



Investigating the Impact of Digital Leadership Dimensions on Service Economics Dimensions: An Empirical Study of Service Ministries in the Kingdom of Saudi Arabia

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ABSTRACT

This study examines the influence of various aspects of digital leadership (such as digital culture, visionary planning, system design, empowering leadership, employee development, innovation, persuasion, and knowledge) on different dimensions of service economics (including innovative economic ideas, efficient use of economic resources, leadership behaviors, and economic learning) within service ministries in the Kingdom of Saudi Arabia. We used a quantitative technique to collect data from a sample of 475 workers involved in service ministries via the use of a survey questionnaire. We conducted a thorough study of the data using the method of multiple regression analysis. The findings indicate that the different components of digital leadership have a significant and advantageous impact on the variables associated with service economics. The research determined that digital culture, innovation, and employee professional development are the main characteristics that have a major impact on digital leadership. This study contributes to the current literature by providing empirical evidence on the relationship between digital leadership and service economics. Additionally, it offers practical suggestions for service ministries in Saudi Arabia to enhance their service economics via the implementation of effective digital leadership methods. Nevertheless, the study is subject to many limitations, including its cross-sectional design and its narrow emphasis on a particular environment. It is recommended that future research endeavors address these constraints.

Keywords: Service Economics, Digital Culture, Digital Leadership, Employee Professional Development, Economic Innovative Ideas, Leadership Behaviors

JEL Classifications: B21, B22, D15, F44, M21

1. INTRODUCTION

The area of digital transformation has caused a notable change in organizational leadership practices (Schwarz Müller et al., 2018). Digital leadership is considered an innovative approach to improve and modernize educational leadership by addressing historical challenges and boosting institutional performance via the use of new, fast, and effective digital methods. Saudi Arabia is striving to implement the digital leadership method, a current leadership philosophy that is gaining popularity in service ministries. The leader must acquire technical skills to effectively carry out administrative and fundamental tasks, in addition to their ministerial responsibilities.

The service economy operates on the principle that people may get public services by providing financial compensation, which in turn helps to stimulate the local economy. The “service economy” refers to the sector of the global economy that facilitates the conversion of goods into services in developing nations. Meets the requirements of the inhabitants. In a study conducted by Abu Fass (2018), it was discovered that assessing health service performance indicators based on the perspectives of stakeholders might assist Algerian healthcare facilities in achieving high-quality standards. Isaac et al. (2019) establishes a connection between worldwide innovation and regional digitalization. Nesterova et al. (2018) and Sepashvili (2020) assert that digital technology is a

catalyst for innovation, worldwide economic expansion, and the enhancement of a nation's competitive edge. Innovation was the main driver of economic development and led to a reliance on the competitive economy. Several economic disciplines analyze the concept of regional competitiveness. Competitiveness refers to the ability to successfully accomplish a job, such as meeting objectives, fulfilling tasks, or carrying out commitments, while delivering high quality and value in a market that is characterized by competition. Competitiveness refers to the ability to sustain high levels of income and employment in the face of global competition (Dmitrieva and Guseva, 2019). Services play a crucial role in the economic development of developing nations since they stimulate growth and progress. Services include a range of areas such as money, health, travel, communications, transportation, and education. The service industry in developing nations has substantial problems due to economic and social considerations. Moreover, these nations have challenges in generating funds to allocate towards this industry due to their insufficient infrastructure and limited technical expertise. The service economy and digital leadership are presently among the most significant challenges faced by most governments. The Kingdom considers financial services to be one of the most important economic sectors.

Managing digital leadership in service economies, particularly in the Kingdom of Saudi Arabia, can be highly intricate and demanding. It involves handling significant workloads, navigating the challenges of digital transformation, and addressing service economic issues. This study aims to provide insights into how digital leadership can support workers in service ministries. Therefore, the services provided in Saudi Arabia are highly developed in terms of their economic aspects.

