and the use of antivirus software (Ogunode et al., 2022).

The International Telecommunication Union (ITU) It is defined as a reported a definition of cybersecurity as a package of tools, concepts and security policies that incorporate principles, methodologies, safeguards, procedures and training programmers as well as comparison with best technology practices that contribute to the protection of the information and hardware network in the overall cyberspace environment (Amir, 2023).

The study of Al Shobaki (2022) showed that there is a direct impact of digital transformation on the application of cybersecurity in the Palestinian Ministry of Interior and National Security, as well as the study of Tawfiq and Morsi (2023) to determine the appropriateness of achieving cybersecurity requirements in light of the digital transformation from the faculty point of view of the University of Penha Egypt, and revealed the results of the study (2023) Johri & Kumar that customers

need more security by meeting the cybersecurity requirements of banking services in Saudi Arabia in the era of digital transformation. The study (2022) Ogunode et al. Cybersecurity through risk management and bank control had a statistically significant and positive impact on the financial innovation of Nigeria's deposit money banks. A study (2020) found Burov et al. to consider young people as the most vulnerable group that could be the main target of cyber cognitive processes and as the weakest link in the system. Analysis of the World Innovation Report revealed that Ukraine's real level of digital transformation is not commensurate with its actual human potential and creative outcomes. Ukraine faced gaps in the "human capital (potential) - technological support for innovations - creative activity" triangle that should be removed to increase the national global innovation index, and human talent and efficiency (as capital) are developed in the learning process. The joint venture was found to be the weaker link in terms of intellectual capital and intellectual property rights. Personal information about the project's competitors is not defended. Innovation issues in the digital learning environment also exacerbate the cybersecurity issues of participants in the educational process. The traditional cybersecurity approach cannot detect and address new sophisticated attacks, and the authors have developed a general model of cyber threats in education and mitigate their effects by proposing a new cybersecurity strategy. Hence, the researchers noted the paucity of studies and the absence of any studies according to the research's scientific threshold linking the four variables of the study. This distinguishes the research and confirms its authenticity. Consequently, and according to proposed research model (Figure 1) hypotheses of the research were formulated as follows:

H1: Digital transformation is making a significant positive effect on the strategic performance at Jordanian private universities

H2: Innovation is considered pivotal in linking digital transformation and strategic performance at Jordan's private universities as a mediator variable.

H3: Cybersecurity moderate the relationship among digital transformation & strategic performance at Jordan's Private Universities.

2. Method:

The study relied on the quantitative approach chiefly and employed the descriptive research method according to the theoretical framework and field method with the aim of collecting the necessary data through the identification study tool developed. The analytical method is designed to test hypotheses, and this study is applied in nature. Explanatory by purpose where this paper attempted to demonstrate the effect of DT on SP in Jordan's private universities with innovation as an intermediate variable and cybersecurity as a modified variable unplanned study ". Being conducted in a natural environment for the private universities in question, in terms of time horizon this study will be Cross-Sectional; because it was conducted on a sample and simultaneously (Carpenter et al., 2020, 53-56. (Also considered quantitative study in terms of mechanism and procedures in totality (Saunders et al., 2023, 181).

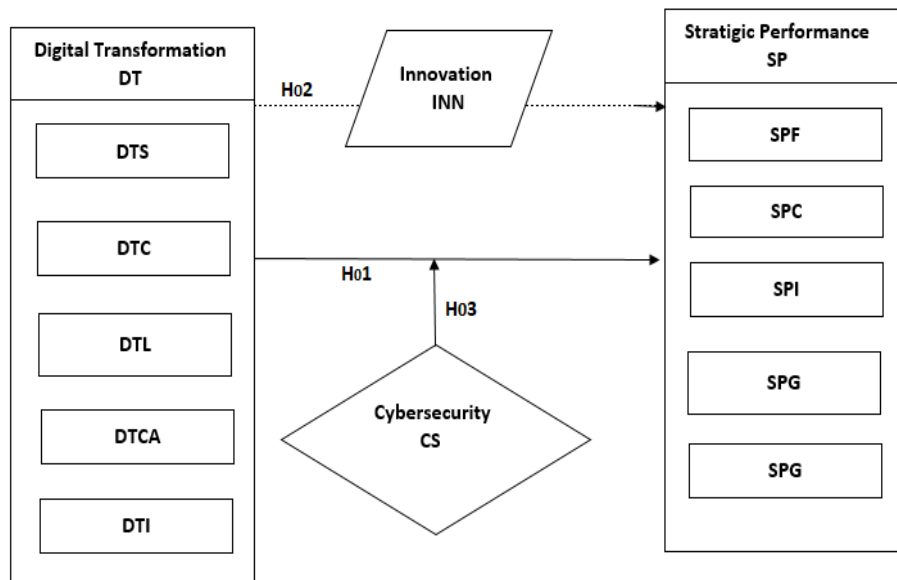


Figure .1 Research Model

3. Results:

Table .1 Descriptive statistics

Variable	Mean	Skewness	Kurtosis
D T	4.03	-0.276	-0.591
S P	4.06	-0.37	-0.654
IN N	3.94	-0.369	-0.391
CS	4.06	-0.46	-0.414

Source Own efforts from authors. Note: DT= Digital transformation, SP= Strategic performance, INN= Innovations, CS= Cybersecurity.

Analysis (PLS-SEM) of Nonparametric Statistical Method, which does not assume any specific distribution of data (Hair et al., 2022, 93). However, it is necessary to verify that the data is not far from normal distribution ", owing to the problems created by the deviation of data from natural distribution, especially in the assessment of the morale of transactions and the inflation of standard errors

obtained through Bootstrapping, and thus will create type II errors. Thus, the test of the twist coefficient and the dispersion coefficient was directed to test the extent of the normal distribution of the data (Hair et al., 2022, 65-66).

The results of the table above (1) indicate that the coefficient values of all variables are closer to zero, as the general guidelines consider ratios ranging from (1) and (+ 1) torsion coefficient of excellent ratios, which indicates that the distribution of data is similar (Distribution is Symmetrical), where negative values indicate a large number of elevated values, as demonstrated by the lopsided coefficient values, which are negative for all variables and closer to zero, where negative values indicate that data distribution has peaked (Peaked) more than usual, as general guidelines consider ratios ranging from (2) And (2 +) for the fuss coefficient is evidence that the distribution of data has not peaked (Peaked) or flatter (Flat) more than usual, and generally when both the twist coefficient and the splinter coefficient are equal or close to zero shows that the pattern of responses is subject to normal data distribution (Hair et al., 2022, 66).

