



ERP Adoption in Higher Education: A TAM-Based Analysis of Botswana's Technical University

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Abstract. This study investigates ERP adoption at a technical university in Botswana using the Technology Acceptance Model (TAM). It examines how Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioural Intention (BI) influence Actual System Use (AU). Data were collected from administrative staff using a structured survey and analyzed using regression analysis. The results show that PEOU significantly influences both BI $(R^2 =$ 0.964, p = 0.0029) and PU (R² = 0.864, p = 0.022), indicating that system usability is crucial for ERP adoption. Furthermore, PEOU positively impacts PU ($R^2 = 0.817$, p = 0.035), and BI strongly predicts AU ($R^2 = 0.821$, p = 0.034). These findings highlight the importance of user-friendly interfaces, comprehensive training programs, and institutional support to ensure successful ERP implementation. The research provides valuable insights for universities aiming to enhance operational efficiency, streamline data management, and improve decision-making processes through effective ERP adoption, particularly in developing countries like Botswana.

Keywords: ERP, Technology Acceptance Model, Perceived Usefulness, Perceived Ease of Use, Behavioural Intention





1. INTRODUCTION

Higher education institutions use Enterprise Resource Planning (ERP) systems to bring digital transformation across their administrative and academic functions. Traditional management of accounting and student records, and communications leads to inefficient operations and delayed processes, and fragmented data[1]. Educational institutions employ ERP systems to handle their finance and human resources and admissions, curriculum planning functions, and reporting needs[2]. The adoption of cloud-based ERPs is growing because these systems deliver cost-effective, scalable solutions with user-friendly features for institutions with limited financial resources[3].

The success of implementing effective ERPs depends on choosing the correct deployment model. ERP system implementation strategies include big bang deployment, which means deploying the complete system within one deployment phase. The phased rollout strategy enables the deployment of modules through successive implementation phases[4]. Parallel adoption strategy functions by operating new and old systems concurrently, while hybrid approaches merge select elements from all other techniques and systems[5]. The three fundamental factors determining ERP system selection are organisational size, together with change readiness and risk appetite[6]. Before implementing an ERP system, organisations need to conduct needs assessments to reveal system gaps and verify that ERP functionalities match institutional workflows[7].

Higher education institutions face implementation challenges with ERP systems because they need to overcome staff resistance while managing complex systems, and require proper training and adequate infrastructure[8]. Nonetheless, the institutions that succeeded in overcoming these barriers achieved better data accuracy along with increased operational efficiency and evidence-based decision-making [9].

The implementation of Enterprise Resource Planning (ERP) systems in higher education institutions enables digital transformation through the integration of academic and administrative functions. The traditional management of accounting and management of student records, and communications creates inefficient operations with fragmented data and delayed processes, and high maintenance expenses. The deployment of multiple





systems from different vendors leads to elevated technical complexity and support requirements and increased total cost of ownership. The deployment of multiple standalone applications, including fee management and payroll and attendance and timetabling and grading systems, creates inconsistent data and redundant entries and ambiguity across platforms[10]. ERP systems have been transformed to help universities manage their finance operations and human resources and admissions and curriculum planning and scheduling and reporting, and learning management[11], [12]. The current ERP platforms deliver real-time analytics together with asset and inventory management capabilities and communication tools, which boost stakeholder engagement and operational efficiency and data-driven decision-making[13], [14].

Despite the advantages of using ERP systems, the adoption of ERP systems by universities remains challenging, particularly in developing nations such as Botswana[15]. Research on ERP implementation in developing countries highlights that ERP adoption is still in its early stages because developing countries lack experienced implementers and face project mismanagement and insufficient training, and have limited commitment from top management. In addition, there are limited empirical studies about ERP adoption in Botswana[16]. This creates additional difficulties because it restricts the understanding of specific factors which affect system acceptance and usage within local contexts.

The Technology Acceptance Model (TAM) functions as an effective framework for studying technology adoption. The TAM-based empirical research demonstrates that perceived usefulness (PU) depends on users' perceptions of system usability, which is measured through perceived ease of use (PEOU)[17]. Behavioural Intention is a strong predictor of actual ERP usage. It is also important to note that the successful adoption of ERP systems depends on strong institutional support and proper training of system users, and investing in advanced ERP infrastructure[18].

