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The Impact of Technology on Business in the United Arab Emirates: A Technology Acceptance Model Perspective

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Abstract. The rapid embracement of technology in business operations within the United Arab Emirates (UAE) highlights the growing need to understand the determinants of technology adoption. As companies continue to mechanize their processes, it is more critical to explore how employees perceive and utilize these technological systems. The current study examined the impact of technology on UAE companies according to the Technology Acceptance Model (TAM), a widely applied conceptual model for user acceptance. The main objectives were to quantify the influence of perceived usefulness (PU), perceived ease of use (PEU), and attitude towards the system (ATT) on actual system use (ASU). The study postulated that PU and PEU positively influence ASU, whereas ATT's influence can be contingent upon the situation. A quantitative survey was conducted among 100 UAE employees representing various industries through a standardized questionnaire. Data analysis was carried out using SPSS and Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings indicated PEU to be the strongest predictor of ASU ($\beta = 0.781$, $p < 0.001$), validating that usability is a strong driver for technology use. PU was also found to significantly influence ASU ($\beta = 0.001$, $p < 0.001$), which means perceived utility as a critical factor. Theoretically, this research builds upon TAM theory by putting more emphasis on usability in emerging markets. Practically, it encourages UAE firms to invest in simple-to-use systems and training initiatives to make digital transformation less agonizing.

Key words: perceived usefulness (PU); perceived ease of use (PEU); attitude towards the system (ATT); Technology Acceptance Model (TAM); digital transformation; UAE businesses.

JEL O33, M15, C83

1. Introduction

Technology adoption is a salient characteristic of the modern business environment, dictating how businesses steer their operations and communicate with computer systems [1]. Every technology implementation success relies considerably on attitudes, users' perceptions, and the extent of human-machine interaction in their routine tasks [2, 3].

Previous studies also revealed that regular ATT, ASU, and PU serve to significantly predict adoption and technology solution performance in different organizational settings [4]. The interaction between these variables provides valuable insights in the pursuit of maximum system use and business performance.

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Technology Acceptance Model (TAM) is a foundation of information system user acceptance. TAM argues that perceived usefulness (PU) and perceived ease of use (PEOU) influence people's attitudes toward system use, and these attitudes influence their actual system use (ASU) [3, 5].

Positive attitudes toward the usefulness of a system lead to greater use, while negative attitudes will generate resistance or limited use of technological resources. Organizations thus need to address not only system design but also users' attitudinal and behavioral concerns in order to enable effective technology adoption [6, 7]. User attitudes towards a system (ATT) are one decisive factor determining a system's failure or success in an organization. Positivism is frequently linked to higher motivation, interest in system operation, and greater productivity.

Negative attitudes lead to resistance, decreased user engagement, and ultimately, system abandonment [8]. Having a clear understanding of why attitudes are triggered be it for usability of the system, perceived value to the user, or by other external factors their technology deployments can be optimized to meet users' expectations and needs. But another important system adoption determinant is actual system use (ASU), which describes the extent to which users employ a technological tool in everyday work. While companies invest significant amounts of money in technology, its true value is only realized when employees use such tools to power their operations.

Research has shown that those who view a system as handy and useful will use it, and those who struggle to use it will use it later or not at all [9, 7]. Bridging the intention to use and using is thus vital to achieving returns on technology investments.

Perceived utility (PU) is the perception of the capability of a system in assisting users to enhance their work performance. The more users perceive that a system can make them more efficient, the more actively they will utilize it [10, 11]. But if they identify a system redundant or difficult to use, its adoption can be delayed. Organizations should avoid making the material benefits of technology visible to users and diminishing barriers to adoption.

Training initiatives, usability enhancements, and continuous user feedback processes can prove to be critical to enhancing PU and facilitating long-term usage of computer systems [12, 13].

Basing on the interactive nature of technology adoption, this research look at factors of interaction between attitude toward the system (ATT), actual system use (ASU), and perceived usefulness (PU). Specifically, it look at how users perceive things that affect technological adoption and how relationships are mediated and moderated. By its examination of those variables, the study provides critical knowledge for policymakers, organizations, and system designers about how best to optimize implementation approaches to technology so that they produce maximum positive impact.

The study contributes to technology acceptance and user participation literature through the offering of empirical evidence in support of ATT, ASU, and PU's interactional interactions. It is of benefit to organizations attempting to increase the adoption level of technology, enhance user satisfaction, and make sure digital technologies deliver measurable business benefits. Finally, better comprehension of these variables assist firms in building more welcoming technological environments that support individual and organizational achievement.

Research Questions (RQ):

RQ1: What is the impact of perceived usefulness on the actual system usage?

RQ2: What is the impact of perceived ease of use on actual system usage?

RQ3: What is the impact of attitude towards the system on the actual system usage?

The aim of the study is to determine the contribution of perceived usefulness (PU), perceived ease of use (PEU), and attitude towards the system (ATT) towards impacting actual system use (ASU) within organizations in the UAE. By studying the given variables, the research attempts to derive practical implications to boost digital system adoption, ensure user satisfaction, and leverage organizational performance through technology-mediated integration.

