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Investigating the impact of e-services quality management on decision making agility

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A B S T R A C T

This article will examine the impact of e-service quality management dimensions on decision-making agility at private universities in Jordan. The e-service quality model was extended by adding more dimensions and applying them in a pure service environment. The study used five dimensions to measure the impact of e-services quality management, including efficiency, fulfillment, privacy, responsiveness, and contact on decision-making agility. During the spring semester of 2021, an online questionnaire was distributed randomly at 12 private universities in Jordan. A total of 300 respondents completed and submitted the questionnaire. The results show that the five dimensions of e-service quality have a significant impact on decision-making agility at private universities in Jordan. The result indicates that contact was the most influential factor in decision-making agility. This confirms the importance of having advanced information technology systems and strategies to enhance communication effectiveness. University management can employ these results to enhance existing policies and procedures to improve the quality of e-services provided to boost and maintain competitiveness and distinction. We can anticipate that a university with a high level of decision-making agility can have a better change management cycle and be more flexible in response to market challenges.

1. Introduction

Private universities are profit-oriented institutions that intend to create profit by focusing more on students' needs by improving the e-services offered to remain competitive. Quinn et al. (2009) maintain that "the business models of private universities are significantly different from those of public universities since public universities do not consider their students as customers, while private universities do". According to Demir et al. (2020), "Private universities are businesses focused mainly on their customers, that is, students, to retain them, generate income, and offer differentiated services". Mazumder (2014) maintained, "Private universities, like any business entity, pay attention to generating a profit by applying quality management tools". Therefore, Rahimizhian et al. (2020) stress that "management of universities should be aware of the importance of e-service quality and its influence on the university's competitive advantage". Private universities recognize that using e-services rather than traditional services will contribute to lessening administrative and operational costs and grant universities the ability to capture new geographical boundaries and therefore intensify competition (Ataburo et al., 2017). Hence, the role of university management is to ensure a high-quality e-service and keep the university's resurgence, and from a financial perspective, that contributes greatly to performance and cutting costs. Hossain and Hossain (2019) conclude that "the quality of a private university is related more to its administrative activities than to its curricula". Currently, private universities are challenged by threats from within and outside their internal and external environments. According to Friedman and Friedman (2018), "universities are known for their rigid and centralized governance with layers of bureaucracy." Decision-makers have to consider available opportunities, harmonize and integrate with other functional areas and external associates, learn from the experience and reconstruct accessible resources if necessary (Holsapple and Li, 2008).

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Therefore, as Leonnard (2019) stated, “Technological advancements make it easier for universities to transit from traditional service quality to e-service quality”. This emphasizes the availability of qualified infrastructures such as IT platforms and equipment, in addition to qualified IT staff. Universities have started to improve their platforms to provide educational and administrative services through online portals. Nowadays, universities provide all-inclusive and necessary information and services for all staff via their platforms (Alvino et al. 2021). Private universities have implemented e-service and e-learning systems to deliver superior, comprehensive online services, increasing efficiency and effectiveness, convenient and timely assistance. The technological improvements are causing significant changes and challenges for private university management. For some universities, this new online experience has fostered many doubts about the quality of e-services (Sahu 2020). This requires the university to be dynamic and agile by adjusting its strategies and programs swiftly to cope with new changes in the environment of the higher education sector. According to Mukerjee (2014), “decision-making in universities is usually multi-layered with governance in the hands of the leaders of numerous committees, and in such conditions, it becomes all the more critical for these leaders to cooperate and collaborate in achieving strategic goals by building an environment of shared learning.” To attain this target, universities require their staff to participate in the decision-making process.

