DIGITAL PROCUREMENT AND INSTITUTIONAL CULTURE: SERVICE QUALITY AND EMPLOYEE EXPERIENCE IN HIGHER EDUCATION

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ABSTRACT

This paper aims to evaluate the perceived quality of procurement services and their impact on employee satisfaction at higher education institute, taking An-Najah National University (ANNU) in Palestine as a case. Additionally, it examines the role of digitalization as a mediator in enhancing the relationship between the quality of procurement services and employee satisfaction. Data from ANNU employees were collected using a pre-established questionnaire. A partial least squares structures equation modeling (PLS-SEM) was constructed using Smart PLS Software (v4.1.0.3) to examine the relationships between variables. The model was assessed for validity and reliability. The statistical findings in this study reveal the existence of a positive correlation between the quality of procurement and employee satisfaction. Additionally, while the direct effect of digitalization on employee satisfaction was not statistically proven, digitalization was proved to significantly improve the efficiency and quality of procurement services. Finally, the study demonstrates a significant relationship between the digitalization of procurement as a process and the quality of procurement services. The findings of this study offer valuable insights into the impact of perceived procurement service quality on employee satisfaction and the impact of the digitalization of procurement services. The findings also highlight the need to deal with digitalization as an integral component of service quality, rather than an additional benefit. The findings can guide decision-makers in procurement departments, leading to

improvement and innovation in the field. However, the study is limited by many factors, including the limited response rate for the questionnaire due to time limitations, and the use of a trial version of Smart PLS software, which limited the analysis to only 100 responses. This study contributes to the existing literature on procurement service quality and employee satisfaction in higher education institutes and provides insights into how procurement services can influence employee satisfaction in such institutions. The study employs SERVQUAL framework to evaluate the quality of procurement services and explores the role of digitalization as a mediator in the relationship between procurement service quality and employee satisfaction, providing a tool for future research in the field, and providing decision-makers with practical recommendations and shaping strategies to improve procurement processes.

1. INTRODUCTION

Procurement is one of the essential functions of organizations worldwide. Charnor and Quartey (2024) define procurement as the acquisition of goods and/or services at the lowest total cost of ownership, in the right quality and quantity, at the right time, in the right place, and from the right source, for the direct benefit or use of corporations, individuals, and government. To achieve university objectives, the administrative and service departments complement the academic role by creating an ideal study and research environment. As one of the service departments, the procurement department plays a vital role in supporting academic and administrative departments, encompassing teaching and research activities. Without overlooking the side effects of misusing of this function, it's important to note that "Procurement is the largest expense accrual function in any organization (Jiménez et al., 2022). Therefore, it is crucial to ensure high-quality procurement to maintain and increase customer satisfaction, just like any service-oriented entity.

Procurement within higher education institutions (HEIs) extends far beyond the transactional acquisition of goods and services; it is a cultural practice embedded in the university's organizational norms, values, and governance structures (Burhanuddin et al., 2024). The procurement process reflects how universities operationalize principles of transparency, fairness, and accountability, which are integral to their institutional identity (Dumulescu & Muțiu, 2021; Murad, 2025). Scholars argue that procurement decisions are inherently tied to the distribution of institutional resources, the articulation of academic priorities, and the reinforcement of governance norms (Espasandín-Bustelo et al., 2021). In this context, procurement services serve not only to meet operational needs but also to signal an institution's commitment to equity, inclusivity, and professional integrity within its academic environment. The ways in which procurement systems are designed and perceived within universities consequently shape internal trust and professional belonging among academic and administrative staff.

Higher education institutions are unique socio-political entities characterized by complex governance systems and distinctive organizational cultures (Assoratgoon & Kantabutra, 2023). The governance of procurement processes in universities is a key site where institutional values such as transparency, accountability, and ethical decision-making are enacted. Transparent procurement practices build legitimacy and internal trust among staff, contributing to a positive academic work culture where decision-

making processes are perceived as fair and participatory. This relationship between procurement transparency and organizational culture aligns with the work of El Baz and Iddik (2022), who emphasize the role of institutional procurement in shaping stakeholder perceptions of governance quality. Within HEIs, procurement practices thus serve as mechanisms for cultivating organizational citizenship behaviors, fostering professional solidarity, and reinforcing the institution's cultural identity as a meritocratic and ethically governed environment.

For any higher education institution, there are two types of customers: external and internal. Scholars defines "External Customers" as people who do not belong to an institution but are affected by their products, and "Internal Customers" as people or organizations that are part of the institution. Several authors classify HEI customers into external and internal. Watermeyer et al. (2022) classified both Academic and Administrative Customers as Internal Customers. Academic customers include students, professors, and program departments, as well as administrative customers; the latter comprises students, administrative, and service personnel, units, divisions, and departments. On the other hand, external customers are classified into direct and indirect customers. Direct customers include employers and other universities, whereas indirect customers comprise state, community, accreditation agencies, alumni, and donors (Kaur Bagga et al., 2023).

One of the most prominent reasons for success is happy employees, or "employee satisfaction". Employees showing contentment and satisfaction with their jobs tend to stay longer in the organization. This leads to a lower organizational turnover rate, which is considered a positive sign overall (Alami et al., 2023). This lower employee turnover rate is due to the loyalty of employees and internal customers, increasing their interest in their jobs, and matching the organization's requirements to attain the set objectives (Leso et al., 2023). Various management strategies can be employed to increase the level of job satisfaction of the employees to improve employee productivity and organizational efficiency. Happy, or satisfied employees, are organizational assets. Businesses should benchmark customer satisfaction to ensure success. Customer satisfaction refers to how a customer feels about a service or product after using it.