The worldwide expansion of public services has been substantial, even though there has been a strong emphasis on commodity production. This is because public services have a large influence on a country's economic conditions. Therefore, it is evident that several state organizations consider performance and service quality to be urgent issues. Simply providing individuals with high-quality services is no longer enough. Instead, it is crucial to make substantial efforts to improve service delivery to the necessary level of excellence as demanded by inhabitants (Idris et al., 2006). The proliferation of services supplied results in a fast escalation in the intricacy of service delivery and administrative processes. Moreover, the enhancement of service quality is strongly linked to technical progress and endeavors to enhance service performance. Hence, to establish the digital revolution as a foundation for delivering services, the deployment of digital transformation technologies necessitates the presence of digital leadership with the aim of fostering a digital culture.

This study aims to address a gap in the existing literature by examining the influence of digital leadership on service economics in Saudi Arabian service ministries. This research is particularly significant considering the importance of digital leadership in achieving the goals outlined in the Kingdom's Vision 2030. More precisely, the objective is to analyze the impact of digital leadership on the economic aspects of services provided to workers inside these ministries. The objective of this research is to examine the

influence of digital leadership on the financial aspects of service supply in the Ministry of Services in Saudi Arabia.

The remaining part of the present investigation is structured as follows: Section 2 provides an overview of the theoretical foundation and the assumptions. The document is structured into many sections. Section 3 focuses on the methodology used in the study. Section 4 presents the results of the hypothesis testing. Section 5 is dedicated to the discussion of these results. The sixth section highlights the contributions made by the study. The seventh section provides recommendations based on the findings. Finally, the document concludes with a discussion of the limitations and recommended future research. Topics of interest include digital leadership, service economies, digital culture, employee professional development, economic creative ideas, and leadership behaviors.

2. LITERATURE REVIEW

Digital administration combines skilled digital technology usage with leadership abilities to enhance decision-making (Goethals et al., 2002). Digital leadership involves culture and digital abilities to improve the company. Rukmana and Mihardjo (2018). Digital leadership requires creativity, expertise, a strong network and collaboration, and visionary engagement (Toduk and Gande, 2016). Mehta and Zhu (2015) included innovation, contemplation, global vision and collaboration, curiosity, and a firm foundation as digital leadership traits. Research by Abollado and Shehab (2018), Barchiesi and Fronzetti Colladon (2019), Berné-Martínez et al. (2021), and Palmié et al. (2020) indicates that many worldwide competitors have transformed into digital firms. New digital technologies and challenges are transforming traditional processes and business models (Holzmann et al., 2020; Wesseling et al., 2020; Alajaji, 2023; Zygiaris and Maamari, 2023).

As digital technology evolves, businesses change their tactics. Businesses must alter and adapt to succeed. To adapt, digital leaders must have sophisticated strategic thinking abilities and be able to harness the newest digital technology to develop customer-beneficial business chances. Digital leadership is essential for adjusting and changing organizational goals in the digital era. A good digital leader helps execute a digital company plan for success. Recently, organizations have improved their organizational structures by adopting creative management and leadership philosophies customized to responsibilities. Temporary organizations are developing new digital business strategies, but they typically underestimate the importance of digital leadership (Abbu and Gopalakrishna, 2021; de Villiers et al., 2020). These companies' failures stem from a lack of digital leaders. Digital leaders need tools and resources to manage digital change. Technological superiority and operational management are lacking. The project's main objective is to study digital leadership in organizations via literature. This paper finds a positive association between digital leadership, organizational performance, and productivity today. As numerous industries globalize, global industrial strategies are changing how digital leaders approach the transformation process. This knowledge comes from their qualities, skills, and experience.