Conducting the internal consistency reliability test requires evaluating the stability of measures at the level of variables. Therefore, the internal consistency of the instrument used to measure the variables included in the resolution is ascertained by the Alpha Plumber Crewe Coefficient and PC composite reliability coefficient. (Composite Reliability) and the actual reliability factor PA (Exact Reliability) according to the responses of sample individuals about the study variables where the alpha plant Crewe coefficient provides an estimate of the correlation relationship between two random groups of samples (Cronbach, 1951), the traditional criterion provides a conservative estimate of the constant of the measuring instrument based on internal correlations between index variables where the amount of value is acceptable to statistically satisfactory, when the value ranges from 0.70 -0.95 and values equal to or greater than 0.95 are not considered to be acceptable and indicate

that there are redundant elements of duplicate or identical paragraphs while the values are not 0.66.

Table .2 Reliability and validity

Intr. Consistency Relib						
Constructs	Indicator	Outer loading	Avg Variance Extracted	Cronbach's Alpha	Reliability (rho-a)	Composite Relib (rho_c)
		(> 0.70)	(> 0.50)	(> 0.70)	(> 0.70)	(> 0.70 and > 0.95)
DT S	DTS 1	0.768	0.64	0.888	0.892	0.914
	DTS2	0.752				
	DTS3	0.847				
	DTS4	0.785				
	DTS5	0.824				
	DTS 6	0.821				
DTC	DTC 1	0.774	0.655	0.894	0.895	0.919
	DTC 2	0.817				
	DTC 3	0.83				
	DTC 4	0.824				
	DTC 5	0.832				
	DTC 6	0.776				
DTL	DTL 1	0.801	0.674	0.903	0.903	0.925
	DTL 2	0.797				
	DTL 3	0.828				
	DTL 4	0.843				
	DTL 5	0.845				
	DTL 6	0.809				
DTCA	DT CA1	0.863	0.667	0.899	0.905	0.923

	DT CA2	0.836				
	DT CA3	0.813				
	DT CA4	0.876				
	DT CA5	0.701				
	DT CA6	0.798				
DTI	DT I1	0.828	0.715	0.92	0.921	0.938
	DT I2	0.841				
	DT I3	0.833				
	DT I4	0.893				
	DT I5	0.856				
	DT I6	0.822				
SPF	SPF1	0.793	0.578	0.817	0.828	0.872
	SPF2	0.812				
	SPF4	0.737				
	SPF5	0.66				
	SPF6	0.79				
SPC	SPC1	0.853	0.681	0.906	0.91	0.927
	SPC2	0.829				
	SPC3	0.884				
	SPC4	0.851				
	SPC5	0.742				
	SPC6	0.784				
SP I	SPI 1	0.806	0.649	0.892	0.893	0.917
	SPI 2	0.798				
	SPI 3	0.853				
	SPI 4	0.795				
	SPI5	0.803				
	SPI 6	0.776				

SP G	SPG 1	0.814	0.719	0.922	0.923	0.939
	SPG 2	0.841				
	SPG 3	0.886				
	SPG 4	0.857				
	SPG 5	0.879				
	SPG 6	0.809				
SP E	SPE 1	0.804	0.666	0.9	0.903	0.923
	SPE 2	0.781				
	SPE 3	0.817				
	SPE 4	0.839				
	SPE 5	0.853				
	SPE 6	0.801				
IN N	IN N1	0.84	0.709	0.949	0.95	0.956
	IN N2	0.844				
	IN N3	0.868				
	IN N4	0.851				
	IN N5	0.865				
	IN N6	0.841				
	IN N7	0.862				
	IN N8	0.817				
	IN N9	0.785				
CS	CS1	0.816	0.688	0.943	0.944	0.952
	CS2	0.857				
	CS3	0.835				
	CS4	0.861				
	CS5	0.777				
	CS6	0.833				
	CS7	0.831				

	CS8	0.811				
	CS9	0.84				

Source Own efforts from authors.

In this paper, speculative model based on classical test theory is adopted. This model was chosen because of its ability to reflect measured indicators of the underlying fundamental variables that affect them (Hair et al, 2022, p. 51-52).

Convergent validity : This indicator measures extent to a strong relationship is ensured by the convergence of the items in the questionnaire used to evaluate the variable or its dimensions between them (Hair et al., 2022). Table 2 shows that convergent validity was assessed through four indicators, namely: external loads, Cronbach's alpha coefficient, composite reliability (CR), and average extracted variation (AVE).

The same table also shows where the external loading values of the reflective index for all study items were higher than (00.70) (Hair et al., 2022, p. 80),

Hair et al. (2022, p,80) say, CR values should be above 0.70 to confirm a high level of reliability in measurements, while AVE values should exceed 0.50. Table 3 shows that all CR values exceed (0.70) and AVE values exceed (0.50), indicating the data that is convenient for performing statistically analyzed.

This scale measures the uniqueness of every variable or dimensions, which means that the items in one variable are not identical to those in another dimension or variable. (Hair et al, 2022, p, 78-80). The researchers used two criteria, namely the Fornell-Larker ratio analysis and the ratio of heterozygous traits to monogynous traits to evaluate discriminatory validity as follows:

Correlation values among variable & dimension in row and column appear to be less than the square root of every AVE value (Hair et al., 2022, p. 80). Also, the coefficients as shown in (Table4) indicate to all statistically significant because value

of the intersection the importance of each dimension cannot be overstated than its intersection with any other dimension in the matrix. Thus, the study variables are characterized as unique and independent of each other, demonstrating that they do not overlap.

Table .3 Discriminant validity: Fornell-Larcker criterion

Variable	IN N	DT S	CS	DT I	DT C	DT CA	DT L	SP F	SP E	SP C	SP I	SP G
IN N	0.842											
DT S	0.688	0.8										
CS	0.787	0.693	0.829									
DT I	0.727	0.723	0.705	0.846								
DT C	0.661	0.775	0.681	0.687	0.809							
DT CA	0.708	0.772	0.698	0.788	0.786	0.816						
DT L	0.717	0.785	0.716	0.727	0.786	0.799	0.821					
SP F	0.714	0.701	0.7	0.69	0.656	0.703	0.673	0.76				
SP E	0.807	0.632	0.706	0.654	0.553	0.629	0.631	0.655	0.816			
SP C	0.751	0.669	0.676	0.644	0.609	0.64	0.636	0.758	0.684	0.825		
SP I	0.778	0.693	0.768	0.718	0.647	0.688	0.68	0.765	0.702	0.747	0.806	
SP G	0.795	0.571	0.68	0.64	0.631	0.619	0.606	0.652	0.769	0.717	0.702	0.848

Source Own efforts from authors.

Table .4 Linear Interference (VIF) (variation amplification coefficient)

Constructs	IN N	S P
IN N		3.242
CS		3.276
D T	1	3.106

Source Own efforts from authors.