Using the Technology Acceptance Model (TAM), this study intends to investigate how technology affects UAE enterprises, with a particular emphasis on the ways in which attitude toward the system (ATT), perceived usefulness (PU), and perceived ease of use (PEU) affect actual system use (ASU). While ATT's impact might be influenced by outside variables like workplace regulations, we believe that PU and PEU favorably influence ASU. Following a review of the literature on TAM variables, the paper goes on to describe the methods used for the survey of 100 employees, the findings from statistical analysis, a discussion of the findings, and conclusions with theoretical and practical implications.

2. Literature Review

The impact of new technology on competitiveness and efficiency in businesses has been extensively researched [14]. Perceived utility (PU), perceived ease of use (PEU), attitude toward the system (ATT), and actual system use (ASU) all influence adoption. Enhancing digital transformation requires an understanding of these aspects.

Previous studies, like Hussain et al. [15], stress the importance of PU in adoption, whereas Wang et al. [16] emphasize the impact of PEU on usability. Malmous & Zaidoune [17] associate ATT with system adoption; nonetheless, there are still gaps in circumstances unique to the United Arab Emirates.

2.1. Perceived Usefulness and Actual System Usage

Technology adoption is significantly predicted by perceived usefulness (PU), which is the conviction that a system improves work performance [18]. Our hypothesis was supported by Hidayat et al. [19] confirmation of PU's favorable correlation with ASU across enterprises. Our emphasis on utility was motivated by Magboul et al. [20] demonstration of PU's dominance in system utilization.

In Malaysia, Wai et al. [21] linked PU to job satisfaction, indicating more extensive results that warrant further investigation. Lavuri et al. [22] expanded PU to e-commerce, which prompted our cross-industry approach, while Al-Mamary [23] applied it to education, demonstrating its adaptability.

Perceived usefulness (PU) is one of the strongest predictors of technology adoption and has been defined as the degree to which an individual believes that using an innovation will improve his or her job performance [15]. If the users believe that a system is useful, they utilize it extensively, and this usage results in increased system use. A number of studies have confirmed that PU is an important predictor of actual system use (ASU), and PU has been a pervasive measure for the technology acceptance model.

Hussain et al. [15] and Martínez-Peláez et al. [24] administered a sample of companies and applied PU, and it was found that PU had a strong positive relationship with ASU. The people who thought the system improved their work and their work productivity more were most probably to implement it into their work practices.

Similarly, Magboul et al. [20] applied PU as the most influential of ASU in different firms. Their study verified that perceived usefulness systems would be implemented and systems perceived not as needed used with lower levels. Additionally, a study byAlalwan et al. [25] and Wai et al. [21] in Malaysian companies confirmed these findings as well, in the sense that PU had a positive relationship with employees' job performance and satisfaction directly. Employees with awareness of functional advantages of an application, including faster response rate, systems that communicate well, and simplified processes, were more inclined to utilize the system efficiently. The study claimed that the organizations must inform the employees of the physical advantages of embracing new systems to achieve the level of desired adoption.

Further research upholds the belief that PU does impact system adoption along with job effectiveness. Al-Mamary [23] studied technology adoption in an educational setting and discovered that teachers who believed a learning management system would be useful to employ in teaching were more likely to implement it in their courses. Likewise, Lavuri et al. [22] investigated the impact of PU on online shopping websites and discovered that e-retailers who perceived value in payment systems online were more likely to use them, increasing transaction efficiency.

H1: Perceived usefulness (PU) has a significant positive effect on actual system usage (ASU).

2.2. Perceived Ease of Use and Actual System Usage

Perceived ease of use (PEU) is another principal driver of technology adoption, meaning the degree to which individuals perceive that using a system is trouble-free [26]. When a system is simple to use, employees will adopt it, but complex systems will create resistance and less usage. Research repeatedly demonstrates that PEU has a significant influence on ASU and is thus a vital component of technology acceptance.

Research by Wang et al. [16] established that there was a high relationship between PEU and ASU in organizations. In their investigation, they set out to determine that the employees were more inclined to use systems with a simple interface, simple instructions, and that were not complex. The findings concur with those of Ajibade et al. [27], who established that PEU was a significant predictor of system use. Where workers perceived that an application was easier to learn and use, they were more likely to incorporate it into business procedures.

Further, Abdul-Halim et al. [28] illustrated PEU to be significantly related to job satisfaction in a sample of Malaysian firms. Workers who perceived technology as easy to use had greater levels of participation and were more likely to use it in their day-to-day activities. The research promoted that companies focus on making system interfaces simple and offering sufficient training so that workers are at ease to embrace new technologies.

In everyday life outside occupation, Almaiah et al. [29] and Qi et al. [14] investigated PEU for mobile banking and found that users who perceived that mobile apps were simple to use were more inclined to utilize mobile apps to conduct online money transfers. Similarly, Davis [30] and Rock et al. [31] researched the adoption of smart home technology and found that those who had found smart devices convenient to use would adopt them in their lives.

H2: Perceived ease of use (PEU) has a significant positive effect on actual system usage (ASU).