Digital leadership uses digital assets to fulfill organizational and individual business objectives (Thomson et al., 2016). Digital technology has transformed competitive and organizational settings and responsibilities in many firms. Organizational roles, culture, and technology must change. Transformation initiatives promote changes to suit short-term needs while laying the groundwork for an uncertain future. Digital leaders must have certain talents to overcome these obstacles and assist organizations transition (Frank et al., 2019; Somerville, 2013). Leaders have a big influence because they require new skills to guide the company into an unpredictable and dynamic future. Digital leaders have a big difficulty in persuading people to work with new technologies that may or may not be employed owing to digital future uncertainty. Many leaders lack the abilities to be successful digital leaders, but they are developing them (Katsos and Fort, 2016). The following skills are needed for digital leadership (Luck et al., 2012). (1) Clear, meaningful direction. (2) Create immersive experiences; and (3) Encourage creative and inventive thinking. (4) Fostering teamwork and information exchange across businesses. (5) Communicate effectively across teams and organizations; (6) Create and execute a corporate strategy; and (7) Collaborate.

“Digital leadership” refers to communications, journalism, and multimedia leadership in the information age. Both leadership styles use fundamental ICT sectors to link consumers and suppliers, making them comparable. All leaders must be aware of ICT’s new limits and possibilities and exploit them effectively (Goethals et al., 2002:2). According to Van Ee et al. (2020), digital leadership involves guiding human assistants and utilizing ICT to achieve an ICT-based objective. Zeike et al. (2019) described it as leaders’ capacity to set a clear and meaningful digitalization vision and execute strategies to accomplish it. Thus, digital leadership is the leader’s capacity to influence, lead, plan, organize, coordinate, and supervise. Tech-based communication and decision-making.

Leaders in digital institutions need skills. Bersin (2019) says digital leaders design the company, culture, and standards. They hire creative individuals, and one of the keys to digital leadership is the capacity to restructure the company by shifting the operational structure to a “network of teams” and concentrating on culture. When you foster openness and value-based group engagement, individuals will share information, which is key to success.

Kumar and Chadha (2017) identified digital leadership skills: technical talents that discover innovative transformation foundations. Mental design talents for new digital encounters and communications. Adaptive critical thinking and curricular agility. Openness and adaptability. There are essential pillars of digital transformation, as well as qualities and talents for digital leaders. Kumar and Chadha (2017) recommended Vision as the greatest pillar for digital transformation leadership: “launching a strategic vision for the organization and linking it precisely and clearly.” Mission success requires what? Value focus: providing good value, satisfying customers, and increasing ROI. Using data and facts rather than intuition and embracing difficult organizational tasks to make creative decisions.

The rules of traditional leadership are changing. The post-2013 era is now called “digital”. Thus, the next leadership search will

highlight innovation, digital abilities, vast networks, collaborative ability, participatory engagement, and visionary thinking (Toduk, 2014). Digital leadership is essential for success today. We designed the standards to adapt to the quickly changing digital ecosystem, which provides many potential but also risks obsolescence. This new reality impacts jobs, policy, processes, and goods. Given the exponential rise of communications, digital executives must make well-informed choices to promote company success. Internet, e-learning, AI, mobile phone technology, smart systems, and creative applications force modern leaders to design new work methods that reflect the changing environment within and outside enterprises. Digital transformation has changed the expectations of customers, and this shift is growing. Leaders must respond swiftly to change utilizing digital-savvy methods (Philbin et al., 2022). Digital leadership requires efficient communication and technology use to drive innovation. This fits the digital age’s emphasis on creativity and innovation. Digital leadership may improve customer interactions via analysis (Wasono et al., 2018). Digital leadership requires people to accept change and be creative to keep up with the changing labor market, which requires sophisticated skills to compete and adapt. It emphasizes digital leadership and its tremendous impact on information and communications technology, especially the Internet, as a strategic basis for meeting modern issues. It aims to equip business systems with the skills to meet current and future social demands and to train managers who can influence in this period. Hansen et al. (2011) claim that excellent leadership is essential to integrating business leaders and information systems into digital transformation. Successful digital transformation requires executives to use digital strategies to generate new value propositions. Managers, especially digital transformation managers, lead the company by integrating SMACIT technologies (Social, Mobile, Analytics, Cloud, and Internet of Things) with current capabilities. Departmental meetings with management to discuss strategic IT concerns work well. Engagement frequently leads to more autonomy and increased business knowledge (Hansen et al., 2011).