Evaluation of the model's explanatory power is determined by the R^2 coefficient of determination. for Eigen structures, which is a measure of extent to which the model can explain or predict within a sample. Its value varies between 0 and 1, a scale where elevated values represent enhanced explanatory strength. In various social science fields, R^2 values of 0.75, 0.50, and 0.25 are classified as high, moderate, and poor, respectively. However, acceptable values for R^2 may vary depending on the paper framework, along some sector allowing values as low as 0.10 (Hair et al., 2022, p. 118).

Table .5 Coefficients of determination (R^2)

Constructs	R^2	R^2 adjusted
IN N	0.826	0.823
D T	0.607	0.605

Source efforts from author.

The table above indicates that the R^2 value for the dependent variable SP in Jordanian private universities is 0.826. This high value demonstrates that 82.6% of the variance in SP is explained by the study model (DT and INN), with the remaining 17.4% attributable to other factors. The model's effectiveness in explaining and predicting SP is clearly significant, exceeding the acceptable threshold of 0.65 (Hair et al., 2022, P. 195). Furthermore, DT accounts for 60.7% of the variance in INN

within the surveyed universities, further highlighting the model's strong predictive capability.

The effect size (f^2) serves as an indicator of an independent variable's capacity to explain variance within the dependent variable, directly reflecting the proportion of variance attributable to it. Consistent with Hair et al. (2022, P. 196), f^2 values less than 0.02 are considered weak, values ranging from 0.15 to 0.35 are deemed moderate, and values exceeding 0.35 demonstrate a significant impact. The f^2 results, presented in Table 6, strongly suggest a powerful effect.

Table .6 (f^2) effects size

Constructs	f^2
D T $\rightarrow$ S P	0.13
D T $\rightarrow$ IN N	1.55
IN N $\rightarrow$ S P	0.51
CS $\rightarrow$ S P	0.06

Source Own efforts from authors.

Hair et al, (2020) say in view of scientists Stone and Geisser (1974) Q2 is one of the leading indicators for the predictive measurement of the structure models. This indicator illustrates the quality of data retrieval collected through the proposed model. This was seen by scientists as a measure of an off-sample predictive assessment (Hair et al, 2020).

The use of the RMSE standard as a predictive statistic, which when comparing the forecasting error distribution curve can know how to use the MAE standard or RMSE standard where it should be used if predictive errors track natural distribution (Hair et al., 2022, 201). With respect to (Q2) values, values above (0) are considered to have predictive suitability. If the values are below (0), they indicate a lack of predictive suitability. The use of Q2 that assesses the power of (off-sample predictive models) focuses on main variable in the study, strategic performance, and in accordance with the directives of Shmueli et al. (2019). The results of the other internal variable were shown through this study, Innovation.

Table .7 LV Prediction Summary

Construct	Q ² Predict	RMSE	MAE
INN	0.602	0.637	0.483
SP	0.704	0.548	0.394

Source Own efforts from authors.

Table 7 shows that all Q2 Predict values of internal variables indicators in the strategic performance and innovation study model are greater than zero and thus indicates that the PLS track model exceeds the simple standard in predictive strength because most predictive errors of the PLS track model are less than predictive errors of the simple standard (Hair et al., 2022, 201). Standard values for track transactions ranging from (1 to 1 +) almost, value proximity (1+) are considered strong positively relationships, while value proximity (1) strong negatively relationships and that these relationships become statistically moral when value differs from zero in society, the morale of structural model relationships is based on track transactions, and how close the value of track transactions is to zero. This results in poor interpretability of relationships to one variable in another variable interpretation. These values are also statistically immoral because value is not different from zero.

According to the standard error accessible through the Bootstrapping application, the course transaction morale is determined and therefore the experimental T and P value of all structural track transactions can be calculated to be greater than the critical value and to conclude that the track transaction is statistically moral at the morale level A 5% morale-level researcher has been approved for the Tow tailed test where the value (1.96) is used to estimate the level of morale and p is considered the possibility of rejecting the nihilistic hypothesis. The p value is below (0.05) to conclude that relationship into this study is statistical at the considerable levels set at 5% and the period of trust that allows Bootstrap to examine how different the course

transactions are morally from zero. It provides information on the stability of transactions assessed across an acceptable set of community values for factors based on variability in sample size and data (Hair et al., 2022,192-193).

Table .8 Test of track factors for structural model

	Path coefficients(β)	Sample mean	Stdard dev	T/ statistics ($ O/StdeV $)	(P) value	Confid. Inrvl.
D T $\rightarrow$ DT S	0.898	0.899	0.014	63.638	0.000	0.871 -) (0.925)
D $\rightarrow$ DT C	0.894	0.894	0.017	52.378	0.000	0.857 -) (0.924)
D $\rightarrow$ DT L	0.910	0.911	0.018	49.568	0.000	0.871 -) (0.941)
D $\rightarrow$ DT CA	0.922	0.923	0.012	79.771	0.000	0.899 -) (0.944)
D $\rightarrow$ DT I	0.876	0.877	0.016	55.299	0.000	0.843 -) (0.905)
D $\rightarrow$ S P	0.262	0.264	0.071	3.696	0.000	0.120 -) (0.399)
D $\rightarrow$ IN N	0.779	0.780	0.030	25.609	0.000	0.716 -) (0.833)
S $\rightarrow$ SP F	0.853	0.854	0.025	34.264	0.000	0.800 -) (0.897)
S $\rightarrow$ SP C	0.890	0.891	0.015	60.635	0.000	0.859 -) (0.917)
S $\rightarrow$ SP I	0.890	0.890	0.029	30.444	0.000	0.824 -) (0.938)

	Path coefficients(β)	Sample mean	Stdard dev	T/ statistics (O/StdeV)	(P) value	Confid. Inrvl.
S → SP G	0.885	0.886	0.015	0.015	0.000	0.855 -) (0.914
D → SP E	0.872	0.873	0.018	49.573	0.000	0.835 -) (0.904
IN → S P	0.533	0.527	0.088	6.063	0.000	0.351 -) (0.696
CS → S P	0.177	0.183	0.070	2.516	0.012	0.044 -) (0.318

Table (8) indicates that t values for all track transactions are higher than 1.96 excluding strategic performance with a learning and growth perspective, with a value of 0.015. (p) All track transactions are below (0.05) excluding cybersecurity with strategic performance where they are valued (p) (0.012) confirming the morale of all track transactions except cybersecurity and strategic performance, and the Confidence Intervals period for Bootstrap is adopted as a fundamental criterion for evaluating track transaction morale as it provides additional information on the stability of track transaction estimate.

estimate.