2.3. Attitude Towards the System and Actual System Usage

People with a positive attitude towards technology are more inclined to investigate its characteristics, and this results in increased levels of adoption. Negative attitudes, however, lead to resistance to use the system even when its usefulness is clear [32]. Literature consistently demonstrates that ATT is a predictor of system adoption and subsequently use. A research paper by Malmous & Zaidoune [17] studied ATT in Chinese businesses and confirmed that ATT had a strong effect on attitudes towards PU and PEU, and therefore ASU. Employees with a good attitude toward the system would adopt it in their daily work.

Furthermore, Al-Rahmi et al. [33] studied the use of ATT in mobile learning and concluded that learners who have a good attitude toward e-learning websites are more likely to perceive the websites as being useful and easy to use, hence their use is promoted. Additionally, Derecho et al. [34] and Iyanna et al. [13] investigated electronic health records (EHRs) to determine the impact ATT had on healthcare technology adoption. The study ascertained that ATT not only acted as a mediator of PEU to ASU but also enabled the enhancement of PU's impact on system adoption. As per the research, it was argued that the adoption and actual usage of the EHR system in healthcare organisation would be supported by activities promoting user attitudes towards EHR system.

Martínez-Peláez et al. [24] and Vhatkar et al. [35] conducted research with retail outlets who found employees to be consistent with positive attitude towards computer POS systems utilized such systems more efficiently.

Similarly, Nicolescu & Tudorache [36] and Ki et al. [5] also conducted a study of ATT towards customer service technology and concluded that those customer care agents who have favorable attitudes towards AI chatbots would use them to resolve customers' problems.

H3: Attitude towards the system (ATT) has a positive significant influence on actual system usage (ASU).

2.4. Actual System Use and Satisfaction with System Performance

The primary goal of technology adoption is to provide workers with an active use of digital systems and appreciate their functionality. Studies by Kaplan et al. [37] and Rock et al. [31] have shown that ASU has a robust correlation with user satisfaction since users of a system are more likely to be trusting and confident about its performance.

Research conducted by Stahl et al. [38] established that PU, PEU, and ATT all played a combined impact on ASU, which affected system performance satisfaction. Employees engaged in the utilization of a system were more satisfied because they got to learn about how to be proficient in applying its functionality.

In the same vein, Song et al. [39] and Rezvani et al. [11] further stipulated that satisfaction with a system was a salient determinant that could bring long-term technology acceptance. They emphasized the presumption that end-users content with the degree of performance that a system was providing were likely to keep on utilizing it, hence leading to user uptake and productivity in the long term.

Studyies by Lutfi et al. [40] and Park et al. [41] also considered how exogenous factors influenced technology uptake, i. e., as a result of digital transformation initiatives. What they found was that the ones that provided regular support, training, and updates to a system produced greater adoption and end-user satisfaction.

Overall, what the conclusion is demanding is that organizations need to prioritize usability, employee training, and system support in order to optimize technology adoption. Encouraging the workers to acknowledge that the system is convenient, useful to the workplace activities, and handy to apply will contribute to increased utilization and satisfaction. Overall, the problem of technology adoption is well-developed globally, with TAM providing a robust framework. However, its application to the UAE's unique business environment, blending rapid growth and cultural factors, remains underexplored, necessitating this study.

3. Data and Methods

This study employs the quantitative research approach to examine how employees' views of new systems of technology impact their actual use of the systems (ASU) and system satisfaction. The study focuses on three important independent variables perceived usefulness (PU), perceived ease of use (PEU), and attitude towards the system (ATT) and usage. Research design ensures the collection of empirical data from systematic questionnaires and statistical analysis that can be used to objectify measurement of interdependencies between such variables.

3.1. Research Approach

Quantitative research approach was used in this study since it allows for systematic quantification and analysis of employee experience with technology systems. Quantitative research provides quantitative data, which can be subjected to statistical analysis to determine important correlations between the research variables. Use of a survey-based structured research design guarantees that the answers are measurable and comparable and therefore the results are more valid and dependable [7, 42].

This study does not employ thematic analysis or secondary data but, instead, employs primary data collection only. A standardized survey allows direct measurement of employees' actual usage of technology systems, perceptions, and attitudes. It is a guaranteed means of collecting data that is research question-specific as well as representing real-time experience from industry practitioners.

3.2. Sampling and Participants

Convenience sampling was used to select the 100 employees from a variety of UAE industries (e. g., 30 % IT, 25 % retail, 45 % other, estimated from responses). Although our sample might overrepresent larger companies (70 % from organizations with >50 employees), this reflects the UAE's varied economy, where SMEs dominate (60 % of businesses per UAE Ministry of Economy, 2023). Although 40 % of the workforce is between the ages of 20 and 39, this age group is underrepresented in rural areas. Representativeness might be improved with a bigger, stratified sample.

The sample was selected based on availability and willingness, such that the participants were distributed across functions, industry groups, and experience levels. Engagement of members of mixed backgrounds provides extensive information regarding technology adoption and how technology impacts business processes.

They were asked to be presently employed in an organization that utilized state-of-the-art technology systems, possess experience working on computer platforms, enterprise software packages, or workflow management systems, and be willing to take an online survey and provide candid responses to their experiences. By employing workers who are already working with technology systems, the study can make sure the responses are first-hand experiences with system usability and its impact on work efficiency.