2. Literature Review

2.1 E-service quality management (ESQM)

Kim-Soon et al. (2014) asserted, “Universities' management seeks to provide and support information and applications of their stakeholders through web portals, ensuring the quality and operation of this service is necessary to satisfy their stakeholders”. Zeithaml et al. (2002) early definition of e-service quality as “a field where there is a possibility to provide efficient and effective services to users through electronic media”. The SERVQUAL and E-SQ, created by Zeithaml et al. (2002) and Parasuraman et al. (2005), are the most extensively used models in the conception and e-service quality measurement. The major weakness of these models is the absence of physical presence in the e-services setting as debated, with limited research focusing on merely service institutions (Ataburo et al., 2017; Cristobal et al., 2007). As a result, Parasuraman et al. (2005) suggested conducting further studies to examine the E-Service quality (E-SQ) scale for solely service websites, such as educational institutes. During our review of the existing literature on e-services, we identified various dimensions of E-SQ. Table 1 compiles the e-service key dimensions flowing through the existing literature.

Table 1
Models of E-service quality

Authors/Year	Label	No. of Dimensions	Dimensions
Yoo and Donthu, (2001)	SITEQUAL	4	Processing speed, security, ease of use, and aesthetic design
Barnes and Vidgen,(2002)	WebQual	5	Design, usability, trust, information, and empathy
Zeithaml, Parasuraman, and Malhotra (2002)	e-SERVQUAL	5	Content and information availability, ease of use, privacy, graphic style, and reliability
Wolfinbarger and Gilly (2003)	eTailQ	4	Security, website design, customer service, fulfillment, and reliability
Zeithaml, Parasuraman, and Malhotra (2005)	E-S-QUAL	4	Efficiency, privacy, system availability, and fulfillment
Cristobal et al. (2007)	PeSQ	4	Web design, order management customer service, and Assurance
Lee, Choi, and Jo (2009)	end-user	4	User ability, design, playfulness, and support services available

Source: Authors Compilation

Table 1 indicates that researchers used different dimensions. As research aimed at refining the e-service quality scale in pure e-service sites increases (Parasuraman et al., 2000), there is a rising need to build an integrated scale that incorporates all elements of e-service quality for both retail and services. E-service quality is deemed to have the ability to provide strategic advantages besides improving operational effectiveness and profitability (Cronin, 2003). Therefore, the primary purpose of service quality management is to ensure that services delivered conform to the quality measures requested or expected (Cotîrlea, 2014). University management should support the change and adopt a new model that depends on e-services and improve the quality standards to cope with the current circumstances caused by the lockdown to facilitate staff access to all types of services. The high standard of e-services must be visible, practical, reasonable, efficient, and secure (Shehzadi et al., 2021). When university staff utilize e-services, the quality of e-services and applications is even more critical than in traditional services (Zhou, 2013). Furthermore, services connected with information transfer need to maintain the superior quality that ensures accurate and dependable services offered to both inside and outside users (Martins et al., 2019). Research shows that if the university possesses an advanced platform for e-services and the e-service supplied is of high quality, it will have a substantial influence on university performance (Al-Fraihat et al., 2020). E-service quality reflects the shape, time, content quality, and quantity of various services offered online by the university via its website and portal. Evaluation of service quality will specify staff levels of satisfaction with academic and non-academic elements, which is critical to any higher education institution's existence (Mestrovic, 2017).

2.2 Organizational Agility

Organizational agility is increasingly evolving in prominence as one of the leading instruments for earning and preserving a competitive advantage in the fast-changing market environment (Žitkienė and Deksnys, 2018). Menon and Suresh (2020) asserted that "organizational structure defines delegation of activities and distribution of resources; governance involves the decision-making process and the tasks to be performed for achieving the desired organizational goals define the process." An agile organization is represented by fewer hierarchy levels, and decentralized decision-making (Alavi et al., 2014). Such organizations promote shared leadership and boost self-organizing/cross-functional teams to overcome departmental obstacles, enabling lateral communication, participation, employee empowerment, and social interactions that foster learning and innovation, as well as collaborative and collective decision-making (Freidman and Friedman, 2018).