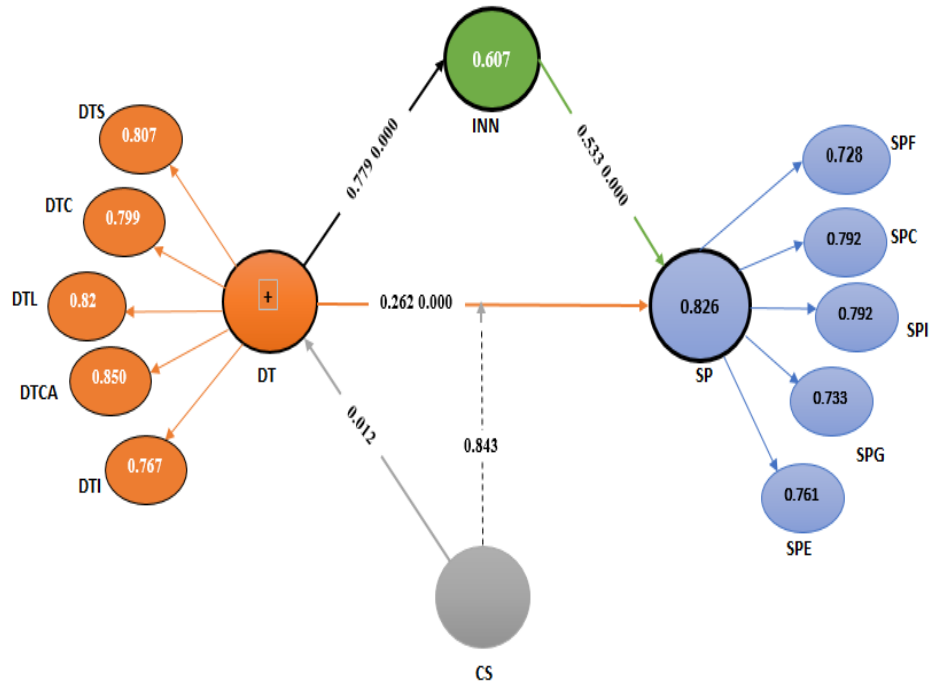


Figure .2 Structural model

Figure (2) shows that the strategic performance variable (higher rank) has a positive and strong relationship between its lower rank variables and this is evidenced by (β) values where the (β) values of both clients' and internal processes (0.792), followed by the growth and learning dimensions (0.783), thereafter the environmental dimension (0.761), and finally the financial dimension (0.728), all of which are statistically p) at a moral 0.05 level. Figure 2.5 shows too that the higher-levels digital transformation variable has positives and strong relationship between its lower-level variables through track transactions (β) where (β) values have come to the digital capacity dimension. (0.850), followed by digital driving dimension (0.829), then digital strategy dimension (0.807), and then the digital culture dimension (0.799), and finally the environmental dimension (0.767), all statistically at $P < 0.05$). Figure 2.5 also shows the strongest positive correlation between higher-

ranking variables and between digital transformation and innovation at 0.779, a strong correlation followed by the positives relationships among INN & SP at 0.533, a medium- and lastly the relationships among DT & SP at 0.262, a weak relationship. 1st hypothesis test: H01: There is no statistically significant impact at the level of $\alpha \leq 0.05$ on DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) in Jordan's private universities.

Table .9 Test of the first main hypothesis course coefficient

	Path Coefficients (β)	R ²	T Statistics (O/STDEV)	P Value	Confidence of Interval (%95)	Sig (P<0.05)
DT >> SP	0.262	0.826	3.696	0.000	0.120 -) (0.399	Supported

The results in table (9) indicate a statistical significant impact of digital transformation on SP where the (β) value for the main track coefficient is digital transformation < < strategic performance (0.262) at a morale level ($P = 0.000$) which is below the morale level assumed by the researcher $P < 0.05$). The results also showed that t's value was (3.696) and greater than the reference value (1.96). The confidence period does not include zero value (0.399 - 0.120). This confirms the consistency of estimates for track transactions. This indicates a weak positive effect of DT on SP. This means that DT only contributes by (26.6%) in strategic performance and this is useful to assume that other variables are identified and that an increase of one unit will result in an increase in strategic performance by (26.6%). In Jordan's private universities, the determination factor R² (0.826) for strategic performance is that variables in the model digital transformation, innovation and cybersecurity have been able to explain the proportion (82.6%) of the variability in strategic performance while (17.4%) of the variability may explain other variables that are not included in the model. This is a high interpretive capability and indicates

the model's quality in interpreting the phenomenon. Based on the foregoing, the zero (nihilistic) hypothesis does not accept the first head and accepts the alternative hypothesis:

There is a statistically significant impact on the level of DT ($\alpha \leq 0.05$) in terms of its dimensions (DTS, DTC, DTL, DTCA, DTI) in SP in terms of its dimensions (SPF, SPC, SPI, SPG, SPE) in Jordan's private university.

2nd Hypothesis Test: H02: There is no statistically significant impact at the $\alpha \leq 0.05$ level of digital transformation in terms of its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) in the presence of innovation in Jordanian private universities.

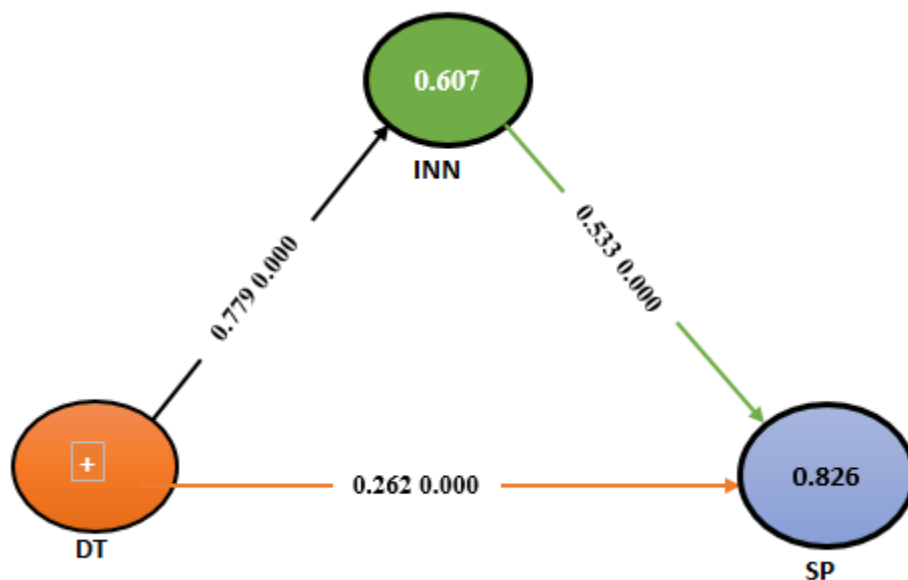


Figure .3 Structural Model Mediating Variable Effect

An analysis of the second hypothesis needs to analyze the intermediate variable according to Figure 3 and talk about how mediation occurs. When the intermediate intervenes between two variables associated with each other, it leads to a change in the independent variable, which represents DT of intermediate variable, which represents innovation and which makes a change in the dependent variables, which