Both industry and service are vital to economies, and some say that the fall in manufacturing and the transition to services is unsustainable since services rely on production. Service sectors will fail without manufacturing. OECD (2000) makes a solid argument that services drive economies. Kon (1997) also investigated the importance of services in contemporary and emerging nations and how service output expansion affects economic growth. Their analysis stressed the importance of these actions in economic transformation. This research also examined the variations in service restructuring between the public and private sectors and its effects on service internationalization, concluding that economic restructuring driven by products and services changes has substantial regional effects. Le Anh et al. (2021) developed a methodology to examine auditing service sector management and technology innovation. Results demonstrated considerable effects, with internal source engagement crucial. Performance is also affected by organizational size and age, with younger organizations having a greater effect.

Services are crucial to economic transition, especially in emerging nations. Services trade creates employment, value, and market

diversification. Maximizing service benefits requires good policies, processes, and institutions. Multi-stakeholder and public-private partnerships are needed to govern the services industry. International efforts are needed to establish global trade services and support sustainable development, and developing and managing the liberalization process in line with national laws is essential to enable business services. Highly trained, specialized labor has contributed to the service sector's disproportionate expansion, according to Buera and Kaboski (2012). It noted that empirical data shows that skill-intensive services became more important as relative earnings and availability of highly trained personnel increased. His argument states output becomes more in demand than supply. More skilled and intense as productivity rises. The idea predicts that services associated to this skill premium, skill level, and skill premium would cost more. According to Ali et al. (2020), Blockchain technology is a decentralized, encrypted security system that is digitizing industries and business procedures. This framework describes blockchain's roles, challenges, and financial benefits. It also discusses practical and research consequences. While testing service sector techniques in Spain, González-Blanco et al. (2018) utilized 2008–2012 Spanish Technological Innovation Panel data. The results imply that organizations may boost productivity by combining technology and non-technological innovation.

Due to the rapid progress of digital technology, logistics service companies must undertake a digital transformation to remain competitive. According to Cichosz et al. (2020), five impediments and eight success criteria for service providers' digital transformation have been identified, along with organizational components and leading practices. Along with innovative digital transformation strategies. Patwa et al. (2021) developed an experimentally verified model using 183 customer answers to show how consumer behavior affects recycled product acceptance and product usage as services. The research studied resource availability, government policy, and consumer behavior in developing economies adopting circular economy ideas. Researchers' findings might help businesses, consumers, and policymakers. Kandampully et al. (2022) investigated service quality and customer experience literature, highlighting technology's importance. They examined the service and experience landscapes, emphasizing their interconnectedness and the necessity for industry-wide service sector emphasis. Their study demonstrated that service businesses might integrate technical customization, aesthetics, functionality, interactivity, and social presence to develop intelligent customer experiences that boost value generation and experience. Technology can integrate marketing, management, and operations to generate consumer memories and emotional bonds. Corvello et al. (2022) examined what promotes antifragility in service-oriented SMEs, focusing on five cases where they changed their business strategies and gained a competitive advantage during the COVID-19 pandemic. Operational agility, situational understanding, and entrepreneurial focus were key results. The report gave SMEs tips on how to manage future crises and transform them into opportunities.

3. DATA AND METHODOLOGY

Current research addressed study variables using survey and descriptive analytical methods. Creating a questionnaire to

examine the study's variables and hypotheses was one data collection method.

The study model assumes that there is a positive, statistically significant relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion, and knowledge) and service economics (economic innovative ideas, activating economic time, Leadership behaviors and economic learning).