Ganguly et al. (2009) defined agility as “the ease and speed with which organizations react to external stimuli cost-effectively without compromising the quality of their products and services”. Žitkienė and Deksnys (2018) defined organizational agility as “an organizational ability to recognize unexpected changes in the environment and appropriately respond swiftly and efficiently, by utilizing and reconfiguring internal resources, thus gaining competitive advantage in the process”. To implement the agility-based strategy, Gehani (2010) suggests utilizing the frontline decision-making empowerment with the integration of available technologies. Empowerment of employees enables the organization to shorten its decision-making time, decrease delays, and enhance feedback and delivery times. In the process, if the staff are more engaged and motivated, the organization will be more agile in reacting to changes, and customers are satisfied due to improved service. To maintain this competitive environment, universities are required to gear up and leverage their resources, redesign strategies, and reorganize their operations (Ghilic-Micu et al., 2011). Al-Hamdan (2020) defined agility in higher education as “a set of organizational characteristics that appear in the speed of the universities' response to current changes and their anticipation of the future, making them able to move lightly, and outperform competitors in the rapidly changing environment by responding to changes and building trust in employees, beneficiaries, and stakeholders”. It is clear that organizational agility should respond to continuous and unexpected changes. Therefore, it is necessary and effective for every part of the business environment that is constantly changing, volatile, and unpredictable. Organizational agility includes a range of dimensions that determines its vision, arranges its priorities, and how it responds to its changing internal and external environment, to achieve its goals. Organizational agility has three dimensions: Agility use of technology, Agility empowerment, and Decision-making agility.

2.3 Decision-making agility

Park et al. (2017) extend the existing conceptualizations of agility and add decision-making as a distinct element. An agile organization knows when to respond to change and when to make decisions. An agile organization usually makes its decisions based on three criteria: speed of decision-making, possibility of effective implementation of the decision, and response. The participation of workers in decision-making reduces the likelihood of resistance due to changes associated with the decision. However, participation may hinder the speed of decision-making, and this requires organizations to achieve a measure of the balance between decentralization and rapid response to environmental change. One of the strategies organizations have embraced for boosting agility among the workforce is participative decision-making (Berraies et al., 2014; Sherehiy et al., 2007). Involving employees in decision-making and fostering collegial connections fosters mutual respect for colleagues and trust in the leadership and supervisors (Furco and Moely, 2012). Agile universities must be able to deal with changing situations and lack of certainty. Providing an effective system of information and data, developing policies, regulations, and laws, and expanding the circle of partnership in decision-making is one of the most important ways to improve the agility of decision-making.

3. Hypotheses Development

Parasuraman et al. (2005) considered efficiency an all-inclusive concept that embraces many competencies and is a central part of the e-service quality dimensions. He defined it as “the ease and speed of accessing and using a website”. Kim-Soon et al. (2014) asserted that the ease of use and availability of the website directly affects the appraisal of website quality. Al-Dweeri, (2019) described efficiency as “related to the content, ease of use, and website protection”. Cobelli et al. (2019) measured the quality of the e-services by efficiency, ease of use, and system availability. Recent studies (Shehzadi et al., 2021; Jyoti and Kesharwani, 2020; Leonnard, 2019; Xiao, 2016, and Ataburo et al., 2017) revealed that efficiency was the ultimate vital component of e-service quality. Finally, Jameel et al. (2020) confirmed that university e-services that include website efficiency and the university portal are essential elements to intensify and promote university performance. As a result, we suggest the following hypothesis:

H_1: *There is a significant impact of efficiency on decision-making agility at private universities in Jordan.*

Parasuraman et al. (2005) and Li and Suomi (2009) classified "fulfillment" as an essential component in staff appraisal of e-service quality. Parasuraman et al. (2005) defined fulfillment as "the extent to which the site’s promises about order delivery and item availability are fulfilled." According to Yaghoubi (2019) “agility empowerment is a tool that is necessary for the

fulfillment of agility capabilities at the university." Fulfillment has additional properties such as the steady operation of the system for transaction processing, precise delivery promises, and the availability to change and or admit transactions without assurance (Cristobal et al., 2007). Empirical research (Ariff et al., 2013; Ting et al., 2016; Ataburo et al., 2017; Leonnard, 2019; and Shehzadi et al., 2021) found that fulfillment has a positive impact on performance. Accordingly**,** we suggest the following hypothesis:

H_2: *There is a significant impact of fulfillment on decision-making agility at private universities in Jordan.*

Li and Suomi (2009) define privacy as "the degree to which the website is safe and consumer data is secured." Bressolles (2014) asserts, "Privacy pertains to private data safety and the official commitment not to share or sell personal information collected from customers throughout the service." Privacy describes the extent of the staff's belief that the web is free from a breach and how personal information is secured (Al-Shamayleh et al., 2015). When they use the university portal, the staff, like other consumers, emphasize their privacy and security on the website. Recent research revealed that privacy has a positive and significant influence and is deemed to possess the highest effect on employees (Jameel et al., 2020; Kaya et al., 2019; Ali, 2019; Al-Shamayleh et al., 2015; and Cotîrlea, 2014). As a result, we will put forward the following hypothesis:

H_3: *There is a significant impact of privacy on decision-making agility at private universities in Jordan.*

Many authors define responsiveness as a problem-solving procedure to support the user experience while using a website. Al-Shamayleh et al. (2015) describe it as "a fast reaction when any technical problem arises or when the user has an inquiry about the services or products or needs technical support." Parasuraman et al. (2005) explains how the company handles and manages the emerging problems effectively through the website. University staff may face several technical issues while using the portal, which requires a prompt response to staff queries. Responsiveness is an essential factor for solving problems and taking action. Shehzadi et al. (2021) asserted that in improving the e-service quality, responsiveness is an essential requisite to amplify student e-learning. Responsiveness attributes may contain many dimensions, such as sufficient data, quick responses to staff queries, timely replies, adequate response time, and quickly resolving problems (Li & Suomi, 2009). Responsiveness shows how efficiently the technical staff replies to users' queries (Shahzad et al., 2021). Prior research by Jameel et al. (2020), Al-Shamayleh et al. (2015), Ali (2019), and Hahn (2017) found that responsiveness had a direct impact on staff performance and progress. Accordingly, we suggest the following hypothesis:

H_4: *There is a significant impact of responsiveness on decision-making agility at private universities in Jordan.*

High e-service capabilities can create digital options in the form of digital processes and knowledge for firm operations, accelerate decision-making, and thus bring excellent performance gains (Irfan et al., 2019). Parasuraman et al. (2005) confirmed the need for support available through the IT department, so they could help if a problem arises. Decision-making agility makes organizations learn from new events and create new data and knowledge that managers across different business units and departments share via communication technologies, which, in turn, can effectively support collaborative action tasks. When such communication channels are available, it will encourage the staff to execute the transaction, recognizing that they can depend on contacting the head of the department if they encounter any trouble. Park et al. (2017) found that business intelligence and communication technologies together effectively support large organizations in making a timely decision. As a result, we hypothesize the following:

H_5: *There is a significant impact for contact on decision-making agility at private universities in Jordan.*

4. Research Model

There is no approved combination of dimensions to measure e-service quality in an educational context (Ataburo et al., 2017; Jameel et al., 2020). In a pure service setting such as universities, the case is different from retail firms, which suggests a different conceptualization of e-service quality, and therefore its dimensions may differ a little from those in a retail setting (Ataburo et al., 2017). The researchers chose the most common elements in the education system. This research will propose the following model based on the above facts, as depicted in Fig. 1.