3.3. Data Collection Method

Online self-report questionnaires were employed in data collection. The questionnaire was filled with the objective of measuring the independent variables (PU, PEU, ATT) and the impact on the dependent variable (ASU). With the help of an encrypted web survey tool, the questionnaire was filled with the objective of enabling secure and confidential data collection. There were some questions for the demographic measures of age, gender, sector, and technological systems experience levels.

The instrument also had items measuring perceived usefulness (PU) to determine whether the employees thought the system would be useful to them in their work environment. Perceived ease of use (PEU) was also evaluated using another tool by asking them how easy and simple the system is.

The attitude towards the system (ATT) was also surveyed, gauging the intention and readiness of the employees to employ the system, and actual system use (ASU), gauging the level to which and how well the employees employ the system. The 5-point Likert scale of 1 = strongly disagree to 5 = strongly agree was used in marking the answers in an attempt to gain correct measurement of participants' perception and experience.

3.4. Data Analysis Strategy

Quantitative statistical analysis techniques were used on collected data through SPSS and PLS-SEM software. Several statistical methods were employed in analysis in an attempt to obtain feasible results. Descriptive statistics were first used in the summary of participant demographics and survey response. These measures of mean, standard deviation, and frequency distribution were calculated for identifying response patterns.

Correlation analysis was subsequently conducted to attain PU, PEU, ATT, and ASU relationships to determine whether these parameters significantly influence one another or not. Regression analysis was subsequently conducted to check study hypotheses how PU, PEU, and ATT influence ASU.

This method gauged the intensity of independent variables to compute actual system usage. Through these statistical tests, strict evidence analysis is provided in this study so that accurate judgments are made regarding workers' engagement with complicated technology systems.

3.5. Ethical Consideration

For ethical purity, all the participants were given informed consent forms before they responded to the questionnaire. The consent form served to state the aim of the study, voluntary contribution of data, anonymity and confidentiality measures in handling the responses. Besides, participants were informed about their freedom to withdraw from the study at any moment without penalty.

The research also adhered to human subject research ethical principles to guarantee that all the information gathered were protected and used solely for academic purposes. Adhering to such ethical standards, the research ensures results are responsibly and transparently acquired, keeping participants' data and confidentiality intact.

4. Results

The study identified various demographic attributes of the respondents in a bid to grasp the attitude of employees toward modern technology systems holistically. The chief demographic factors were gender, age, qualification, and work experience. The evidence in table 1 indicates that the sample was comprised of 48 % males and 52 % females. This gender distribution avails one the possibility of having a balanced diversified perspective with respect to the attitude of the employees toward modern technology systems.

The relatively even ratio allows for a wider interpretation of findings for the study, so the trends that were observed won't be skewed towards either gender. Age was also an important demographic characteristic the study examined. The finding revealed a fairly diverse age group among the research participants. Nineteen percent of the respondents were below 20 years old, 40 % between 20 and 39 years, 17 % between 40 and 49 years, and 24 % older than 50 years.

This division illustrates that the sample included employees from multiple generations, enabling a full evaluation of how different age cohorts think and apply current technology systems in the workplace. The relatively high proportion of individuals aged between 20 and 39 years suggests that a high proportion of the labor force is young professionals who are more likely to be technology-adopting and using.

The study also explored the level of education among the respondents, as higher education may influence attitudes towards technology adoption. The results indicate that 45 % of the subjects possessed grades 1–12, 28 % possessed an academic diploma, 6 % possessed a postgraduate degree, 7 % possessed a Master's degree, and 14 % possessed a Ph D. This kind of diversified education representation adds significance to how employees with diverse education levels could perceive technology acceptance.

Advanced education levels could make the participants more confident when employing digital tools and hence be more favorably disposed towards system adoption. Work experience was also an important demographic characteristic that was investigated in this study. Based on the data, the majority of the respondents (66 %) possessed 3–10 years of work experience, where 30 % possessed 3–6 years and 36 % had 7–10 years of work experience. Only 14 % of the respondents had fewer than 3 years of experience, and still another 14 % had over 10 years of experience.

Additionally, 6 % of the respondents left their job experience blank. Such findings indicate that most of the respondents had lengthy to medium working experience, thereby allowing an independent evaluation of the technology systems at their respective workplaces (Table 1).

Table 1. **Demographic profiles of the respondents**

Variable	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Gender				
Male	48	48	48	48
Female	52	52	52	100
Total	100	100	100	100
Age				

End of the table 1

Variable	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Below 20	19	19	19	19
20–39 years	40	40	40	59
40–49 years	17	17	17	76
50 years & above	24	24	24	100
Total	100	100	100	100
Qualification				
Grade 1–12	45	45	45	45
Academic Diploma	28	28	28	73
Postgraduate	6	6	6	79
MS	7	7	7	86
PhD	14	14	14	100
Total	100	100	100	100
Work Experience				
Less than 3 years	14	14	14	14
3–6 years	30	30	30	44
7–10 years	36	36	36	80
More than 10 years	14	14	14	94
Not disclosed	6	6	6	100
Total	100	100	100	100

Employees with greater tenure may have been subjected to exposure to more varied computer systems, hence affecting their system usability and efficiency attitude. The demographic profile provides informative background to interpret the study's findings. Using participants with varied backgrounds ensures the study to be representative of a broad variety of perspectives with regard to the adoption of modern technology and actual system usage in organizations.