This study addresses current knowledge deficiencies by examining how administrative staff at a technical university in Botswana adopt ERP systems. The study provides evidence-based findings about TAM variables that influence ERP system adoption among administrative staff. It also provides important insights into operational barriers and offers recommendations to policymakers and university administrators for enhancing





ERP implementation and efficiency, and stakeholder satisfaction in higher education. This study is guided by the following research questions:

- 1) What effect does the perceived usefulness (PU) of ERP systems have on the behavioural intention (BI) of administrative staff to adopt and use ERP systems in universities?
- 2) How does perceived ease of use (PEOU) of ERP systems influence the behavioural intention (BI) of administrative staff to adopt ERP systems in a university setting in Botswana?
- 3) To what extent does the relationship between perceived ease of use (PEOU) and perceived usefulness (PU) of ERP systems determine ERP adoption among administrative staff at a technical university in Botswana?
- 4) How does behavioural intention (BI) to use ERP systems affect the actual use (AU) of ERP systems among administrative staff at a technical university in Botswana?

The research hypotheses are derived from the Technology Acceptance Model (TAM) and are aligned with the objectives of this study.

- Impact of Perceived Usefulness (PU) on Behavioural Intention (BI)
 H₁: The perceived usefulness (PU) of ERP systems has a positive influence on the behavioural intention (BI) of administrative staff to adopt ERP systems at a technical university.
- 2) Impact of Perceived Ease of Use (PEOU) on Behavioural Intention (BI)
 H₂: The perceived ease of use (PEOU) has a positive influence on the behavioural intention (BI) of administrative staff members of a technical university to adopt ERP systems.
- 3) Relationship Between Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) H₃: The perceived ease of use (PEOU) has a positive influence on the perceived usefulness (PU) of ERP systems among administrative staff members at a technical university.
- 4) Impact of Behavioural Intention (BI) on Actual System Use H₄: The actual use of ERP systems is influenced by Behavioural intention (BI) to use the ERP system by administrative staff members at a technical university.



2. THEORETICAL FRAMEWORK

Figure 1 highlight the Technology Acceptance Model (TAM) by Davis (1989) was employed in this study as a theoretical lens to understand the factors that influence the adoption of ERPs in an educational setting among administrative staff [43].

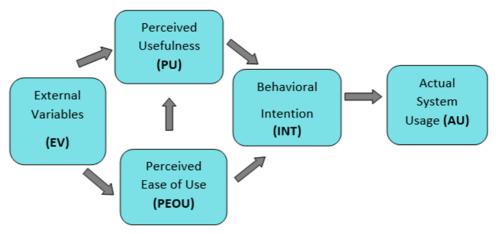


Figure 1: Technology Acceptance Model [46]

The TAM model served as a framework to study the effects of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) and Behavioural Intention (BI), and Actual Use. The study used this model to assess ERP adoption through these constructs.

2.1. Key Constructs of TAM

The Technology Acceptance Model (TAM) explains users' acceptance and use of information systems through a set of core psychological and behavioural constructs. In this study, TAM is applied to understand how administrative staff at a technical university in Botswana adopt and use ERP systems in their daily work activities. The model assumes that users' perceptions of a system's characteristics shape their attitudes and intentions, which then translate into actual usage behaviour. Specifically, TAM focuses on how users evaluate a system in terms of its usefulness for completing job-related tasks and the degree of effort required to operate it. These evaluations are particularly relevant in higher education environments, where administrative processes are often routine, time-sensitive, and highly dependent on accurate information.





Within this framework, perceived usefulness (PU), perceived ease of use (PEOU), behavioural intention (BI), and actual system use (AU) form an interconnected set of constructs that explain technology adoption outcomes. PU and PEOU represent cognitive beliefs about the ERP system, while BI captures the motivational willingness to use the system, and AU reflects the realised level of system utilisation in practice. Understanding how these constructs interact provides valuable insights into why some staff members embrace ERP systems while others remain reluctant or underutilise available functionalities. By examining each construct individually and in relation to one another, this study seeks to identify the key drivers and barriers influencing ERP adoption among administrative staff in the Botswana higher education context.

- Perceived Usefulness (PU): The system's perceived usefulness (PU) measures how much users believe the system will improve their work performance. The TAM model identifies PU as a fundamental factor which determines users' intention to use the system.
- 2) Perceived Ease of Use (PEOU): The degree to which users find a system easy to understand and operate defines Perceived Ease of Use (PEOU). PEOU affects both PU and BI.
- 3) Behavioural Intention (BI): The construct represents Users' intention to use the system, which directly affects actual system use. This is influenced by PU and PEOU.
- 4) Actual System Use: The extent to which users of a system decide to utilise it in daily operations, reflecting the realisation of TAM's theoretical constructs.