represents strategic performance. And as to the justification for the cause-effect relationship between the two independent and dependent variables, it needs to apply the relationship strength analysis of the intermediate variable with the rest of the variables, as Baron and Kenny see it (1986) that mediation in the relationship between independent and dependent variables contributes to weak direct impact, and another view of Memon et al., (2018) states that testing the direct impact between independent and dependent variables is unnecessary in order to verify the mediator's role. Through mediation analysis, the researcher's goal is to verify the impact of the intermediate variable (innovation). In the interpretation of relationships among independent variable (DT) and the (SP), as well as to see what type of mediation is whether it is partial or complete mediation. Mediation is high if the value of the indirect effect is higher than (0.25), mediation is average when the value of the indirect effect is (0.09), and if the value of the indirect effect is equal to or below (0.01), it is considered to be small intermediation. In order to analyze the intermediate variable, the direct, indirect and total impact of the digital transformation on strategic performance must be tested through the Bootstrapping procedure in the statistical program Pls SEM (Hair et al., 2022, 242 - 243).

Table .10 Direct Effect

	Direct Effects	t Value	P Value	Confidence of Interval (%95)	Sig(P < 0.05)
DT >> SP	.262	3.696	0.000	(.120 - .399)	Supported
DT >> INN	.779	25.609	0.000	(.716 - .833)	Supported
INN >> SP	.533	6.063	0.000	(.351 - .696)	Supported

The results were shown through table (10), which shows the results of the direct impact analysis and states that all pathways in the structural model are positive and moral $P < 0.05$ and t value for all three pathways (Direct) is higher than the reference

value (1.96) and trust periods for all tracks do not contain zero. This indicates the stability of track transaction estimates. The results also indicate a positively & direct effect of DT in SP. ($\beta = 0.262$, $P < 0.05$, $t = 3.696$) and a positive and direct effect of DT in INN ($\beta = 0.779$, $P < 0.05$, $t = 25.609$) and a positive and direct moral impact of innovation in strategic performance ($\beta = 0.533$, $P < 0.05$, $t = 6.063$). This indicates that the more digital transformation leads to increased innovation and therefore higher strategic performance. This leads the researcher to the following standard regression equations: innovation = 0.779 digital transformation} strategic performance = 0.262 $\times$ digital transformation + 0.533}

This suggests that each one-unit increase in digital transformation increases by 0.779 in innovation, and assuming other variables are identified, each one-unit increase in innovation produces a 0.533 increase in strategic performance. Another formula for calculating indirect effect is that the indirect effect = track coefficient (digital transformation < < innovation) $\times$ track coefficient (innovation < < strategic performance) is equal to $(0.779) \times (0.533) = 0.415$, which is similar to the indirect impact mediation effect according to the results of the SEM SmartPls4 analysis shown in table (8) below.

Table .11 Specific Indirect Effects

	Indirect Effects	t Value	P Value	Confidence of Interval (%95)	Sig(P < 0.05)
D T >> IN N >> S P	0.415	6.327	0.000	(.278 - .536)	Supported

Through the result Showed by table (11) that there is a statistical significant effect to innovation in relationships among DT and SP where (β) value for DT pathway coefficient < < INN < < SP (0.415) is at a morale level ($P = 0.000$) which is below the morale level adopted by the researcher ($P < 0.05$), the result indicate too value of (t) it was (6.327) means is greater than reference rate (1.96), in addition to which the confidence period does not include the value of zero (0.278 - 0.536). This confirms

the stability of the track's transaction estimates. This indicates a partial mediation of innovation in relationships among DT and SP, given that value of indirect effect (0.415), which is greater than (0.25) (Kenny, 2023).

Table .12 Total Effects

	Total Effects	t Value	P Value	Confidence of Interval (%95)	Sig(P < 0.05)
D T >> IN N >> S P	0.678	12.236	0.000	(.566 - .781)	Supported

Through the results in table (12), the overall impact of digital transformation on strategic performance was (0.678) at a moral level ($P = 0.000$) which is below the morale level adopted by the researcher ($P < 0.05$). The result explores that the value (t) is (12.236) and is greater than the reference value (1.96), in addition to which the confidence period does not include the value of zero (0.566 - 0.781) which confirms the constant of transaction estimates and is much higher than the direct impact of digital transformation on strategic performance (0.262) according to table 33.5, thereby supporting the importance of the intermediate role of innovation in the relationship between digital transformation and strategic performance, and by table (37.5) Which shows the cases where mediation is achieved and its types where the type of mediation for innovation is ascertained by the direct effect multiplier in the indirect effect. Since they have a positive value, the multiplier will be valuable as equal to ($0.262 \times 0.415 = 0.109$). This supplementary partial intermediation is called when the direct effect and the indirect effect have a statistical significance of value.

The total impact of digital transformation can also be extracted in strategic performance and the intermediary role of innovation traditionally (manually) by collecting direct and indirect effect. Based on the foregoing, it has been concluded that innovation acts as a partial intermediary because high levels of digital transformation lead to an increase in strategic performance directly as well as an

increase in innovation, which in turn leads to an increase in strategic performance. It can be said that part of the impact of digital transformation on strategic performance is explained by the existence of innovation and based on the above we do not accept the fourth main zero (nihilistic) hypothesis and accept the alternative hypothesis:

There is a statistically significant impact at the indicative level ($\alpha \leq 0.05$) of digital transformation in terms of its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) in the presence of innovation in Jordanian private universities.

Hypothesis 3 Test: H03: There is no statistically significant impact at the level of " $\alpha \leq 0.05$ " for cybersecurity in improving the impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) at Jordan's private universities.