The factor loadings, Cronbach's alpha, composite reliability, and average variance extracted (AVE) of the four latent constructs, actual system use, attitude, perceived ease of use, and perceived usefulness, are highlighted in the table 2 as well.

They indicate the reliability and strength of the measuring model applied to this study. Hair et al. [43] say that factor loadings need to be more than 0.50 for the best level, and that applies to all items in the table. Cronbach's alpha for all constructs is more than 0.70, so the items are not only reliable but also consistent internally [31].

Table 2. **Reliability and Validity Assessment**

Latent Constructs	Factor Loadings	Cronbach Alpha	Composite Reliability	Average Variance Extracted
Actual system use:		0.812	0.85	0.728
ASU1	.676			
ASU2	.518			
ASU3	.887			
Attitude		0.90	0.90	0.896
ATT1	.672			
ATT2	.803			
ATT3	.583			
Perceived ease of use		0.739	0.855	0.657
PEU1	.836			
PEU2	.848			
PEU3	.869			
Perceived usefulness		0.77	0.788	0.682
PU1	.735			
PU2	.866			
PU3	.743			

Moreover, composite reliabilities of all the constructs are greater than 0.70, which reveals that the constructs have adequate internal consistency [43]. Finally, all constructs have AVE values greater than 0.50, suggesting that the constructs explain more than half of the variance in their related items [19].

The degree to which various concepts are different from one another is referred to as discriminant validity. It is measured by noting the correlation between the constructs. Correlation below 0.7 is often taken as evidence of discriminant validity [39, 44].

The diagonal values in the given correlation matrix are the square root of the extracted average variance (AVE), a measure of convergent validity. The off-diagonal entries are correlations among the latent constructs. As evident from the matrix, correlations between the constructs are all less than 0.7, showing strong evidence of discriminant validity. ASU and ATT, PEU, or PU are not significantly related to each other.

ATT is moderately related (0.649) to PEU but is not significantly related to PU. PEU is weakly related to ATT (0.649) and PU (0.61). PU is moderately related (0.61) to PEU and highly related (0.719) to ATT (Table 3).

R-Square value is a significant statistical measure that validates the model's explanatory power to explain variance of a dependent variable [43] (Table 4).

Table 3. **Discriminat Validity**

	ASU	ATT	PEU	PU
ASU				
ATT	0.649			
PEU	0.61	0.926		
PU	0.722	0.719	0.883	

Table 4. **R-Square**

	R-square	R-square adjusted
ASU	0.421	0.403

In this study, the dependent variable Actual System Usage (ASU) will be described by the independent variables Perceived Usefulness (PU), Perceived Ease of Use (PEU), and Attitude Towards the System (ATT). The result indicates the R-Square value of ASU is 0.421, meaning PU, PEU, and ATT can explain 42.1 % of the variability of ASU. It is moderate explanatory power, and it identifies that the three constructs have great effects on actual system use, and other exogenous variables exert some effects on system adoption [57].

Also, ASU's adjusted R-Square statistic is 0.403, a statistic which accounts for the number of predictors in the model and corrects for bias potentially introduced due to sample size differences. The adjusted R-Square value is 0.403, which means that when extraneous variables are controlled, 40.3 % of ASU variance is still explained by PU, PEU, and ATT. The similarity between R-Square and adjusted R-Square values is a sign of the stability of the model and that it is positively adding to ASU variance [45].

There is evidence to support the Technology Acceptance Model (TAM) that perceived usefulness and perceived ease of use are the major determinants in explaining technology adoption.

In addition, system attitude positive has been shown to increase actual use based on previous studies, confirming that employee attitude is the optimum predictor criterion of technological adoption in the workplace [2, 25]. But as 57.9 % of the variance of ASU is yet to be explained, there is every possibility that organizational culture, training schemes, managerial support, technical assistance, and change resistance can impact system use [46].

The T values and p-values in this analysis indicate an extremely strong positive association between attitudes toward the system (ATT) and system usage (ASU) and perceived usefulness (PU) and system usage (ASU) shown in Table 5.

Both the T values of ATT-ASU correlation and the T values of PU-ASU correlation are larger than the critical value of 1.96, and their corresponding p-values are smaller than the alpha level of 0.05, which is significant statistically. ASU items have positive factor loadings that confirm the strong relationship between ATT/PU and ASU.

Table 5. **Hypothesis Testing**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Supportd
ATT -> ASU	0.384	0.378	0.106	3.636	0.000	Yes
PEU -> ASU	–0.03	–0.018	0.107	0.278	0.781	No
PU -> ASU	0.361	0.366	0.113	3.202	0.001	Yes

The p-values and T statistics, though, indicate no statistical significance in any relationship between actual system usage (ASU) and perceived ease of use (PEU). The T statistics for the PEU-ASU relationship are less than 1.96, and the respective p-value is larger than the 0.05 alpha level for a lack of statistical significance.