The main advantage of using TAM in analysing the adoption levels of the different technologies is based on the reliability of the model. TAM is widely used as a theoretical model because it is a 'reliable and robust' model [47].

2.2. Application of TAM to ERP Adoption

This study adopted TAM to examine how PU and PEOU shape BI to adopt ERP systems among administrative staff members at a technical university. The study examines the obstacles administrative staff members face when using ERP systems, including system integration problems and technical issues and their reluctance to change. The research results offer practical and detailed recommendations for universities to enhance ERP adoption and achieve successful implementation in their institutions. TAM stands as





a reliable and robust model according to [48]. The framework's ability to work across different technological settings makes it an appropriate choice for this research.

External variables identified are crucial for understanding the adoption levels of a system [49]. In this study, some of the external variables that were addressed include integration capabilities, adequacy and quality of training provided to staff, stakeholder involvement and strategies for mitigating resistance to change, and the engagement of administrative staff in customising ERP systems to meet institutional needs.

3. METHODOLOGY

This study employed a quantitative approach to data collection and data analysis. This approach was used to assess the adoption of ERP at a Technical University in Botswana. The study applied the Technology Acceptance Model (TAM) as its theoretical basis to analyse how Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Behavioural Intention (BI) affect Actual System Use (AU) of ERP platforms. Figure 2 (see page 7) shows the research workflow that was followed in this study.

3.1. Phase 1: Problem Identification

The research started by defining the problem. The research investigated factors that influence ERP adoption at a technical university in Botswana because it recognised ERP systems as a potential solution to enhance operational efficiency and decision-making, and digital transformation. The absence of empirical research about ERP adoption in developing countries, including Botswana,[16], [19] motivated this study-to-study administrative staff perceptions and system usage. The gap is also evident in current research that established the lack of empirical research regarding the implementation of ERP systems in public institutions[20].

3.2. Phase 2: Literature Review & Theoretical Framework

In this phase, an analysis of a broad collection of existing studies about ERP adoption in educational institutions worldwide and specific regions was conducted. The review emphasised the requirement to comprehend both facilitators and obstacles to ERP adoption, particularly in under-studied contexts. The researchers examined ERP system

advantages and implementation difficulties, together with their adoption elements, specifically for financial management and human resource operations and student data management and learning management integration. The Technology Acceptance Model (TAM) served as the theoretical framework because it provides a recognised framework to study technology adoption through Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioural Intention (BI) and Actual Use (AU) constructs. Research conducted in educational settings through meta-analysis confirms that TAM effectively explains technology acceptance in new contexts because PU and PEOU consistently predict BI and usage outcomes [21].

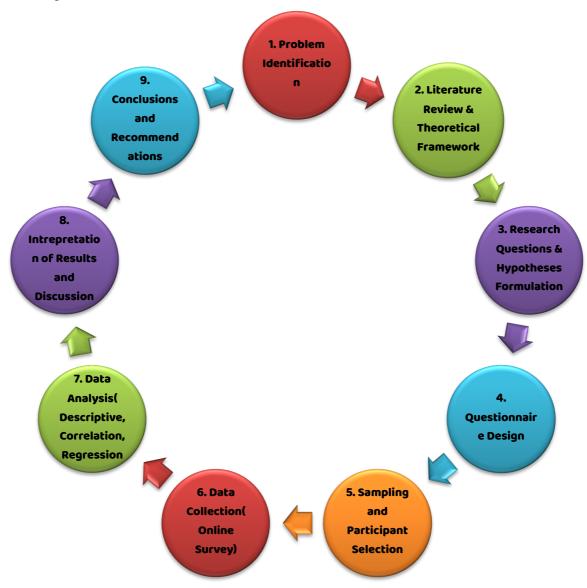


Figure 2. Research flow diagram





In this phase, the researchers used literature on ERP implementation alongside TAM's established explanatory framework to create the study's conceptual base. The research questions and testable hypotheses about how PU and PEOU influence BI and actual ERP usage among administrative staff in a Botswana university context were developed through this phase.