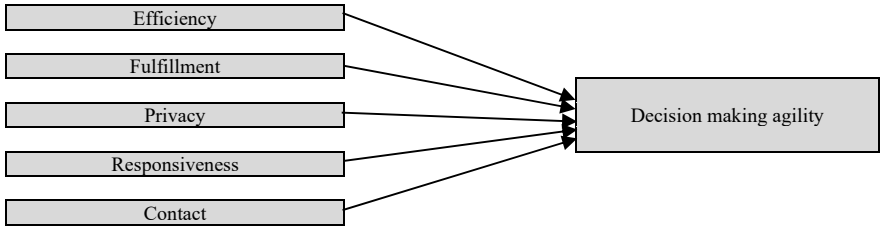

Fig. 1. Research model

5. Methodology

The study population consists of the academic and non-academic administrative staff at private universities in Jordan. Academic faculty members with administrative posts were selected randomly to answer the questions via an online questionnaire. Questions for the present study were extracted from the previous research and revised accordingly. The e-service quality questions were adapted from the E-Serqual dimensions of Parasuraman et al. (2005). For measuring decision-making agility, our questions were adapted from Al Ansari (2020) and Al Zamil and Al Dossari (2021). A convenient sampling method was used by distributing online questionnaires at 12 different private universities in Jordan. An intense campaign focused on calling all faculty members to encourage them to fill in the questionnaire. A five-point Likert scale ranging from 1 = strongly disagreed to 5 = strongly agreed was used to solicit staff responses. After one month, a total of 300 respondents completed the questionnaire. As exhibited in Table 2, the majority of the respondents were male, with 70.3%, and only 29.6% were female. Regarding staff age, 6.0% were younger than 30 years old. While employees aged 31–40 years had the highest percentage (38.0%), employees aged 41–50 years had the lowest percentage (35.3%). Concerning staff positions, the majority were heads of academic departments, with 61.6%, and only 20.6 were deans of colleges. Fig. 2 shows the staff profiles.