The importance of the future use of technology cannot be overlooked or underestimated by management (Abbas et al., 2024). In our rapidly changing, highly competitive environment and digital revolution era, there is a persistent need to enhance internal customer satisfaction by transitioning to

digital services (e-service applications, including e-procurement). These applications aim to reduce wasteful activities, time, and cost as much as possible, ultimately improving service quality. According to Chau et al. (2021), the cost per transaction using e-procurement is typically reduced by 65 percent compared to "traditional" procurement transactions. The term "digitalization" means the automation of processes that affect the improvement of efficiency, where the company's focus on digitalization can claim effectiveness, which impacts improving customer engagement (Zhang et al., 2021). Digital transformation has become an obligation rather than a choice for today's organizations.

1.1 Background of An-Najah National University and the Procurement Department

An-Najah National University (ANNU) is a public higher education institution (HEI) that was founded over a century ago. ANNU upholds a prominent position in both local and global scientific research endeavors. Besides its primary role in offering the highest quality undergraduate and graduate education, ANNU embodies values such as ethics, justice, transparency, integrity, quality, and sustainability. It also plays a significant community role in social and ethical responsibilities. Currently, ANNU has more than 25,000 student enrollees and employs 1982 academic and administrative employees. ANNU comprises 11 faculties located throughout the different campuses, offering 140 bachelor's degree programs. It also offers 88 Masters' programs and 18 PhD programs.

The Procurement Department (PD) at An-Najah National University, established 40 years ago, continually played an instrumental role in planning, coordinating, and supporting the university's infrastructure. This includes overseeing purchasing activities for all products and services and catering to the needs of academic and administrative staff and students. Furthermore, the department is committed to upholding its standard of excellence by striving for internal customer satisfaction. To achieve this, and to maintain the excellence, the procurement department has implemented various quality management practices, which will be studied in this research.

Given the academic landscape and the constantly evolving era, university excellence can be measured in many ways, and new considerations are emerging to support the core educational mission. These include the effectiveness of administrative functions, including procurement services, which can directly affect academic and administrative staff satisfaction. These aspects may be overlooked, although they might

significantly impact an institution's reputation and overall performance. Academic and administrative staff make up a large part of the quality of higher education, as do processes and functions. Therefore, this research aims to examine the impact of digital transformation and the adoption of e-services in the procurement department at An-Najah National University on increasing the satisfaction of its staff (as internal customers). This research aims to achieve the following objectives:

RO1: To evaluate the perceived quality of procurement services from the perspective of ANNU employees as internal customers by utilizing the SERVQUAL framework. The five dimensions of the framework provide a comprehensive basis for evaluating and understanding the quality of services provided by the ANNU procurement department.

RO2: To assess ANNU employee satisfaction based on the perceived quality of procurement services.

RO3: To examine the role of digitalization of procurement services in enhancing employee satisfaction, ultimately reducing wasteful or unnecessary activities.

2. LITERATURE REVIEW

2.1 Procurement as an Institutional Cultural Practice

Digitizing higher education procurement should be understood not only as an operational efficiency improvement, but more as a sociotechnical change that changes the prevailing culture, norms and social relations of an institution (Burhanuddin et al., 2024). Sociotechnical theory shows how technological innovations fit within social structures, organizational norms and institutional practices producing intended consequences, as well as emergent changes to institutional context's (Hadid & Al-Sayed, 2021). The implications here is that the digitalization of procurement processes in universities can change more than web-based procurement is simply faster or cheaper (Grajek & Reinitz, 2021). It changes the ways that everyone working in a university interacts with the institutional systems used in those actions, establishes expectations around transparency and timeliness of response, and shifts responsibility for accountability in academic workplace (Assoratgoon & Kantabutra, 2023).

2.2 Governance, Transparency, and Academic Organizational Culture

The implementation of digital procurement tools modifies long-standing communication patterns,

authority relationships, and service delivery norms. As Lam et al. (2021) notes, the introduction of digital systems in procurement can democratize access to information, reduce asymmetries between administrative staff and academic personnel, and foster a culture of procedural fairness by providing transparent, traceable, and standardized service pathways (Kim & Jung, 2022). This digital shift is particularly significant in public universities, where procurement processes often symbolize institutional adherence to public accountability standards (Leso et al., 2023). By embedding digital platforms into procurement workflows, universities initiate cultural shifts towards immediacy, service equity, and participatory decision-making, redefining how staff engage with administrative structures and how institutional norms are collectively negotiated.

2.3 Hypotheses Development

Procurement processes are usually complex, involving a wide range of sequenced processes ranging from sourcing to purchasing products and services (Kaur Bagga et al., 2023). Dumulescu and Muțiu (2021) conclude that these processes typically begin with identifying and approving needs, followed by department head approval. These generally impose many challenges, including managing and maintaining supplier relationships, ensuring quality assurance, maintaining cost efficiency, and reducing potential risks. To ensure the delivery of high-quality services, procurement in HIEs requires using models that directly meet the unique needs of these institutes. According to Melanie Pfaff et al. (2023), supplier evaluation is crucial for public organizations, because their competence and adherence to quality standards directly affect their performance. Lindquist (2022) emphasize that effective procurement strategies are essential in improving service delivery and achieving organizational success. Fundin et al. (2025) recommend using tools like spend analysis, supply segmentation, and strategic sourcing to compare and evaluate procurement practices in HEIs relevant to other industries. They concluded that utilizing digitalized procurement services would lead to fewer errors and faster service delivery, ultimately contributing to employee satisfaction. This, combined with cross-departmental collaboration, significantly enhances the competence of procurement services. Sin et al. (2021) argue that university supply chains necessitate reliable supplier evaluation methods, focusing on quality control, minimizing supply chain risks, and maintaining cost-effectiveness. However, several factors may hinder the implementation of these practices, including decentralized structures, internal

resistance of employees, and lack of technological adoption in the workplace.