Regarding the literature and research model, the following hypothesis is proposed:

“There is a statistically significant positive relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion and knowledge) and service economics (economic innovative ideas, activating economic time, Leadership behaviors and economic learning)”

There are sub-hypotheses emerge from this hypothesis depending on the dependent variable:

- H1/There is a statistically significant positive relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion, and knowledge) and economic innovative ideas.
- H2/There is a statistically significant positive relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion, and knowledge) and activating economic time.
- H3/There is a statistically significant positive relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion, and knowledge) and Leadership behaviors.
- H4/There is a statistically significant positive relationship between digital leadership (digital culture, providing a visionary blueprint, system design, an empowering leader, employee professional development, innovation, persuasion, and knowledge) and economic learning.

The study population reached 617,822 individuals working in service ministries in the Kingdom of Saudi Arabia in 2023. The sample was selected using simple random sampling, and the sampling unit was individuals working in service ministries in the Kingdom of Saudi Arabia in the year 2023 AD. Before collecting data, approval from Jouf University was obtained to obtain a special permit. As a result, 95% of participants responded to the electronic questionnaire for employees in the service ministries in the Kingdom of Saudi Arabia 2023. The sample size was (384) individuals according to statistical tables to calculate the sample size of the research community of (617,822) individuals (Sekaran and Bougie, 2016). After distributing the questionnaire, the number of respondents reached (475). In this step, the phone number and email address of employees in service ministries in the Kingdom

of Saudi Arabia in 2023 AD were obtained. Employees have been given guarantees regarding the confidentiality of information. The emails sent included instructions on how to respond to the survey, the author’s contact information was explained in case they had any questions, and they were reminded to complete the survey.

To verify the validity of the questionnaires, we sought the advice of four experts, and as a result, we modified several terminologies to more accurately reflect Saudi society’s cultural standards. Particularly in the variable of digital leadership, which was considered in the final compilation of the questionnaire. After that, a few ministry employees tested the survey list to make sure the wording was correct and to find out how they felt about its dimensions, content, and size. As well as how the questions are arranged. The completed list test was subjected to validity and reliability testing; reliability coefficients were calculated using Cronbach’s alpha test. The participant characteristics are displayed in Table 1.

A questionnaire was created by evaluating relevant literature to meet this study’s goals and evaluate its hypotheses. Two sections comprised the questionnaire: Digital leadership is measured first. The scale of Oktaysoy et al. (2022) was updated to include 44 assertions in eight dimensions: First dimension (7 items) assesses digital culture (leader leads staff to utilize digital technology optimally). Visionary planning (5 elements) is the second dimension (digital technologies enhance administrative processes). The third dimension (5 items) assesses system design (the leader works with decision makers to establish a fast workplace Internet network). The fourth dimension (5 items) examines an inspiring leader who utilizes social media to teach staff digital skills. Fifth dimension (6 elements) monitors workers’ professional progress (shares digital technological developments). The sixth dimension (5 items) assesses innovation, which speeds up and improves service delivery. Persuasion is measured by the seventh dimension (7 items): (Information digitalization clarifies the notion and makes it a priority in organizational communications). Eighth dimension (4 items) assesses knowledge (including information accessibility).

Section 1 measures service economics aspects. The 34 components are spread across four dimensions and are taken from (MIT Sloan Management and Capgemini Consulting 2015). First dimension (10 items) measures innovative economic ideas (the organization

constantly introduces radical changes to its services), second dimension (9 items) measures activating economic time (I identify time-wasting activities), and third dimension (5 items) measures leadership behaviors characterized by. Participatory decision-making process in the organization). Economic learning (10 items) is the fourth dimension (the company uses scientific research to address challenges). All surveys employed a 5-point Likert scale with 1 = “strongly disagree” and 5 = “strongly agree.” Second section: demographics (gender, age, credentials, and service ministry tenure). The reliability coefficient was derived using the Cronbach alpha test to assess internal consistency for all questionnaire questions and each research variable to compute the study tool’s validity and reliability. The research variables’ reliability and validity scores were all over 60% in Table 2 (Sekaran and Bougie, 2016).

Table 3 shows the characterization of the variables included in the study, represented by the arithmetic means measured on a five-point scale, and their standard deviations, as follows.