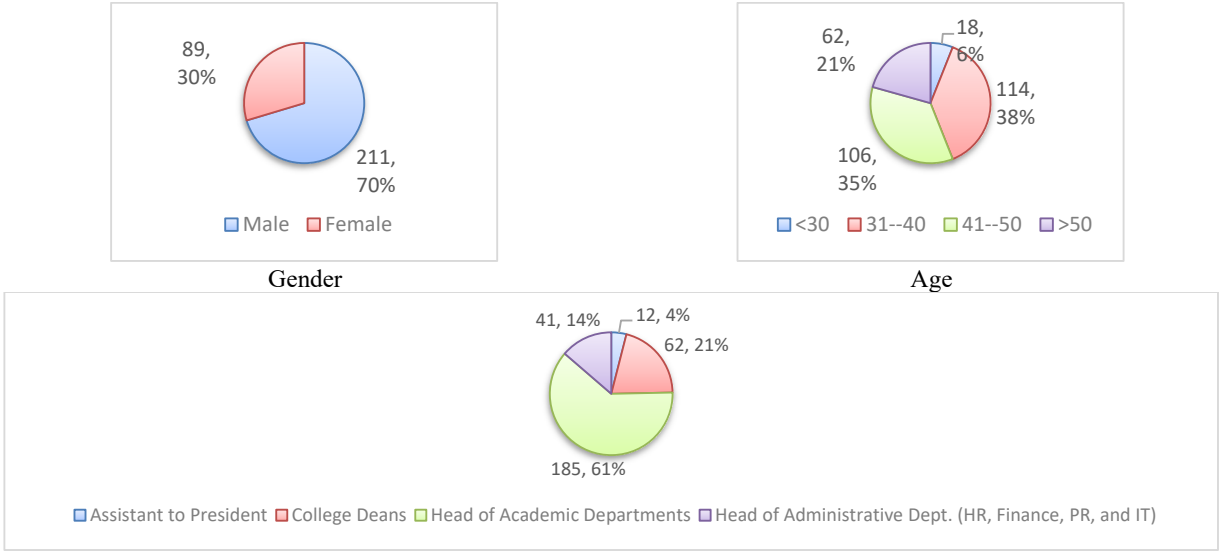

Fig. 2. Personal characteristics of the participants

6. Results

6.1 Measurement Model

The initial stage is to test the validity and reliability of the measurement model. We started by conducting a factor analysis and checking the factor loading of items measuring the various dimensions of the model. After that, we tested the variables to ensure they were valid for further analysis using composite reliability and Average Variance Extracted (AVE) (Kline, 2016). We will assess discriminant validity using AVE and the square root of the AVE. All AVE values are deemed acceptable, with all values being more than the minimum allowed value of 0.5, confirming strong proof of discriminant validity. Table 2 exhibits factor analysis results, which validate the dimensions used in this study. According to Hair et al. (2010), factor loadings should be over the cutoff level of 0.6. We eliminate all items with loadings below the level of 0.6 from further analysis to boost the model fit indices and reliability. Due to low loadings, we removed one question from the Efficiency, fulfillment, and responsiveness dimensions. For the same reason, two questions were removed from the decision-making agility variable. After omitting the poor loading items, we examined the internal consistency of the dimensions using Composite Reliability (CR) as recommended by Hair et al. (2010). As exhibited in Table 3, the composite reliability of all dimensions was above 0.70, which is considered a good indicator of the dimensions' internal consistency. Furthermore, the AVEs for all variables presented in table 3 are above the recommended level of 0.5. Based on these results, we can conclude that model validity and reliability have been achieved. Concerning the model fit indices, as suggested by Hair et al. (2010), the recommended criteria for the indices are x2/df (≤5), RMSEA (< .08), TLI (≥.90), CFI (≥.90), and GFI (≥.90). The results of the model fitness were as follows: x2/df (3.21), RMSEA (.06), TLI (.95), CFI (≥.94), and GFI (≥.91). Hair et al. (2010) asserted that the researcher could carry on with the additional analysis if he achieved at least three indices. The results confirm adequate support for the measurement model and establish the method for examining the structural model.

6.2 Structural Model

The step intends to detect whether there is an impact of independent variables on the dependent variable. As per the first hypothesis, efficiency has a significant impact on decision-making agility at private universities. The result was (ß = 0.691, t

= 18.171, p 0.000) so the first hypothesis is accepted. The second hypothesis examines the impact of fulfillment on decision-making agility at private universities. The result was (ß = 0.700, t = 18.615, p < 0.0001). Thus, the second hypothesis is accepted. The third hypothesis examines whether privacy has a significant impact on decision-making agility at private universities. The results were (ß = 0.550, t = 12.504, p 0.000) so the third hypothesis is accepted. The fourth hypothesis examines the impact of responsiveness on decision-making agility at private universities. The result was (ß = 0.720, t = 19.684, p < 0.0001). Thus, the fourth hypothesis is accepted. The fifth hypothesis examines whether contact has a significant impact on decision-making agility at private universities. The results were (ß = 0.810, t = 26.677, p 0.000). Thus, the fifth hypothesis is also accepted.

Table 2
Results of confirmatory factor analysis

	Items	F1 >0.6	F2 >0.6	F3 >0.6	F4 >0.6	F5 >0.6	F6 >0.6	CR >0.7	AVE >0.5
	Efficiency								
1	Eff1	.673							
2	Eff2	.702							
3	Eff3	.618						0.74	0.664
	Fulfillment								
4	Fulf1		.712						
5	Fulf2		.755						
6	Fulf3		.719					0.85	0.761
	Privacy								
7	Priv1			.677					
8	Priv2			.926					
9	Priv3			.689				0.76	0.688
	Responsiveness								
10	Resp1				.758				
11	Resp2				.753				
12	Resp3				.779			0.83	0.658
	Contact								
13	Cont1					.790			
14	Cont2					.696			
15	Cont3					.665		0.77	0.743
	Decision-Making Agility								
16	D-M Agility 1						.612		
17	D-M Agility 2						.744		
18	D-M Agility 3						.677		
19	D-M Agility 4						.706		
20	D-M Agility 5						.726		
21	D-M Agility 6						.711	0.87	0.730
22	D-M Agility 7						.785		
32	D-M Agility 8						.772		