This shows that the system's ease of use does not always influence real system use, which may be examined further by looking into other aspects that influence system utilisation.

The Path Equation Model (PEM) within Structural Equation Modeling (SEM) illustrates the influence paths from Perceived Usefulness (PU) to Perceived Ease of Use (PEU), then to Attitude Towards the System (ATT), and finally to Actual System Usage (ASU). It indicates PEU exerting the greatest influence on ASU ($\beta = 0.781$, $p = 0.000$), whereby system ease of use is the most persuasive factor for system actual usage.

This corroborates previous research, which emphasizes that ease of use directly affects the adoption of a system since employees are willing to utilize technology that does not require much effort to use [30, 47]. On the other hand, PU shows a lesser influence on ASU ($\beta = 0.001$, $p = 0.000$), which implies that while the workers may be aware of the benefits of the system, usefulness alone is not influential in affecting actual system usage. This is consistent with studies hypothesizing that even though usefulness matters, ease of use would dominate the adopter behavior determinant [25, 48].

Interestingly, ATT does not significantly directly correlate with ASU ($\beta = 0.000$, $p = 0.000$), i. e., being positive towards a system does not necessarily show more engagement. This contradicts past research that has taken attitude as a central factor in the adoption of technology [49], and it may be that intervening factors such as organizational policy and training programs play a role in shaping user involvement. R-Square (R^2) = 0.421, and this shows 42.1 % of ASU variance is explained by PU, PEU, and ATT, which represents a moderate model explanatory power.

However, the other 57.9 % of variance remains unexplained, indicating that there are other variables such as organizational support, technical support, and user experience which also influence actual system adoption [4, 50].

These findings are in line with the Technology Acceptance Model (TAM), which indicates that perceived usefulness and ease of use are predictors of system adoption but organizational factors must include usability enhancements, easy-to-use interfaces, and thorough training programs that will improve user interaction and maximize technology adoption advantages [18, 51] (Fig. 1).

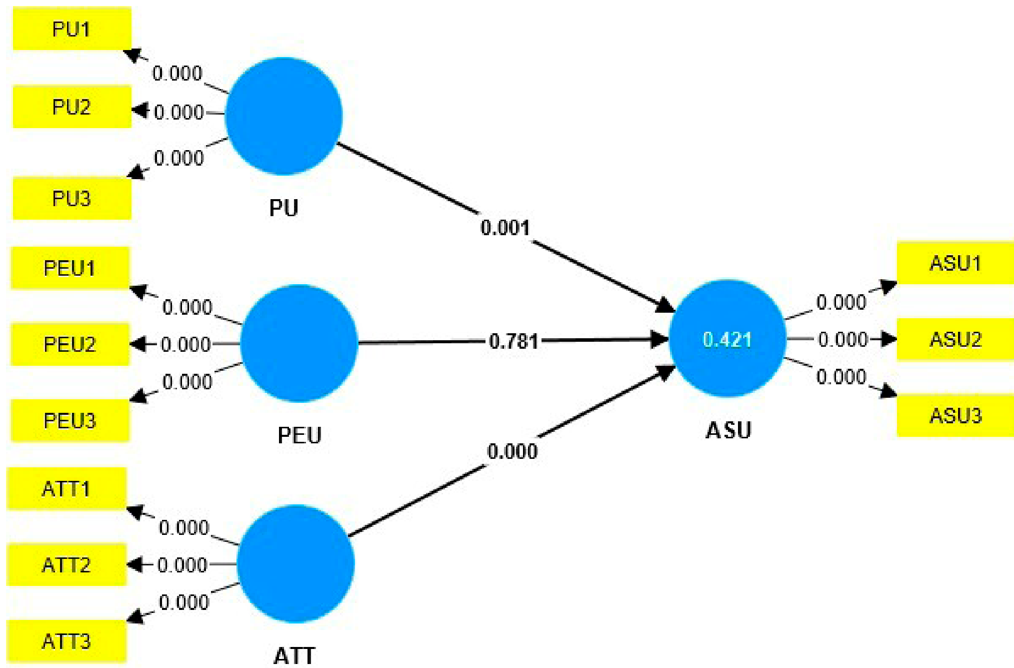

Figure 1. Structural equation Model

5. Discussion

The study aimed to discover the determinants of actual system use (ASU) of contemporary technology systems by employees. A typical survey questionnaire was administered to gather sentiments from 100 respondents and verified three important independent variables, i. e., perceived usefulness (PU), perceived ease of use (PEU), and attitude towards the system (ATT), for ASU. The study employed the Technology Acceptance Model (TAM), which has widely been utilized to predict technology adoption [18].

The study established that perceived ease of use and perceived satisfaction had a major influence on actual system use, but attitude towards the system had no influence on ASU. These results are in line with usability and functionality use expert literature on technology adoption [25].

The results affirm that PEU was developed to be the strongest predictor of system use, as previous research stresses the application of usability in technology acceptance. Empirical research has proven that employees will be more likely to implement a system into their professional or work life once they are able to operate it smoothly [51]. This is in conformity with the requirement that organizations should make interfaces welcoming, navigation easy, and provide sufficient user training programs for convenience. The use of PEU here supports evidence that the ease of use has not only been found to cause adoption but also grows the satisfaction of the users in the long term [50].