Table .13 Test of the third main hypothesis course coefficient

	Direct Effects	t Value	P Value	Confidence of Interval (%95)	Sig(P < 0.05)
D T >> S P	0.262	3.696	0.000	(.120 - .399)	Supported
S P >> C S	0.177	2.516	0.012	(.044 - .318)	Supported
C S >> D T >> S P	-0.006	0.198	0.843	(-.072 - .050)	Not Supported

The results were shown through table (13), which shows the results of the direct impact analysis and reports a negative, non-statistically D impact of the cybersecurity interactive output path < < DT < < SP considerable level ($P = 0.843$) which is well above the morale level adopted by the researcher ($P < 0.05$), that the t value of all three (direct) routes is higher than the reference value (1.96) and that trust periods of all pathways contain negative values. This indicates a lack of stability of track transaction estimates, and the results indicate positives & direct effect of DT in SP. ($\beta = 0.262$, $P < 0.05$, $t = 3.696$) and a positive and direct impact of cybersecurity on

strategic performance ($\beta = 0.177$, $P < 0.05$, $t = 25.609$) and no negative moral impact of the cybersecurity interactive output trajectory * Digital transformation in strategic performance ($\beta = -0.006$, $P < 0.05$, $t = 0.198$), and the interactive output path of security, cyber and digital transformation, which shows that no correlation among CS and DT, is represented at figure (4)

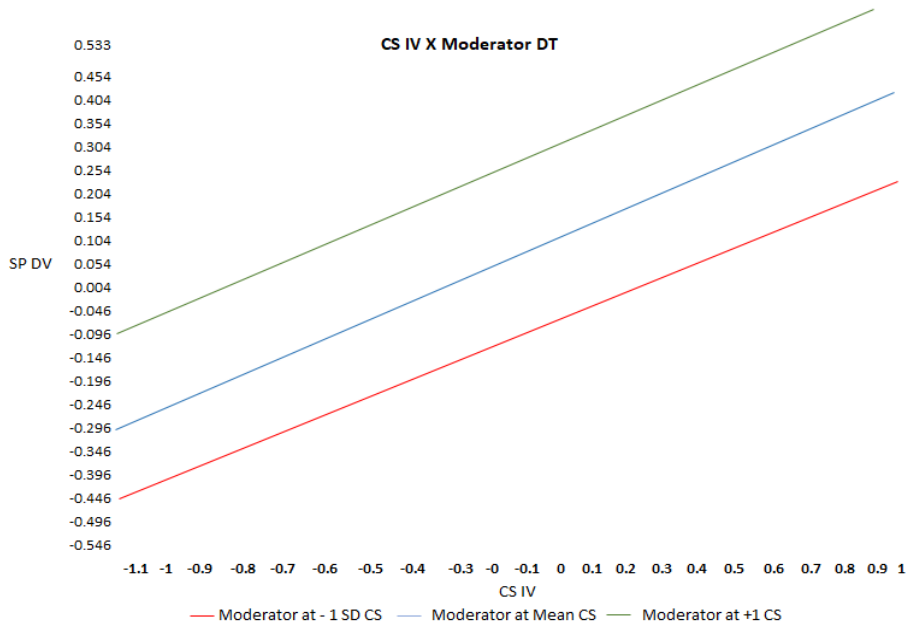


Figure. 4 Interaction Plot

This means that increasing cybersecurity by one alone will not lead to digital transformation and hence to strategic performance. This indicates that there is no impact of cybersecurity as a modified variable of the relationship between digital transformation and strategic performance. Based on the foregoing, the fifth chief's zero (nihilistic) hypothesis is accepted:

No statistically significant impact at the $\alpha \leq 0.05$ level of cybersecurity to improving the impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) at Jordan's private universities.

4. Discussion and Conclusion:

What has the impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) at Jordan's private universities?

Results indicated a statistically significant impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) at Jordan's private universities, we draw attention to this when we increase interest in digital transformation in its dimensions and consolidate strategic performance in Jordan's private universities. In the opinion of the researchers, that results are due to adoption by Jordanian universities of the dimensions of DT, which is great importance, and enhances strategic performance, especially with the recent increase in interest in e-education. This has contributed to an increased strategic direction based on the dissemination of a culture of digital transformation among the academic institutions in general. Overall, digital transformation affects strategic performance as it promotes the achievement of Jordanian private universities' strategic objectives.

This result is consistent with the Atiyah study (2022) that digital transformation has a positive role to play in improving strategic performance, and the results are consistent with Ibrahim's (2023) study that digital transformation is heavily linked to organizational excellence and that the impact of digital transformation contributes to organizational excellence, reflecting on strategic performance, the Hanandeh et al study revealed (2023) the presence of a digital leadership position and a leading driver, in addition to the rate of technological progress, had positives effect on quality decisions taken and efficiency of operations in the Greater Amman Secretariat. The Pres and Gabr study (2021) also confirmed that digital transformation techniques have developed and enhanced expertise in strategic performance areas.

What has the impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions (SPF, SPC, SPI, SPG, SPE) in view of the presence of innovation in Jordan's private universities?

Result showed that a meaningful effect for innovation as a mediating variable in the relationships among DT & SP in Jordan's private universities. It can be concluded that increased interest in digital transformation achieves high levels of strategic performance with innovation. In light of this, we can say that increased interest in digital transformation and strategic performance will achieve higher levels of innovation.

Researchers see the main reason for this result of the pivotal and vital position for INN in the relationships among DT & SP in particular, it has previously been noted that innovation is part of DT and therefore innovation outputs can positively influence SP as well as the ability of INN to balance relationships among DT & SP through use digital technologies to either develop innovative business mechanisms that seek to increase efficiency, reduce costs, streamline procedures or provide innovative services that contribute to increasing revenues, thereby achieving strategic objectives, reflecting advanced levels of strategic performance to suit the nature of Jordanian universities' own work.

Referring to other studies involving the same variables, the results of the Ramidi & Abu Zaid study (2021) indicated that it has high degree to provide of DT requirements at EgyptAir and that has increased interest in improving the level of organizational innovation. paper also confirmed that digital transformation affects morally and positively strategic vigilance and organizational innovation and increases its ability to achieve its strategic objectives.

What has been the impact of cybersecurity on modifying the impact of DT in terms of all its dimensions (DTS, DTC, DTL, DTCA, DTI) on SP in terms of all its dimensions

(SPF, SPC, SPI, SPG, SPE) in view of the presence of innovation in Jordan's private universities?

The results indicated that there is an adverse and statistically inadequate impact of cybersecurity in improving the effect of DT on the SP of Jordan's university. Accordingly, we suggest that there is no impact of cybersecurity as a moderate variable of relationships among DT & SP.