The arithmetic means for the study variables recorded a rating higher than the average, the highest for awareness was providing a visionary plan (3.94), and the lowest was economic learning (3.00), so the arithmetic mean for these variables was. Higher than the hypothesized mean of a five-graded Likert scale (3).

We implemented several safety measures, like lowering item ambiguity and safeguarding respondent anonymity, to lessen the impact of common method bias (Podsakoff et al., 2012). To counterbalance the question order and lessen priming effects brought on by the question context or item embeddedness, the items within each scale were also arranged at random for every respondent. To reduce socially acceptable responses and promote respondent candour, we provided comprehensive information regarding the security measures implemented to protect our respondents’ privacy. To allay concerns about the evaluation, we concluded by reminding our respondents that there were no right or wrong answers to the survey’s items. As a result, common method bias didn’t seem to be an issue. The linear correlation coefficients between the dependent variable and the independent variables under investigation are displayed in Table 4.

Table 1: Characteristics of the participants (n=475)

Variables	Category	Frequency	Percentage
Gender	Male	261	54.9
	Female	214	45.1
Age	Below 30 years old	103	21.7
	30–40 years old	175	36.8
	40–50 years old	145	30.5
	Above 50 years old	52	10.9
Education level	Less than bachelor’s	141	29.7
	Bachelor’s	295	62.1
	Masters and above	43	9.1
Experience (years)	<5	99	20.8
	5–10	63	13.3
	11–15	145	30.5
	16–20	91	19.2
	More than 20	77	16.2

Table 2: Reliability test results and validity coefficients results

Variables	Reliability test results	Validity coefficients
Digital leadership		
Digital culture	0.841	0.915
Providing a visionary blueprint	0.872	0.932
System design	0.911	0.956
An empowering leader	0.896	0.945
Employee professional development	0.895	0.944
Innovation	0.9	0.947
Persuasion	0.898	0.946
Knowledge	0.972	0.984
Service economics		
Economic innovative ideas	0.795	0.889
Activating economic time	0.811	0.899
Leadership behaviors	0.791	0.887
Economic learning	0.821	0.904

It is clear from Table 4 that: There was a positive, significant, and strong correlation between most of the study variables, and all correlation coefficients were high, medium, or low in general, as shown in the table.

4. RESULTS

The study we used the multiple linear regression analysis method to test the relationship between digital leadership (digital culture, providing a visionary blueprint, system design, empowering leader, employee professional development, innovation, persuasion, knowledge) and service economics (economic innovative ideas, economic time activation, leadership behaviors, economic learning). The stepwise regression analysis method was used to compare the relative importance of digital leadership in determining the relative importance of services economics, and to determine the best set of explanatory variables. The following are the stages of introducing the dimensions of digital leadership according to their relative importance in explaining the variation in services economics.

The Table 5 displays a multiple regression analysis, examining how different independent factors predict dependent outcomes in four categories: Economic innovative ideas, economic time activation, leadership behaviors, and economic learning. According to the study, innovation is the most reliable indicator of inventive

economic ideas. Knowledge, professional growth, and persuasion enhance the model, gradually improving its predictive power

Digital culture is a robust indicator of economic time activation, accounting for 74.3% of the variability. Providing a visionary blueprint increases the explanatory capacity by 1.6%, while employee professional development also increases the explanatory power by 1.6%. Leadership behaviors are closely linked to digital culture, and the provision of visionary blueprints and professional growth contribute significantly to this. Advocacy contributes the least amount of value.

Visionary blueprints significantly enhance the explanatory power of employee professional growth, making it the most powerful predictor of economic learning. Innovation and knowledge are essential for stimulating economic results, particularly in the realm of learning and the generation of novel ideas.

The table concludes by emphasizing crucial elements (digital culture, employee development, and visionary blueprinting) that significantly impact many aspects of economic and organizational success. In many areas, digital culture regularly shows a high level of predictive power, while staff development emerges as a noteworthy determinant in three out of four. Innovation and knowledge are essential for stimulating economic results, particularly in the realm of learning and the generation of novel ideas.