H1: Perceived quality of procurement services positively affects employees' satisfaction.

Digitalization, which involves integrating digital technologies and electronic services in the daily operations of HEIs is becoming crucial, with the integration of sustainability measures in the educational sector worldwide (López-Morales et al., 2023). This has led to a change in how services in these organizations are delivered to employees and managed, aiming to add value, increase service quality, and improve operations, ultimately contributing to the effectiveness of administrative operations and the satisfaction of employees (Wang et al., 2024). According to Grajek and Reinitz (2021), many unnecessary and non-value-adding steps and supporting administration are present throughout the processes. According to Lam et al. (2021), digitalization within HEIs assists in refining the business model of such institutes and helps them better manage their internal and external relationships. Digitalization also provides HEIs with competencies and capabilities that ultimately enhance the satisfaction of different stakeholders, including students, staff, and suppliers.

While adopting practices like digitalization and electronic services in procurement can improve procedures, these transformations can be very challenging. According to Espasandín-Bustelo et al. (2021), factors including the lack of knowledge and general view of the process, lack of digital competencies, as well as poor data management, and the rapid pace of technological advancement hinder HEIs' efforts towards digitalization. To ensure a smooth and successful digital transformation in procurement, technological, organizational, and social dimensions must be addressed to create a strategic environment that supports change (Kim & Jung, 2022). Their research concluded that, while organizational standards promote the adoption of sustainable procurement practices, the complexity of such practices hinders their effective implementation. Similarly, Wilson and Mergel (2022) argue that procurement strategies must be aligned with social, economic, and environmental considerations. They conclude that integrating sustainability practices into purchasing helps businesses and organizations achieve long-term objectives.

H2: Digitalization of procurement services positively affects employees' satisfaction.

Strategic sourcing, which entails taking a closer look into the way an organization spends money to improve supply processes and build stronger relationships with suppliers, is considered crucial to effectively manage

procurement operations in the organization (Yevu et al., 2022). According to El Baz and Iddik (2022), it is important to integrate a strategic framework that considers many factors, including maintaining competitive advantage, demand flexibility, and risk management, while balancing these factors with sourcing strategies. Implementing supplier management practices is crucial to ensure the quality and reliability of services. These include the careful selection of potential suppliers, contract administration procedures, and relationship building. However, integrating sustainability into procurement can be challenging, given the need to align procurement practices with environmental, social, and economic objectives, while controlling the costs and risks associated with such processes (Lindquist, 2022). This is where the digitalization of procurement services becomes of great value because it significantly reduces the time and cost of procurement and overcomes many risks associated with the process. Achieving best practices necessitates comprehensive expenditure analysis, strong managerial support, and collaboration across different departments. To guarantee the quality and cost-effectiveness of procurement services, Hautala-Kankaanpää (2022) recommend identifying and approving procurement demands within the organization, as well as evaluating potential vendors to guarantee quality and cost-effectiveness of procurement services. Similarly, Chan and Owusu (2022) stresses the importance of evaluating suppliers based on both financial and non-financial factors. All of these processes can be significantly enhanced by digitalization, making the supply chain more efficient, limiting corruption, and increasing transparency and accountability (Alabdali & Salam, 2022). Additionally, the digitalization of activities in an organization allows for a better usage of the knowledge, thereby enhancing procurement performance.

H3: Quality of procurement services is related to the digitalization of procurement processes

The next giant step towards the evolution of procurement is the digitalization of procurement processes using new digital technologies. Based on the findings of Wang et al. (2024), digitalization streamlines workflow and reduces errors, ultimately improving the overall quality of procurement services and enhancing employee satisfaction by ensuring the provision of reliable services. While satisfaction usually refers to how well stakeholder demands are fulfilled or surpassed. Typically, surveys, interviews, and observational approaches are among the typical qualitative and quantitative methods used to quantify it. Among these, the SERVQUAL technique is notable for its methodical

approach to evaluating service quality across essential aspects (Hadid & Al-Sayed, 2021).

H4: Digitalization of procurement services mediates the relationship between the quality of services and employees' satisfaction.

2.4 SERVQUAL Framework

The SERVQUAL framework (also called the gap model), developed by Zeithaml et al. (1996) measures service quality by identifying gaps between customer perceptions and expectations across five dimensions, namely reliability, assurance, tangibles, responsiveness, and empathy. It is widely used in HEIs to assess service quality and the way it affects different dimensions of institutional satisfaction. These play a critical role in influencing the way staff and students view service quality. According to Datt et al. (2025), tangibility and reliability greatly impact satisfaction levels. Furthermore, Ali et al. (2024) illustrates how SERVQUAL can be used to measure student satisfaction in HEIs, highlighting discrepancies between perceived and desired service quality. This gap analysis can be used to measure staff satisfaction, especially if their expectations for the work environment, assistance services, and institutional responsiveness are not satisfied.