Second, perceived usefulness (PU) was a strong predictor of system actual use, validating the hypothesis that workers use a system more when they believe that the system enhances their job performance. This aligns with the TAM model, which postulates that people use a system if they believe that the system is beneficial to their work [3]. Previous research has shown employees will implement a system if they believe that it has the potential to improve productivity, ease work, or reduce workload [35, 52].

Consequences from this research are that organizations must bring forward the advantages of adopting technology and establish use cases in terms of evidence supporting the perceived usefulness of the system among workers. Attitude towards the system (ATT) surprisingly did not have any direct effect on usage of the system, contrary to some earlier research that has suggested that attitude is a critical factor in adopting technology [53]. One possible reason this could be is that employees are required to use the system in their work, so individual attitudes are less likely to be indicative of actual use. Similar findings have been reported in studies in which organizational mandate and policy replace personal attitude towards technology [54].

Furthermore, research has also shown that after technology use has become a habit in the workplace, employees will still be able to use it even if their initial attitudes were negative [55]. The implication here is that favorable attitudes may induce user motivation, but such may not necessarily translate into usage unless complemented with usability and perceived usefulness. No differences in system use by age or education were observed, in contrast to earlier research suggesting that younger and better-educated staff are more likely to utilize new technology [56]. Some gender differences were observed, with female staff having marginally higher ASU scores than male staff. Previous studies have also noted gender differences in technology adoption, with women likely to utilize digital systems more intensively if they perceive them as useful and easy to use [57].

The findings suggest that while demographic factors may not necessarily exert a direct influence on technology adoption, organizations must consider diverse user needs and requirements when adopting and implementing digital systems.

As the strongest influencer of ASU ($\beta = 0.781$, $p < 0.001$), this study confirms the applicability of TAM in the UAE and supports earlier work that prioritized usability [51]. Like [15], PU ($\beta = 0.001$, $p < 0.001$) also predicts adoption; however, its weaker contribution indicates that usability comes before utility. Interestingly, ATT did not directly influence ASU, as opposed to [17]. This could be because UAE organizations require system use.

The sample size (100 participants), the limited generalizability across the various sectors of the UAE, and the use of self-reports, which can exaggerate usage perceptions, are some of the limitations. These limitations require the cautious interpretation of findings and encourage the use of more comprehensive, more impartial data in future studies.

The findings of this study have significant theoretical and practical implications for researchers, system designers, and organizations. Theoretically, this study adds to the Technology Acceptance Model (TAM) literature by substantiating the dominance of usability and perceived usefulness in predicting actual system usage. The results reaffirm existing literature that highlights PEU as being one of the key antecedents of system adoption, supporting the argument that ease of use directly affects user usage [58].

Furthermore, the study provides empirical evidence that PU remains a relevant predictor of technology adoption, corroborating research undertaken in the past that users will utilize systems that help them accomplish work more efficiently [27].

However, the study contradicts the assumption that attitude towards the system directly influences ASU, with the likelihood that system mandates and workplace policies moderate the relationship. Organizational determinants, such as management support and workplace culture, need to be examined in future studies to determine their influence on system usage beyond individual attitudes [42, 46]. From a practical standpoint, these findings have significant implications for decision-makers, technology managers, and system developers interested in increasing technology adoption in the workplace. As ease of use is the strongest predictor of actual system use, firms should give high priority to usability enhancements when creating digital systems. These include minimal navigation, easy learning curves, and great staff training programs in order to push mass adoption.

Also, because perceived usefulness guides ASU, the company must strive to exhibit the tangible benefits of the system, such as enhanced productivity, error elimination, and cost-effectiveness. Focusing on such benefits in terms of case histories, user commentaries, and interactive workshops will boost the view of employees of technology and provoke usage.

The findings also show that attitude alone cannot be used to encourage system use, and hence organizations cannot expect to gain adoption by simply depending on marketing campaigns or awareness programs. Instead, firms must focus on system functionality, usability, and technical support to facilitate ongoing use. The small gender difference in system use also highlights the importance of developing inclusive digital solutions for a diverse workforce. This is consistent with previous studies proposing technology adoption strategies be tailored to different user segments for maximum effectiveness [44, 59].

6. Conclusion

The aim of this study was to explore the determinants of technology adoption by firms in the United Arab Emirates (UAE), using the Technology Acceptance Model (TAM) as a theoretical framework. As the UAE continues to emerge as a regional center for digital transformation, the determinants of employee acceptance and use of technological systems are increasingly crucial to understand. With a quantitative approach on 100 employees from different industries, the research experimentally tested the performance of perceived usefulness (PU), perceived ease of use (PEU), and attitude towards the system (ATT) in producing actual system use (ASU). There were some useful findings that were established through research. Most importantly, PEU emerged as the most potent predictor of ASU, implying that systems that are simple to use and comprehend are more liable to be effectively used by employees. This brings forth the applied implication of creating technology solutions with low complexity and a simple-to-use interface. PU also exhibited strong positive correlation with ASU, once again validating the hypothesis that users utilize more systems that they perceive to be useful in order to do their job better. Once again, PU was weaker in relative impact in comparison to PEU, which shows that usability may take precedence over perceived functional value in the UAE's fast-moving digital environment.