Table 3: Reliability test results and validity coefficients results

Variables	Mean	SD
Digital leadership		
Digital culture	3.54	0.731
Providing a visionary blueprint	3.94	0.837
System design	3.62	0.901
An empowering leader	3.66	0.857
Employee professional development	3.40	0.868
Innovation	3.67	0.797
Persuasion	3.75	0.806
Knowledge	3.65	0.887
Service economics		
Economic innovative ideas	3.75	0.665
Activating economic time	3.89	0.627
Leadership behaviors	3.19	0.639
Economic learning	3.00	0.655

SD: Standard deviation

It is evident from Table 6 that.

The parameter signals confirm the existence of a direct, positive, and statistically significant relationship between the dimensions of digital leadership and the economics of services. The results of (T. value) indicate the importance of the model parameters, and the model significance factor (Sig. F) indicates the importance of these results at a significance level of (0.001).

5. DISCUSSION

This research investigated digital leadership and service economics using a model. This study’s four hypotheses were developed using the conceptual framework, and testing provided the following results:

Table 4: Bivariate linear correlation between the study’s variables

Variables	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Z1	Z2	Z3	Z4
Y1	1											
Y2	0.707**	1										
Y3	0.633**	0.739**	1									
Y4	0.542**	0.638**	0.671**	1								
Y5	0.442**	0.525**	0.533**	0.404**	1							
Y6	0.293**	0.385**	0.502**	0.483**	0.530**	1						
Y7	0.425**	0.411**	0.554**	0.531**	0.612**	0.800**	1					
Y8	0.445**	0.386**	0.541**	0.486**	0.719**	0.719**	0.825**	1				
Z1	0.426**	0.406**	0.564**	0.460**	0.641**	0.627**	0.770**	0.865**	1			
Z2	0.363**	0.380**	0.532**	0.507**	0.628**	0.749**	0.801**	0.772**	0.799**	1		
Z3	0.369**	0.410**	0.517**	0.499**	0.544**	0.745**	0.722**	0.752**	0.744**	0.852**	1	
Z4	0.370**	0.393**	0.533**	0.480**	0.601**	0.658**	0.776**	0.755**	0.771**	0.791**	0.796**	1

Table 5: Results related to the multiple regression analysis

Variables	R ²	ΔR ²	Adjust R ²	F	Significant
Economic innovative ideas					
Innovation	0.631	-	0.625	560.508	0.000***
Knowledge	0.654	0.018	0.651	366.909	0.000***
Employee professional development	0.674	0.015	0.676	197.623	0.000***
Persuasion	0.692	0.013	0.687	160.121	0.000***
Economic time activation					
Digital culture	0.743	-	0.734	730.609	0.000***
Providing a visionary blueprint	0.764	0.016	0.756	566.912	0.000***
Employee professional development	0.783	0.014	0.774	498.621	0.000***
Knowledge	0.79	0.002	0.786	370.322	0.000***
Empowering leader	0.795	0.00	0.792	263.423	0.000***
Leadership behaviors					
Digital culture	0.624	-	0.621	541.852	0.000***
Providing a visionary blueprint	0.681	0.058	0.669	339.307	0.000***
Employee professional development	0.72	0.034	0.713	256.651	0.000***
Persuasion	0.729	0.004	0.723	196.929	0.000***
Economic learning					
Employee professional development	0.467	-	0.461	482.475	0.000***
Providing a visionary blueprint	0.546	0.074	0.538	269.085	0.000***
Innovation	0.572	0.021	0.566	187.045	0.000***
Knowledge	0.582	0.005	0.578	146.135	0.000***
System design	0.585	0.002	0.582	120.085	0.000***