Table 3
Hypotheses testing

Construct			Path	SE	t-value	Sig.	Results
H1. D-M Agility	←	Efficiency	0.691	0.041	18.171	0.000	Accepted
H2. D-M Agility	←	Fulfillment	0.700	0.037	18.615	0.000	Accepted
H3. D-M Agility	←	Privacy	0.550	0.039	12.504	0.000	Accepted
H4. D-M Agility	←	Responsiveness	0.720	0.036	19.684	0.000	Accepted
H5. D-M Agility	←	Contact	0.810	0.043	26.677	0.000	Accepted

7. Conclusion

In the continuously unstable and unpredictable digitized business environments, universities struggle to attain competitive advantage by supporting more expansion in e-service quality management to be agile in decision-making in response to market opportunities and threats. The results obtained from this study present a piece of enhanced knowledge for private university management concerning e-service quality variables that have a significant impact on decision-making agility. These results will outline the future directions of private universities' e-services in Jordan. The e-service quality research model was extended by adding more factors and applying them in a pure service environment. Our results support the appropriateness of the used factors with the additional elements in services. The researchers used five factors to measure the impact of e-service quality on decision-making agility. The five factors selected are efficiency, fulfillment, privacy, responsiveness, and contact. Data analysis revealed that all five factors of e-service quality have a significant impact on decision-making agility, which is consistent with Shehzadi et al. (2021) and Zeglat et al. (2016). Contact emerged as the most influential factor, among other factors. This is in line with Veloso et al. (2020) and Zehira and Narckarab (2016). The results emphasize the importance of communicating the new changes to university staff in advance, preparing and training them, involving employees in decision-making, promoting collegial relationships facilitating mutual respect for coworkers, trust in the management, and helping employees manage change effectively.

Promptness and speedy reaction to inquire in case of problems will enhance decision-making agility. The university is to make technical, academic, and administrative resources available to supply staff with whatever they need at once immediately to let the staff feel the university's interest in solving any issues that arise with the university internally or externally. Our results aligned with preceding research such as Jameel et al., 2020; Ali (2019); and Shehzadi et al. (2021). Fulfillment ranked third in terms of its impact on decision-making agility. The ability of the staff to attain their target by visiting the university website, portal, and database without complications is a critical factor in decision-making agility. The availability of updated data in terms of quality and quantity is essential for the staff to follow different events and important dates. These findings aligned with recent studies by Shehzadi et al. (2021) and Leonnard (2019). Findings show the impact of efficiency on decision-making agility, which ensures the importance of ease of use, simplicity, quality of content, fast uploading, and user-friendly websites/portal. The university needs to keep a state-of-the-art website and portal to facilitate staff usage in a simple and efficient shape. Our result aligned with previous studies such as Jameel et al., 2020; Leonnard 2019, Al-dweeri, 2019. Decision-making agility is driven by privacy. Protecting staff personal information on websites/portal is essential to motivating the staff to use all e-services.

Since many activities and projects are done online, the need for privacy has increased, and staff should not be concerned that their personal information will be violated or illegally exposed in any way. The results of this study aligned with previous studies such as Shehzadi et al. (2021); Jameel et al., 2020; Ali, 2019; and Al-Shamayleh et al. (2015).

The university's investment in personal and professional development, novel and innovative plans, participative decision-making, and the freedom to explore new opportunities, participative decision-making practices, passing on the autonomy of decision-making to department heads, teams, and committees, and supporting a culture of creativity and continuous improvement, would inspire and retain faculty members with the desired proficiency, skills, and competencies crucial for conceding the university's goals and objectives. Finally, technology evolves very quickly. What is modern today becomes old-fashioned in a short period. With the rapid advancement in technology, this domain of research requires continuous review and refinement.

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