2.5 Application of SERVQUAL in HEIs

The operational success of an HEI usually depends on the satisfaction of both staff and students (Gupta et al., 2022). Adopting SERVQUAL to measure employee satisfaction among university staff may provide insightful data on how well these institutes meet the requirements and expectations of their workforce (Lizarelli et al., 2021). In this process, factors like the overall work atmosphere, the efficiency of communication channels within departments, and the quality of support services are measured (Chau et al., 2021). HEIs can effectively identify areas for improvement by extending the SERVQUAL model's attention to staff perceptions, which can be later aligned with the unique environment of HEIs. This strategy improves employee satisfaction and the quality of educational delivery (Kaginalkar et al., 2022). This enables HEIs to evaluate and address gaps in their performance, allowing both students and staff to feel valued, and promoting a positive working environment for staff, finally contributing to the institution's overall reputation and competitiveness.

2.6 Challenges in Implementing Quality Management

Despite the success of these methods, implementing quality management in HEIs faces

many challenges. Zhang et al. (2021) specifically mention resistance to change, staff acceptance, and support as essential factors for sustaining quality management systems. Abdallah et al. (2023) also, note that a lack of consistent leadership results in unsatisfactory commitment in the long term. In addition to that, sustainability requires adaptation to meet continuously developing educational needs.

2.7 Quality Management Models

Quality is a broad term that refers to the degree to which a product or a service satisfies the needs of customers and their expectations. In HEIs, models like Total Quality Management (TQM) and Six Sigma are being used to manage quality to boost educational and operational services. According to Fundin et al. (2025), using TQM in HEIs and involving all stakeholders reflects a commitment to continuous improvement, which simplifies internal operations and ensures student satisfaction. Similarly, Abbas et al. (2024) notes that TQM's success depends on a comprehensive approach that necessitates a cultural shift towards quality. Sin et al. (2021) emphasize that Six Sigma techniques can significantly reduce operational delays and optimize resource management, resulting in the contribution to smooth educational operations. The Malcolm Baldrige criteria also influence quality management practices in HIEs. Kaginalkar et al. (2022) investigate the use of Malcolm Baldrige criteria combined with ISO 9000 standards in evaluating supplier quality. They concluded that these standards ensure that external partnerships align with HIEs strategic goals and promote a structured quality approach that focuses on leadership, strategic planning, and customer satisfaction, contributing to achieving excellence, which is the ultimate goal of educational institutions. Based on the Literature Review, the Developed Research Model is Shown in Figure 1.
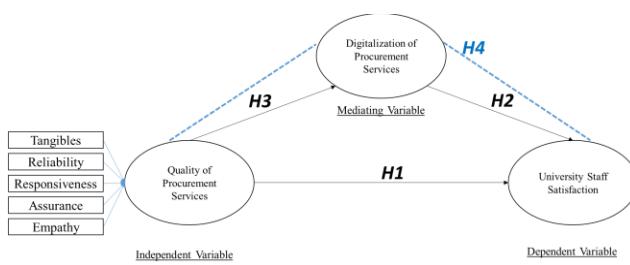

Figure 1: Research Model.

3. METHODOLOGY

3.1 Research Formulation

To achieve the objectives of this research, a comprehensive literature review was conducted to explore related studies in the field, aiming to provide a

solid foundation by adopting similar methodologies into this research. Based on the literature review, a quantitative approach was followed using a data collection tool (a questionnaire). The questionnaire aimed at collecting data on the quality of procurement services (exploring the SERVQUAL dimensions including reliability, trust, responsiveness, tangibles, and empathy), and the role of digitalization in the relationship between procurement service quality and employee satisfaction levels. The detailed questionnaire is attached to the appendix of this research (Appendix 1). The questionnaire was disseminated to employees using the internal electronic platform of An-Najah National University (Zajel), and responses were collected using a Google form.

3.2 Measures

To develop the measures used in the data collection tool for each variable, a deep literature review was conducted. The quality of procurement services was measured based on the SERVQUAL model, utilizing measures for each dimension among the tangibles (5 questions), reliability (6 questions), responsiveness (8 questions), assurance (4 questions), and empathy (4 questions). Moreover, direct questions about the digitalization of procurement services (8 questions) and university staff satisfaction (4 questions) were used to develop the measures for each variable based on literature.

3.3 Study Population and Sample

The targeted population in this research comprised the academic and administrative employees at An-Najah National University, counting a total of 1,982 employees. Based on Herbert Arkin's guidelines, the required sample size was 322. The Sample was computed using Steven Thompson's formula, shown below (Thompson, 2012).

$$n = \frac{Np(1-p)}{(N-1)\left(\frac{d2}{z2}\right) + p(1-p)}$$

Equation 1: Steven Thompson's Formula
Where:
- n - represents the sample size
- N - represents the population size (in this research, N = 1982)
- p - represents the worst-case value of unknown population proportion, (p=0.5)
- d - represents the error margin (d= 5%)
- z - is the upper α/2 point of the normal distribution (for a 95% confidence level, z = 1.96). Using the above formula (equation):

$$n = \frac{(1982)x(0.5)x(1-0.5)}{(1982-1)x\left(\frac{0.05^{\wedge}2}{1.96^{\wedge}2}\right)+0.5x(1-0.5)} = 322$$

Due to the limitation of using the electronic questionnaire, and time limitations, 110 completed questionnaires were collected (a response rate of 34.2%). However, data was analyzed for the first 100 questionnaires due to the limitations of using the trial version of Smart PLS Software.

4. DATA ANALYSIS AND RESULTS

4.1 Descriptive Statistics

Table 1 shows the demographic profiles of respondents, based on their gender, category, and level of education. It could be noticed that these statistics represent the distribution of employees at ANNU.

Table 1: Demographic Profiles of Respondents.