3.3. Phase 3: Research Questions & Hypotheses Formulation

The research questions emerged from the literature review and research gaps to investigate ERP adoption and how TAM relationships between the TAM constructs influence the adoption of ERP systems among administrative staff members at a technical university in Botswana. The research questions were transformed into testable hypotheses to operationalise them. Hypothesis development is crucial for organising data collection and statistical analysis, and for connecting theory with practice, especially when validating technology acceptance models like TAM in specific contexts [21]. The researcher developed the hypotheses to evaluate how PU and PEOU affect BI and how PEOU impacts PU and the relationship between BI and Actual Use.

3.4. Phase 4: Questionnaire Design (TAM-based Items)

A structured questionnaire was developed to gather data from administrative staff. The survey items were designed to measure TAM constructs, including PU, PEOU, BI, and AU and were derived from validated instruments that were used in previous ERP adoption studies. The survey instrument used validated TAM-based items from previous studies to ensure the validity and reliability of the constructs (Perceived Usefulness, Perceived Ease of Use, Behavioural Intention, and Actual Use). A similar approach was used in a 2025 eLearning adoption study among faculty in Kuwait[22]. This ensured content validity and alignment between survey items and the theoretical framework.

Each item was measured on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The design that was adopted in formulating the questions helped the researcher to be able to ensure that the questions captured both the perceived usability of the ERP system and the extent to which participants intended to use it in their daily administrative tasks.





3.5. Phase 5: Sampling & Participant Selection (Purposive Sampling)

The researcher opted for purposive sampling to choose participants. The inclusion criterion that was used was based on administration staff members whose daily job required them to use the ERP system at a technical university in Botswana. Fifteen (15) administrative staff members from different departments participated in the study. These include IT Managers, Finance Officers, Human Resource Officers, Academic Registrars, Library Managers, Procurement Officers and Administrative Assistants. The advantage of using purposive sampling is that it allows the researchers to select participants who have enough experience and knowledge[23] about ERP usage because they provided valuable information for the study.

3.6. Phase 6: Data Collection (Online Survey)

An online survey was used to collect data from the respondents. Google Forms was used to collect data. It provided participants with a secure and convenient way to respond. An article [24] about web survey methodological optimisation identifies three main advantages, which include better privacy protection and increased convenience and improved response quality. The research indicates that online self-administered surveys allow participants to provide honest answers to sensitive questions because they feel anonymous, which results in more reliable data without interviewer influence

In this study, the online survey method allowed for quick data collection without interrupting participants' regular activities. Participants were assured of confidentiality, which encouraged honest and accurate responses. The online survey method allowed for efficient data collection because it captured digital responses in real-time, which enabled immediate processing and validation, and export for analysis. Web-based surveys provide better cost efficiency and faster data collection with higher accuracy than traditional, paper-based survey methods[25].

3.7. Phase 7: Data Analysis (Descriptive, Correlation, Regression)

The survey data underwent initial processing in SPSS through numerical coding that connected to TAM constructs, which included Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioural Intention (BI) and Actual System Use (AU). The participant characteristics, together with response patterns, underwent statistical analysis to





generate descriptive statistics, which included frequencies and percentages and cross-tabulations. The strength and direction of relationships between constructs were evaluated through SPSS correlation analysis. The Python stats-models library supported the execution of Ordinary Least Squares (OLS) regression analysis to test the hypotheses. The TAM relationships defined independent and dependent variables as follows: $PU \rightarrow BI$, $PEOU \rightarrow BI$, $PEOU \rightarrow PU$, and $BI \rightarrow AU$. The models included a constant term to determine the intercept value, while separate regression models were developed for each hypothesis. The regression output included R^2 values together with F-statistics and regression coefficients, and p-values, which enabled thorough validation of the study findings. The data management and analysis process in this study used SPSS and Python to produce detailed statistical evidence that supported the research findings. The method uses regression analysis procedures, which are explained in the current research [26]. The regression analysis was calculated using the Ordinary Least Squares (OLS) method in Python. The stats-model's library was used.

- 1) Step 1: Define independent and dependent variables
 - The research hypotheses include:
 - H₁: PU \rightarrow BI (BI = β_0 + β_1 * PU + ϵ)
 - H₂: PEOU \rightarrow BI (BI = β_0 + β_1 * PEOU + ϵ)
 - H₃: PEOU \rightarrow PU (PU = β_0 + β_1 * PEOU + ϵ)
 - H₄: BI \rightarrow AU (AU = β_0 + β_1 * BI + ϵ)
- 2) Step 2: Add a constant term

The regression model uses this step to calculate the intercept value (β_0).