***P<0.001, n=475

Table 6: Regression analysis related to the study's variables

Variables	Beta	T	Significant	Constant coefficient	F	Significant
Economic innovative ideas						
Innovation	0.773	24.599	0.000***	0.604	160.126	0.000***
Knowledge	0.390	7.272	0.000***			
Employee professional development	0.245	4.385	0.000***			
Persuasion	0.149	2.539	0.012**			
Economic time activation						
Digital culture	0.969	34.015	0.000***	0.834	263.428	0.000***
Providing a visionary blueprint	0.725	24.238	0.000***			
Employee professional development	0.586	18.513	0.000***			
Knowledge	0.475	12.321	0.000***			
Empowering leader	0.242	6.254	0.000***			
Leadership behaviors						
Digital culture	0.795	24.262	0.000***	1.341	196.934	0.000***
Providing a visionary blueprint	0.339	12.727	0.000***			
Employee professional development	0.367	5.543	0.000***			
Persuasion	0.155	2.443	0.016**			
Economic learning						
Employee professional development	0.685	22.676	0.000***	0.838	120.09	0.000***
Providing a visionary blueprint	0.243	6.969	0.000***			
Innovation	0.172	3.754	0.000***			
Knowledge	0.125	3.654	0.000***			
System design	0.084	2.686	0.000***			

***P<0.001, **P<0.01, *P<0.05, n=475

- H1 found that digital leadership positively affects creative economic concepts in Saudi Arabian service ministries. This suggests that workers' views on digital leadership characteristics such as creativity, knowledge, employee professional development, and persuasion strongly influence their impressions of new economic concepts (Alajaji, 2023; Fang et al., 2019). Economic innovation is boosted by digital leadership (Guo et al., 2022). Given the theoretical basis and findings of earlier empirical research on digital leadership and new economic concepts, we predict similar results. Digital leadership fosters an environment that favors creative economic ideas, according to the research. Digital leaders in Saudi Arabia may inspire economic innovation by providing a favorable work environment for service ministries.
- H2 of this study was also accepted, indicating that digital leadership, represented by digital culture, a visionary plan, professional development for employees, and persuasion, activates economic time in Saudi Arabian service ministries. Digital leadership improves economic time activation, as indicated by earlier studies. This shows that digital culture supports equitable economic time activation and that digitally savvy leaders impact their subordinates' views of it. Several empirical investigations show a favorable, statistically significant association between digital

leadership and economic time activation (Araujo et al., 2021).

- We accepted the study's hypothesis (H3) that digital leadership (digital culture) positively promotes leadership behaviors after examining the data. This research shows how digital culture might improve leadership in Saudi Arabian service ministries. This supports prior studies (Zeike et al., 2019).
- Accepted hypothesis H4. The findings demonstrated that digital leadership positively and significantly affects economic learning. This explains the mediation effect:

Digital leadership may promote cognitive competency and economic learning, improving views. Digital leadership promotes economic learning, productivity, and company innovation (Hung et al. 2023).

6. CONCLUSION

This research examined how digital leadership affects service economics in Saudi Arabian service ministries. Digital leadership improves service economics by promoting a digital culture, innovation, and staff professional development. Saudi service ministries should build these digital leadership elements to enhance service economics and handle digital challenges. However, the cross-sectional methodology and emphasis on a particular environment are drawbacks that should be addressed in future research by using longitudinal designs and studying the link in various situations. Despite these limitations, the study enriches the literature by providing empirical evidence on the relationship between digital leadership and service economics and suggesting ways for Saudi Arabian service ministries to improve their service economics through digital leadership.

The research found that digital leadership in Saudi Arabian service ministries may need to concentrate on assisting subordinates develop creative economic concepts. This research stressed digital leadership and its components. This research strongly suggests widespread digital leadership training. Leader training programs will improve digital leadership ability to promote professional integrity and progressive workplace behavior via cooperation, diligence, and teamwork.

Promoting workplace factors that strengthen digital leadership, educating service ministry employees on its importance and impact on service economics, and encouraging, training, and proposing specialized courses to develop digital leaders and their abilities to achieve institutional excellence.

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