Gender	Percentage (%)	Level of Education	Percentage (%)
Male	62%	Diploma	9%
Female	38%	Bachelor's	36%
Total	100%	Master's	29%
		Doctorate	26%
Category	Percentage (%)	Total	100%
Academic	44%		
Administrative	56%		
Total	100%		

4.2 Common Method Bias Test

The first step in analyzing the model was to test the common method bias using the collinearity assessment approach as described by Kock (2015) in order to measure the Variance Inflation Factors (VIFs) for the inner model variables. VIF values that are less than 3.3 suggest that the model is free from bias. In this study, most of the inner model variables resulted in VIF values of less than 3.3, which is an indication of freedom of bias. This means that the results are reliable and not influenced by measurement errors.

4.3 Data Analysis

Smart PLS Software (v4.1.0.3) was used to analyze data using partial least squares structural equation modeling (PLS-SEM). This technique was chosen due to its suitability for complex models, and relatively small sample sizes. Two models were employed in the analysis: the measurement and structural models.
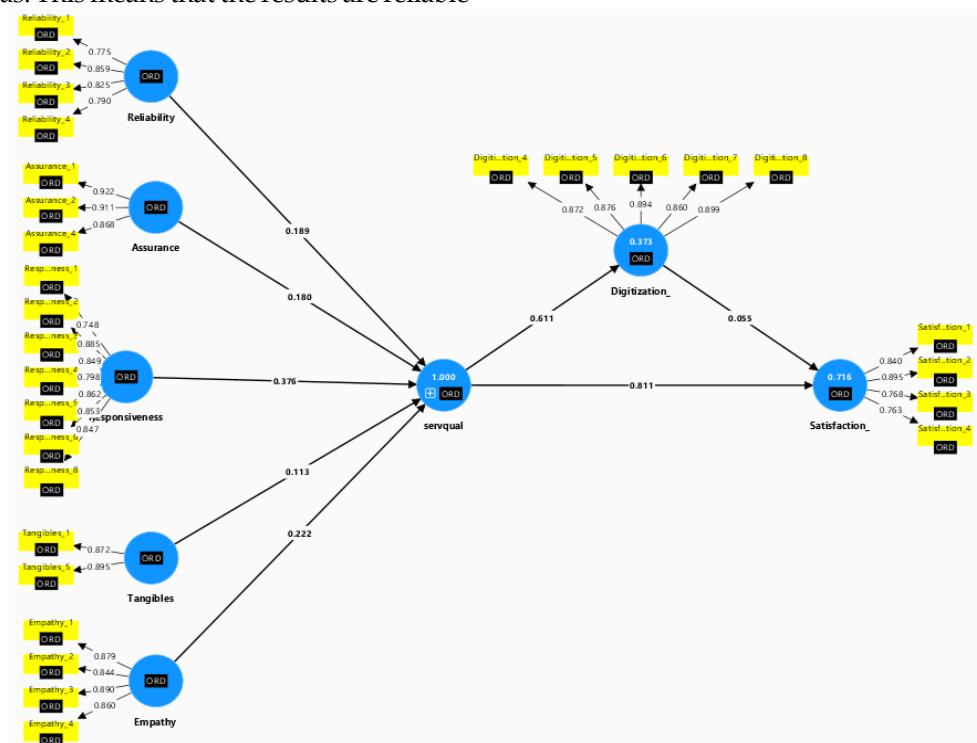

Figure 2: The Measurement Model.

4.3.1 Measurement Model

The measurement model was first used to test construct's reliability and validity and evaluate how well the observed variables represent the constructs they are intended to measure, according to Figure 2 below. Factor loading indicators were assessed to evaluate the reliability of the indicators in the model. All indicators with factor loadings more than 0.7 were included in the model (Hair et al., 2011). A total of 10 items were excluded for having less than 0.7 factor loadings. Moreover, a composite reliability threshold of 0.7 (Hair et al., 2011) was met for all parameters (ranging from 0.724 to 0.969) indicating internal consistency of parameters. In addition, Average Variable Extracted (AVE) were higher than 0.50 (ranging from 0.622 to 0.811) indicating convergent validity. Results are shown in Table 2 below.

Table 2: Measurement Model Results.

	Cronbach's Alpa	Composite Reliability	Composite Reliability	Average Variance Extracted
Assurance	0.883	0.884	0.928	0.811
Empathy	0.891	0.892	0.925	0.754
Reliability	0.828	0.828	0.886	0.661
Responsiveness	0.927	0.930	0.942	0.698
Tangibles	0.719	0.724	0.877	0.780
Quality of Service	0.968	0.969	0.970	0.622
Digitalization	0.927	0.929	0.945	0.775
Satisfaction	0.838	0.868	0.890	0.670

Moreover, discriminant validity was tested using the Fornell-Larcker criterion, as the squared root of the AVE for each construct was greater than its correlation with all other constructs (Hair et al., 2011), as shown in Table 3 below.

Table 3: Discriminant Validity - Fornell-Larcker Criterion.

	Assurance	Digitalization	Empathy	Reliability	Responsiveness	Satisfaction	Tangibles	Quality of Service
Assurance	0.900							
Digitalization	0.560	0.880						
Empathy	0.838	0.515	0.869					
Reliability	0.843	0.506	0.794	0.813				
Responsiveness	0.834	0.592	0.873	0.778	0.836			
Satisfaction	0.760	0.551	0.794	0.788	0.804	0.818		
Tangibles	0.771	0.664	0.776	0.707	0.783	0.702	0.883	
Quality of Service	0.927	0.607	0.94	0.892	0.955	0.845	0.850	0.788

4.3.2 Structural Model

The structural model was tested using bootstrapping to understand the connections between latent variables. The values of the coefficients of determination (R^2) are shown in Table 4 below. The levels of R^2 (Hair et al., 2011) are considered high, moderate, or weak based on their results of 0.75, 0.05, or 0.025, respectively.