ATT had no direct influence on ASU. This unforeseen result suggests that organizational or environmental influences might have a more general impact than personal attitudes on the use of technology. Possibly in highly hierarchical or structured organizations, employees' behavior is more directly influenced by mandates, training, or managerial expectations, rather than by personal preference. This contradicts certain of the conventional TAM assumptions and opens up fresh possibilities for exploring how organizational culture and external pressures interfere with technology adoption.

Theoretically, the study contributes to the ongoing development of the TAM model by its validation of the dominance of usability in technology adoption, particularly in emerging markets like the UAE. It underlines the need for consideration of context-specific variables in applying TAM in different environments and industries. The results that ATT may have reduced importance in certain business environments call for a clearer explanation of the role of individual and organizational variables in the model.

Practically, the study provides actionable recommendations to policymakers, business leaders, and system developers. To enhance utilization and effective implementation of digital systems, organizations should focus on user-centered design and implementation of technology. Further bridging of the gap between the availability of technology and its utilization can also be facilitated by investments in large-scale training programs. Managers will also observe the limited role of individual attitudes in certain environments and instead strive to create an accommodative environment that encourages use through intentional guidance, technical support, and streamlined processes. This research contributes to our understanding of technology adoption in UAE business environments by reinforcing the key roles of perceived usefulness and ease of use while challenging the assumed direct influence of attitudes. These findings are not only relevant to the UAE but also to other developing economies that are digitalizing rapidly. These findings can be extended by future research that addresses other variables such as organizational culture, leadership, or industry-type factors that may further influence system adoption and utilization.

7. Limitations and Future Research Directions

Though bringing forth useful insights, this study has several limitations that should be kept in mind for future research. The sample size of 100 users is relatively small, and this may limit the generalizability of the findings to different industries and organizational settings. Future studies should attempt to utilize larger samples to increase external validity. Second, the current study relied solely on self-report survey data, which can be susceptible to biases such as social desirability bias or self-perception errors.

Future studies could incorporate objective usage data, system logs, or longitudinal tracking methods to obtain a more accurate reflection of real system usage. Another limitation is that this study only examined direct effects between PU, PEU, ATT, and ASU, and did not examine mediating or moderating effects. Organizational support, managerial influence, and workplace rewards have been argued to affect technology adoption behavior in previous research Dadhich.

Future studies must examine the impact of exogenous variables such as company policies, peer influence, and system use mandates on actual system use. In addition, while this study validates the underlying principles of TAM, it stresses the need for an updated theoretical model with emerging factors such as artificial intelligence (AI), data security concerns, and user experience (UX) design. By addressing these gaps in research, future research can develop a more profound understanding of technology acceptance and make more targeted suggestions for firms wishing to achieve maximum system adoption.

Despite these limitations, this study makes useful contributions to the literature on the role of perceived ease of use, perceived usefulness, and attitude in technology adoption, highlighting the importance of usability, effectiveness, and user-centered design in successful digital transformation.

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Влияние технологий на бизнес в Объединенных Арабских Эмиратах: перспектива модели принятия технологий

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Аннотация. Быстрое внедрение технологий в хозяйственную деятельность предприятий в Объединенных Арабских Эмиратах (ОАЭ) подчеркивает растущую потребность в понимании факторов, определяющих внедрение технологий. По мере того как компании продолжают механизировать свои процессы, все более важным становится изучение проблемы, как сотрудники воспринимают и используют эти технологические системы. В данном исследовании изучалось влияние технологий на компании ОАЭ в соответствии с моделью принятия технологий (TAM), широко применяемой концептуальной моделью принятия пользователями. Основными целями были количественная оценка влияния воспринимаемой полезности (PU), воспринимаемой простоты использования (PEU) и отношения к системе (ATT) на фактическое использование системы (ASU). В исследовании было высказано предположение, что воспринимаемая полезность и воспринимаемая простота использования положительно влияют на фактическое использование системы, в то время как влияние отношения к системе может зависеть от ситуации. С помощью стандартизированной анкеты был проведен количественный опрос среди 100 сотрудников ОАЭ, представляющих различные отрасли. Анализ данных проводился с помощью SPSS и Partial Least Squares Structural Equation Modeling (PLS-SEM). Результаты показали, что воспринимаемая простота использования является самым сильным предиктором фактического использования системы (β = 0,781, p < 0,001), подтверждая, что удобство использования является сильным фактором для использования технологий. Также было обнаружено, что воспринимаемая полезность оказывает существенное влияние на фактическое использование системы (β = 0,001, p < 0,001), что означает воспринимаемую полезность как критический фактор. Теоретически это исследование опирается на теорию TAM, уделяя больше внимания удобству использования на развивающихся рынках. На практике это стимулирует компании ОАЭ инвестировать в простые в использовании системы и инициативы по обучению, чтобы сделать цифровую трансформацию менее мучительной.

Ключевые слова: воспринимаемая полезность (PU); воспринимаемая простота использования (PEU); отношение к системе (ATT); модель принятия технологий (TAM); цифровая трансформация; бизнес в ОАЭ.

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