Researchers attribute this result to the novelty of the concept of cybersecurity somewhat to the study community, which began to surface less than 10 years ago, as well as to the lack of a deep understanding of cybersecurity risks in the age of digital transformation and its consideration as a supportive or complementary measure. (Formality) is not an essential element in the digital transformation process. It should be noted that there are no coordination and harmonization between State policies and university administrations regarding cybersecurity policies, especially with the delay in the passage of Jordan's general cybersecurity law. The National Cyber Security Center was established in 2019. (2021), these reasons led to the low awareness of relevant parties of the importance of applying cybersecurity mechanisms simultaneously with digital transformation, especially as universities undergo digital transformation, becoming more vulnerable to cyberattacks and violations, and thus cybersecurity helps prevent interruptions due to harmful activities or unauthorized access. Add that, in university environments, there is limited awareness of the cybersecurity mechanism and its effectiveness as a technology aimed at protecting cyberspace with all its information, devices and networks that would detect any external threats, and through the foregoing, we infer that cybersecurity is not treated as a tool of a sustainable strategic nature.

The result of paper are consistent with the findings of the study (2020) Burov et al. Innovation issues in the digital learning environment exacerbate the cybersecurity issues of participants in the educational process, the traditional cybersecurity method is unable to detect and address new sophisticated attacks, and the authors

have developed a general model of cyber threats in education and mitigation, showing the results a study (2023) Johri and Kumar that customers need more security by working to achieve the cybersecurity requirements of banking services in Saudi Arabia in era of DT.

The outcome of this study contradicted the study of et al (2022) Al Shobaki, which reported that there was a direct effect of DT on application of cybersecurity in the Palestinian Ministry of Interior and National Security. The results of the Tawfiq and Morsi study (2023) were also found to determine the appropriateness of achieving cybersecurity requirements in light of the digital transformation from the point of view of faculty Benha Egypt University.

Referencies:

- Al Shobaki, M., El Talla, S. & Al Najjar, M. (2022). Digital Transformation and Its Impact on the Application of Cyber Security in the Ministry of Interior and National Security in Palestine. *International Journal of Engineering and Information Systems*, 6 (11), 92-115.
- Abdel Razek, Ithmar (2015). *Integration strategy and re-engineering and its impact on strategic performance using a balanced scorecard*. Hamid Publishing House
- Al-Najjar, Fayez, Al-Najjar, Nabil, Al-Zu'bi, Majid (2020) *(Methods of scientific research Applied perspective* (5th ed). Al Hamid Publishing and Distribution House.
- Al-Rumaidi, Bassam Wabuzid, Mahmoud (2021). The impact of digital transformation on the achievement of strategic objectives at Egypt Air is the intermediary role of strategic vigilance and regulatory innovation. *Journal of the Faculty of Tourism and Hotels*, 5 (2), 148-170.
- Amir, Nuha (2023). Cybersecurity in national security strategy. *Asian Horizons*, 7 (11), 168 - 196 <http://doi:10.21608/SIS.2023.208459.1092>
- Al-Ghamdi, ouhoud (2021). Cyber security in achieving competitive advantage field study on the staff of King Abdul Aziz Airport. *Journal of Economic, Administrative and Legal Sciences, National Research Centre*, 5 (9), 144 - 164.
- Al-Wahidi, Rafeh (2025). The Role of Digital Transformation in Enhancing Competitive Advantage from the Perspective of Heads of Academic Administrative Departments at the University College of Applied Sciences. *Arab Journal of Humanities and Social Sciences*, 30, 1-32 [DOI: 10.59735/arabjhs.vi30.1256](https://doi.org/10.59735/arabjhs.vi30.1256)

- Al-Baalbaki, Munir (2004). *Supplier English-Arabic dictionary*. House of Science for millions.
- Al-Jafnawi, Khalid (2021). Digital transformation of national institutions and cybersecurity challenges from the point of view of Kuwait's academic police officers. *Arab Journal of Literature and Humanities*, 5 (19), 75- 124. <http://Doi: 10.33850/ajahs.2021.182274>
- Al-Najjar, Mohammed (2013). *Computerized culture for adults*. Egyptian Book House.
- Bharadwaj, Anandhi, El Sawy, Omar, Pavlou, Paul, & Venkatraman, NV (2013). Digital business strategy: toward a next generation of insights. *MIS quarterly*, 471-482.
- Burov, Butnik-Siversky, Orliuk, & Horska, K. (2020). Cybersecurity and innovative digital educational environment. *Information Technologies and Learning Tools*, 80(6), 414-430.
- Bryce, Ahmed, Jabr Warood (2021). Digital transformation technology and its impact on improving the bank's strategic performance. *Iraqi Journal of Administrative Sciences*, (65), 204-230.
- Elsbach, Kimberly, & Hargadon, Andrew (2006). Enhancing creativity through "mindless" work: A framework of workday design. *Organization Science*, 17(4), 470-483. <https://doi.org/10.1287/orsc.1060.0193>
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi:10.1177/002224378101800104>
- Ghazi, Muhammad, & Asim (2024). *Innovations and the Vision of Artificial Intelligence and Modern Digitization*. Dar Al-Wifaq for Publishing and Distribution.
- Goldenberg, Jacob, Mazursky, David, & Solomon, Sorin (1999). Templates of original innovation: Projecting original incremental innovations from intrinsic information. *Technological Forecasting and Social Change*, 61(1), 1-12
- Granig, P., & Hilgarter, K. (2022). Management Perception of Digital Innovation: How Innovation Managers Perceive Digital Innovation in their Organisational Setting in Austria. *Journal of Innovation Management*, 10(3), 75-90.
- Hanandeh, Ahmad, Altaher, Asmahan, Halim, Mona, Rezk Walaa, Mahfoudh, Naoufel, Hammouri, Qais, & Darawsheh, Saddam (2023). The effects of digital transformation, digital leadership, and entrepreneurial motivation on business decision making and business process performance: Evidence from greater Amman municipality. *International Journal of Data and Network Science*, 7(2), 575-582. <https://doi: 10.5267/j.ijdns.2023.3.014>
- Hair, J., Matthews, L., Matthews, R., & Sarstedt, M. (2017a). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123.

- Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3ded.). Sage publications.
- Ibrahim, G. (2023). The Impact of Digital Transformation in the Egyptian Private Universities on Achieving Organizational Excellence, Using the German University in Cairo as a Model. *International Journal of Business and Management*, 18, (5), 47 – 62
- Johri, Amar & Kumar, Shailendra (2023). Exploring customer awareness towards Their Cyber Security in the kingdom of saudi arabia: a study in the era of banking digital transformation. *Journal Human Behavior and Emerging Technologies*, 2023, 1-10. <https://doi.org/10.1155/2023/2103442>
- Kaplan, Robert, & Norton, Davied, (1992). The Balanced Scorecard – Measures That Drive Performance. *Harvard Business Review*, 70, (1).
- Khatib, Ohoud, & Alshawabkeh, Khaled (2022). Digital transformation and Its Impact on strategic supremacy mediating role of digital HRM: An evidence from palestine. *WSEAS Transactions on Business and Economics*, 19, 197-221.
- Kenny, D & Baron, R., (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173-1182.
- Liere, Netheler Vogelsang, Kristin & Packmohr, Sven (2018). Drivers of digital transformation in manufacturing. *Hawaii International Conference on System Sciences*, <http://hdl.handle.net/10125/50381>
- Lin, Chieh, & Yi-Hui, Ho (2008). An empirical study on logistics service providers' intention to adopt green innovations. *Journal of Technology Management & Innovation*, 3(1), 17-26.
- low No. 16 of 2019, Cybersecurity Act, Official Gazette. Jordan
- Limani, Y., Hajrizi, E., Stapleton, L., & Retkoceri, M. (2019). Digital transformation readiness in higher education institutions (HEI): *The case of Kosovo. Ifac-papersonline*, 52(25), 52-57.
- Majeed, Majeed (2017). The availability of organizational innovation requirements in IT organizations and their contribution to the promotion of sustainable development is a field study. *Journal of Administration and Economics*, 40 (113), 112 - 129.
- Okuneye, Babatunde & Adelowokan, Oluwaseyi (2014). Tertiary enrolment and economic growth in Nigeria. *Journal of Economics and Sustainable development*, 5(5), 1-15.

- Ogunode, Akintoye, Ajayi., & Ambibola, J. (2021). Cyber security and financial innovation of selected deposit money banks in Nigeria. *Universal Journal of Accounting and Finance*, 10(3), 643-652
- Obeid, Sarah. (2020). Human resources management in Syrian organizations and their role in modifying the relationship between innovation and performance: an applied study on individuals working in organizations in Turkey and inside Syria. *Rayhan Journal of Scientific Publishing*, (5) 114 - 142.
- Patel, Keyur, & McCarthy Mary (2000). Digital transformation: the essentials of e- business leadership. McGraw-Hill Professional 2000 Pavlekovskaya, I. (018). *Proceedings of the European Conference on Knowledge Management*, 2, 677- 684, ISSN 20488963
- Santos, Juliana Bonomi & Brito, Luiz Arthur Ledur, (2012), Toward a Subjective Measurement Model for Firm Performance. *Brazilian Administration Review (BAR)*, 9, (6). <https://doi.org/10.1590/S1807-76922012000500007>
- Saunders, Mark, Lewis, Philip, & Thornhill, Adrain (2023). *Research methods for business students* (9th ed.) England, Harlow: Pearson Education Limited.
- . Sarstedt, M., Ringle, C. M., Cheah, J. H., Ting, H., Moisesescu, O. I., & Radomir, L. (2020). Structural model robustness checks in PLS-SEM. *Tourism Economics*, 26(4), 531-554.
- Singh, A. & Nagesh. (2017). How chief digital officers promote the digital transformation of their companies. *MIS Quarterly Executive*, 16 (1), 1-17.
- Shehadeh, Maha, Almajali, Dmaithan, Abu-ALSondos, Ibrahim, Alkhwalidi, Abeer, & Al-Gasaymeh, Anwar (2023). Digital transformation and its impact on operational efficiency and competitive advantage in islamic banks. *International Conference on Business Analytics for Technology and Security*, 1-6. <https://doi: 10.1109/ICBATSS57792.2023.10111266>
- Stolterman, Erik, & Fors, Anna (2004). Information technology and the good life. *Information systems research: relevant theory and informed practice*, 687- 692. https://doi.org/10.1007/1-4020-8095-6_45
- Sultan, Hikmat, Long, Akram (2002). Impact of qualitative cost on enhancing strategic performance. *Rafidain Development Journal*, 24 (67).
- Tahir, Abdul Karim, Jamal, Dina (2020). The role of organizational change in improving strategic performance is analytical research at Baghdad Tourism Authority. *Comprehensive Electronic Journal of Scientific Research Publishing*, (5), 01 - 48.

Tanushev, Christian (2022). Digital Transformation: The Impact on Corporate Strategy. *Economic Alternatives*, 3, 383-404.

<https://doi.org/10.37075/EA.2022.3.01>

Wang, Junli, Ge, Chengwei, & Lv, Wendong (2023). The Impact of Digital Technology Innovation Network Embedding on Firms' Innovation Performance: The Role of Knowledge Acquisition and Digital Transformation. *Sustainability*, 15(8), 38 - 69. <https://doi.org/10.3390/su15086938>

.

أثر التحول الرقمي والأمن السيبراني والابتكار على الأداء الاستراتيجي: تحليل الوساطة المعدلة

د. علاء عباس الطهراوي*

أ.د. خالد محمود الشوابكة**

هدفت هذه الورقة إلى دراسة الأثر الوسيط للابتكار بين التحول الرقمي والأداء الاستراتيجي والدور المعدل للأمن السيبراني في الجامعات الأردنية. وشملت الدراسة المديرين في مستوى الإدارة العليا والمتوسطة. وتكونت عينة الدراسة من 250 مديراً في ثماني عشرة جامعة أردنية خاصة، وذلك من خلال استبيان إلكتروني. تم اختيار عينة عشوائية تناسبية، واعتمدت الدراسة على المنهج الكمي للمنهج الوصفي التحليلي باستخدام تقنية نمذجة المعادلات الهيكلية لتحليل البيانات واختبار الفرضيات باستخدام البرنامج الإحصائي PLS-SEM

وكشفت نتائج الدراسة عن وجود تأثير ذو دلالة إحصائية للتحول الرقمي على الأداء الاستراتيجي. كما كشفت عن التأثير الكبير للابتكار كمتغير وسيط في العلاقة بين التحول الرقمي والأداء الاستراتيجي في الجامعات الأردنية الخاصة. وأخيراً، كشفت النتائج عن عدم وجود دور للأمن السيبراني في تعديل العلاقة بين التحول الرقمي والأداء الاستراتيجي في الجامعات الأردنية الخاصة. وبحسب النتائج، يجب على الجامعات الأردنية الاستمرار في الاهتمام بالتحول الرقمي لأنه معني بعدد من الآثار المترتبة على الأداء الاستراتيجي. ويجب عليها الحفاظ على اتجاه يعزز التحول الرقمي ضمن رؤى مستقبلية واضحة، ومواصلة الاهتمام بالتقنيات الرقمية إلى جانب امتلاك المعدات المناسبة لتعليم تلك التقنيات، فضلاً عن الحاجة إلى الاستمرار في الاهتمام بالبرامج الأكاديمية للحفاظ على مستويات عالية من جودة التعليم.

الكلمات المفتاحية: التحول الرقمي، الاستراتيجية الرقمية، القدرات الرقمية، الأداء الاستراتيجي، بطاقة الأداء المتوازن، الابتكار، الأمن السيبراني، الجامعات الأردنية الخاصة