Table 4: Values of the Coefficients of Determination (R2).

	R-square	R-square adjusted	Results
Satisfaction	0.716	0.710	High
Digitalization	0.373	0.367	Moderate

Moreover, the results of effect size values (F^2) in the model were as shown in Table 5 below. This coefficient measures the extent to which each independent variable helps to analyze the dependent variable. Based on Hair et al. (2011), the predictor variable is small when the F^2 value is 0.02, moderate when it is 0.15, and high at 0.35.

Table 5: Results of Effect Size Values (f2) in the Model.

	f-square	Result
H1: Quality → Satisfaction	1.449	Large effect
H2: Digitalization → Satisfaction	0.007	Small effect
H3: Quality → Digitalization	0.596	Large effect

The four proposed hypotheses were tested for validation and assessed for significance using path coefficients (β values), and the results were as shown in Table 6 below along with T-statistic values. Based on Hair et al. (2011) the relationship is significant if the T-value is above 1.96 at a significance level of 5% and the p-value below 0.05.

Table 6: Results of Hypotheses Testing Using Path Coefficients and T-Values

Hypotheses	Std. beta (β)	Standard Deviation (STDEV)	T-values	p-values	Decision
H1: Quality Satisfaction	0.811	0.052	15.743	0.000	Supported
H2: Digitalization Satisfaction	0.055	0.049	0.626	0.531	Not supported
H3: Quality Digitalization	0.611	0.079	7.747	0.000	Supported

4.3.3 Testing Mediation

Table 7 summarizes the steps undertaken to test the mediating effect of digitalization between quality and satisfaction. Based on Hair et al. (2011), there are two main steps in the mediation analysis procedure. The first step is to determine the significance of the indirect effect, which was not significant in our case since the P-value was higher than 0.05 and the T-Stats was 0.608. The next step is to assess the significance of the direct effect, which was significant in our case since the P-value was less than 0.05 and the T-Stats was 15.743. Therefore, we can conclude that there is a direct effect without mediation on the quality of services provided

by the procurement department, and the satisfaction of employees. As a result, the fourth hypothesis was not supported.

Table 7: Summary of Mediation Analysis.

Type of effect	Effect	Path Coefficient	T-Stats	Remark
Total Effect	Quality Satisfaction	0.845	30.459**	Significant total effect
Indirect Effect	Quality Digitalization Satisfaction	0.034	0.608	Non-significant indirect effect
Direct effect	Quality Satisfaction	0.811	15.743**	Significant direct effect

5. DISCUSSION

In this research, four different hypotheses were set and tested to examine the relationships between the quality of procurement services, employee satisfaction, and the mediating role of digitalization of procurement processes. The findings supported two of these hypotheses and were not able to support the other two. The first supported hypothesis is related to the quality of procurement services, and its positive effects on employee satisfaction. This is explained by the good impact the quality of procurement services leaves on internal customers (university employees). This hypothesis is consistent with the results of literature from many previous studies, using the same SERVQUAL framework to examine the quality of service levels and their effects on satisfaction (Charnor & Quartey, 2024). ANNU employees perceive the quality of services offered by the procurement department as a key determinant of their overall satisfaction. The other supported hypothesis is that the quality of procurement services is significantly related to the digitalization of procurement processes. This is explained by the necessity of improving the procurement processes and operations, including digitalization, making the supply chain more efficient (López-Morales et al., 2023). Therefore, the research highlights the critical role digitalization is playing in improving the quality of services offered by procurement department at ANNU.

The two non-supported hypotheses were digitalization was not significantly affecting the employees' satisfaction, nor mediating the relationship between the quality of services and employees' satisfaction. This also could be understood and explained in several ways. In today's technologically advanced environment, digitalization could be seen as a basic enabling factor rather than an additional factor leading to satisfaction. In other words, customers (both internal and external) have higher expectations of technologies and digitalization. Moreover, it could be also considered that employees focus more on the effectiveness and efficiency of the procurement services rather than the digital tools used to deliver procurement services; therefore, their satisfaction is met based on the level of quality regardless of the digital tools used or involved in the process.

The implications of the study's findings are significant for educational policy and institutional change in postsecondary educational institutions, particularly in developing country contexts where public administration systems are often seen as inefficient and unaccountable (Alabdali & Salam, 2022). The evidence of an association between procurement service quality and student and employee satisfaction indicates that procurement, while undervalued, provides an important mechanism for enhancing institutional trust, professional belonging, and climate (Hautala-Kankaanpää, 2022). An important outcome is that policymakers and leaders in postsecondary educational institutions should see procurement services as a tool of institutional governance that can support not only trust and professional belonging but also increasing levels of transparency, accountability, and ethical service delivery that accompany national education reform efforts (Chan & Owusu, 2022).

At the same time, Watermeyer et al. (2022) discussed that the increasing incorporation of digital technologies into the procurement process presents an opportunity to advance the digital modernization of public universities and colleges. As this study has shown, digitalization is not simply a way of streamlining existing processes; it produces new ways of engaging with norms and expectations around service responsiveness, access to university resources, and distributive justice (Alami et al., 2023). Public educational authorities and institutional leaders should recognize digital procurement systems as part of a sociotechnical approach to institutional modernization that requires commensurate investment in digital infrastructure, staff digital fluency, and transparent policy related to their use (Melanie Pfaff et al., 2023).

According to Jiménez et al. (2022), higher education reform continues to highlight inclusive service delivery and organizational equity. Digital Procurement systems can foster service equity by standardizing, tracing, and making procurement requests and approvals public to all staff, regardless of departmental context or institutional rank. This approach promotes the administrative service equally for all staff and reconnects with global trends aimed at more inclusive and responsive public sector institutions (Wilson & Mergel, 2022). These future policy discussions need to situate digital

procurement as a strategy to narrow service inequities within universities and more broadly, create a place for inclusive academic workplaces that also strives for participatory, transparent and equitable work cultures.

6. CONTRIBUTIONS AND IMPLICATION

This study makes significant contributions and enrich the available literature on the quality of procurement services, digitalization of procurement services and employee's satisfaction, particularly in HEIs. The study provides empirical evidence of the relationship between procurement service quality and employee satisfaction within HEIs, leading to enhanced overall performance. This study also employed the models available in literature on a new domain HEIs. Additionally, it tests the mediation effect of a relatively new factor on satisfaction (digitalization), adding to the body of knowledge in the field, since literature on this factor is limited. The results can be used by policymakers to enhance employee satisfaction in these institutes and can further improve processes and strategies in the organizations.

The insights from this study provide valuable contributions to higher education institutions (HEIs) in their efforts to modernize despite minimal resources while advancing service equity and strengthening trust with their institutions. While procurement services have historically been considered operational activities, the evidence presented in this paper positions procurement as a central aspect of institutional governance and culture. This study demonstrates that perceived procurement service quality is an important aspect of employee satisfaction and provides insight into the necessity for employees' commitment to a sustainable and strategic procurement role in universities' governance arrangements.

From a public policy perspective, the data suggest that procurement management be fully incorporated into higher education reforms nationally, especially where public universities have been facing additional scrutiny with regard to the nature of transparency and allocation of resources. Procedural transparency through efficient and responsive procurement processes supports organizations' legitimacy as well as internal stakeholder trust foundational elements of strong institutional governance and it is necessary for governments to develop regulatory structures and performance indicators for public HEI procurement services that consider more than simply financial accountability but also value and integrate perceptions of employee satisfaction, equity of service provided, and procedural fairness.

Moreover, this study identifies digital procurement systems as valuable vehicles for service quality enhancement and institutional modernization. However, instead of examining digitalization as the provision of administrative efficiency, this research examines its influence on social relationships, communication methods, and power relations within higher education institutions (HEIs). Digital systems introduce standardized, transparent, and traceable processes that typically diminish discretion and opportunities for favor and exclusion by enhancing public access to institutional services. Thus, they promote a culture of procedural justice and equal treatment, necessary when promoting service equity in academic workplaces.

Finally, we must contextualize the modernization of procurement systems in the wider understanding of higher education's digital transformation. Meanwhile, universities are increasingly expected to deliver academic and administrative services through the medium of digital platforms, meaning that a successful rollout of a digital procurement system has the potential to be a blueprint for modernization in other administrative contexts within HEIs, owing to the HEIs signal of institutional modernization commitments, good governance, and employee wellbeing. Policy and funding needs to support this transition by ensuring institutions are investing resources on digital infrastructure, providing training on digital competencies, and building cultures from which organisations draw upon transparency, fairness, and participatory decision-making.

7. CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

Based on our collective understanding, this research presents the first empirical investigation evaluating digitalization's role in enhancing internal customer (employee) satisfaction within higher education institutions (HEIs). Therefore, this research provides a road map for how digitalization can contribute to increasing internal customer satisfaction through improving the quality of procurement services. This research can be generalized to all Palestinian higher education institutions.

The outcomes of this research highlight the key importance of the quality of procurement service quality, as it relates to employee satisfaction at higher educational institutions and important consequences for institutional trust, organizational identity, and the workplace culture of academic work. While procurement services are often thought of as merely administrative support functions, this research shows that the quality of procurement services is a

significant factor about how employees view fairness, responsiveness and procedural correctness; thereby employee satisfaction reflects important workplace culture indicators related to how institutional systems demonstrate principles of transparency, inclusiveness and professional respect.

Most importantly, this investigation shows that the quality of procurement services is a visible form of the institution's governance culture that is expressed to internal stakeholders. When procurement processes are viewed as timely, accurate and responsive, they foster a sense of institutional trust whereby the academic and administrative staff know that they have been heard and acknowledged in their organizational needs. Over time, the trust established through quality procurement service contributes to an organizational identity that encapsulates staff self-perceptions of being part of a well-managed professional and ethically governed academic community.

Moreover, the partial role of digitalization identified in this research highlights that, while technological tools are critical enablers of efficiency, they assume a much more significant alignment concerning redefining organizational norms and expectations. Digital procurement systems can reinforce accountability and fairness in particular cultures by improving equitable access to institutional services, while restricting opportunities for arbitrary decisions. Consequently, they alter the orientation of the broad academic work culture by enhancing transparency, consistency, and respect during the administrative process.

This suggests that higher education leaders and policymakers should think of employee satisfaction as not only indicative of job satisfaction, but also as a reflection of the institution's governance structures and organizational climate. Improving the quality of procurement services and leveraging digital resources thoughtfully can be a trigger for modernization that may breed healthier, more inclusive, and cohesive academic workplaces.

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Appendix 1: Research Questionnaire

University Staff Satisfaction Evaluation Questionnaire on Procurement Services and the Impact of Digitalization on Increasing Satisfaction
Case Study: An-Najah National University – University Staff Questionnaire

Dear Esteemed Members of the Academic and Administrative Staff,

We kindly ask you to answer the questions in this questionnaire objectively to achieve the study's goals. Please note that all data will be kept confidential, and it is expected that filling out the questionnaire will not take more than 5 minutes. All data is for research purposes only. This questionnaire has been designed as part of the requirements for the "Quality Management" course project in the Master's program in "Engineering Management." It aims to evaluate the impact of quality management practices on the satisfaction of university staff with procurement services through the digitalization of procurement processes as a mediator, and the effect of digitalization on increasing the satisfaction of An-Najah National University staff.

Thank you for your response and kind cooperation.

Respectfully,

Research Team

Section 1: General Information		
A1	**Gender**	□ Male	□ Female
A2	**Age**	□ 18-24 years □ 40-55 years	□ 25-39 years □ 55-65 years
A3	**Number of years working at the university**	□ 5 years or less □ 11-20 years	□ 6-10 years □ 21 years or more
A4	**Staff category**	□ Academic	□ Administrative
A5	**Educational level**	□ High school or less □ Diploma □ Bachelor's □ Master's □ Doctorate	
A6	**Job level**	□ Vice/Assistant President □ Deans and College Coordinators □ Department Head / Section Head / Center Director □ Faculty Member □ Technical or Administrative Staff	

Section 2: Satisfaction with University Procurement Services **To what extent do you agree with the following statements?**							
#	Aspect	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
B 1	Reliability	Orders requested by staff are provided on time.	□	□	□	□	□
B 2		Orders requested by staff are provided accurately according to their requested specifications.	□	□	□	□	□
B 3		Orders requested by staff are provided accurately according to their requested quantities.	□	□	□	□	□
B 4		Technical and financial information is provided to staff when requesting new materials or equipment.	□	□	□	□	□
B 5		Smooth procedures are followed in providing the requested materials and equipment.	□	□	□	□	□
B 6		Staff are consulted about the nature and specifications of the devices and materials to be provided to them.	□	□	□	□	□
B 7	Assurance	I have confidence in the effectiveness of the procedures followed in providing my required materials, equipment, and tools.	□	□	□	□	□
B 8		I have confidence in the transparency of the university's procurement system.	□	□	□	□	□
B 9		There is privacy and confidentiality in dealing with the provision of my requirements.	□	□	□	□	□
B 10		I have confidence in the procurement team's ability to provide my needed devices, equipment, and materials to meet my work requirements.	□	□	□	□	□
B 11	Responsiveness	There are smooth communication lines when requesting new materials or equipment.	□	□	□	□	□
B 12		Staff inquiries and complaints are answered and addressed quickly.	□	□	□	□	□
B 13		Inquiries are handled positively and courteously.	□	□	□	□	□
B 14		Calls are answered on the first try.	□	□	□	□	□
B 15		Emails are responded to with clear answers.	□	□	□	□	□
B 16		There is a constant willingness by the procurement department staff to assist with staff requests.	□	□	□	□	□

			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
B 17		I am informed of the expected time to provide my required materials and equipment.	□	□	□	□	□
B 18		Staff suggestions are utilized to improve the quality of the university's procurement processes	□	□	□	□	□
B 19	Tangibles	The university has modern equipment and tools that meet my work requirements.	□	□	□	□	□
B 20		The university has appropriate classrooms in terms of equipment and infrastructure.	□	□	□	□	□
B 21		Public facilities and their equipment are well provided at the university.	□	□	□	□	□
B 22		The needs I request are provided in good condition.	□	□	□	□	□
B 23		I sense a general improvement in the internal and external work environment in recent years.	□	□	□	□	□
B 24	Empathy	The university understands the needs and requests of its staff.	□	□	□	□	□
B 25		I feel the interest and empathy of the procurement staff to meet my needs, contributing to a comfortable work environment.	□	□	□	□	□
B 26		There is a spirit of friendliness and cooperation in dealing with the procurement department staff.	□	□	□	□	□
B 27		I feel genuine interest from the university when requesting my work requirements and needs.	□	□	□	□	□

Section 3: Digitalization of Procurement Processes To what extent do you agree with the following statements?						
#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
C 1	The university provides electronic systems to facilitate the procedures for requesting needs.	□	□	□	□	□
C 2	The university provides electronic systems to track the procedures for providing needs.	□	□	□	□	□
C 3	The current electronic systems contribute to speeding up procurement procedures.	□	□	□	□	□
C 4	I expect an improvement in the quality of procurement services if all operations are digitalized.	□	□	□	□	□
C 5	Digitalization of all operations will increase my confidence in meeting all my requests and my ability to follow up on them.	□	□	□	□	□
C 6	I expect procurement staff to be able to improve the level of services through digitalization of operations.	□	□	□	□	□
C 7	The university provides the necessary infrastructure to use these electronic systems (Internet, computers, etc.).	□	□	□	□	□
C 8	Digitalization of all operations will increase my satisfaction with procurement services.	□	□	□	□	□

Section 4: Satisfaction Evaluation What is the level of satisfaction with the following items?						
#	Item	Very Satisfied	Satisfied	Neutral	Dissatisfied	Strongly Dissatisfied
D 1	Satisfaction with the overall performance of the university procurement department.	□	□	□	□	□
D 2	Satisfaction with the availability of the needs required for my work.	□	□	□	□	□
D 3	Satisfaction with the university facilities in general.	□	□	□	□	□
D 4	Satisfaction with the work environment at the university in general.	□	□	□	□	□

Thank you for your cooperation.
Research Team