- 3) Step 3: Fit the model using OLS regression
 - The research team conducted separate regression analyses for each hypothesis.
- 4) Step 4: Interpretation of Regression Results
 - The researchers obtained statistical outputs from running the regression which are presented in Table 5.

The Ordinary Least Squares (OLS) method was used to determine the relationships between the key constructs:

- 1) Perceived Usefulness (PU) → Behavioural Intention (BI)
- 2) Perceived Ease of Use (PEOU) → Behavioural Intention (BI)



- 3) Perceived Ease of Use (PEOU) → Perceived Usefulness (PU)
- 4) Behavioural Intention (BI) → Actual System Use (AU)

The study created a dataset from the aggregated survey responses. The data included:
a) Perceived Usefulness (PU): Responses to "ERP enhances my ability to complete tasks faster."

- Perceived Ease of Use (PEOU): Responses to "The ERP system is easy to learn and use."
- 2) Behavioural Intention (BI): Responses to "I intend to use the ERP system frequently."
- 3) Actual System Use (AU): Responses to "ERP improves operational efficiency."

3.8. Phase 8: Interpretation of Results & Discussion

The results were interpreted to evaluate the strength and direction of relationships among TAM constructs. The research outcomes were used to establish relationships between TAM constructs. The study results demonstrated that both PU and PEOU strongly influenced BI, while Actual Use received a positive influence from BI. The research outcomes were compared with previous studies about ERP adoption while confirming the TAM model's utility in studying technological acceptance in developing countries. The study investigated the practical consequences which would enhance training programs as well as system usability and institutional backing.

3.9. Phase 9: Conclusions & Recommendations

The study ended with a summary of essential findings about ERP adoption among administration staff members at a technical university in Botswana. The study provided recommendations to university administrators and policymakers about improving system usability and training programs, and institutional support systems. In addition, the research proposed future research directions, which include studying ERP adoption across multiple universities in Botswana and similar developing countries to expand the generalizability of findings for digital transformation initiatives.

3.10. Study Population and Sampling

The research used purposive sampling to choose participants. Only participants who directly work with ERP systems were chosen to participate in the study in order to obtain

detailed information about ERP system adoption and usability, and implementation challenges at the university. This allowed for the deliberate selection of key administrative staff members who are directly involved in the adoption, implementation, and usage of ERP systems at the university. The study targeted administrative staff from various departments, including:

- 1) IT Managers they are responsible for ERP system implementation and maintenance
- 2) Finance Officers they are responsible for making financial transactions and budgeting through ERP
- 3) Human Resource Officers they use ERP to manage employee records and payroll systems.
- 4) Academic Registrars and Admissions Officers they use ERP for student data management.
- 5) Library Managers they use ERP by integrating it with digital library systems.
- 6) Procurement Officers they use ERP for procurement and inventory tracking.
- 7) Administrative Assistants they support various university operations using ERP

The sample size reveals a balanced gender representation, with eight females and seven males occupying various administrative and managerial positions such as IT Manager, Finance Officer, Academic Registrar, Human Resource Officer, and others. Notably, females were slightly more represented, particularly in roles such as Finance Officer and Administrative Assistant, suggesting a modest female majority in support and coordination roles, while technical and procurement-related positions showed more male representation. This distribution provides insight into the gender dynamics and functional diversity of the respondents involved in the study. Table 1 illustrates the distribution of study participants across gender and professional roles within the organisation, highlighting a total of 15 individuals comprising both male and female respondents.

Table 1. Demographic information of study participants according to Gender and Position

Gender	Position	Count	
Male	IT Manager	2	
Female	Finance Officer	3	





Gender	Count	
Male	Academic Registrar	1
Female	Human Resource Officer	2
Male	Administrative Assistant	2
Female		1
Female	Library Manager	1
Male	Procurement Officer	2
Female	Admissions Officer	1
Total		15

A total of 15 participants participated in this study. They were selected based on their direct involvement with ERP systems. They use the ERP system in their daily administrative tasks. This approach ensured that the sample consisted of information-rich participants who could provide valuable insights into ERP adoption, usability, challenges, and overall impact on university operations.

4. RESULTS AND DISCUSSION

4.1. Quantitative Assessment

The quantitative results present the descriptive and inferential analysis of responses obtained from administrative staff regarding their perceptions of ERP systems in a technical university context. The survey instrument comprised structured items aligned with the core constructs of the Technology Acceptance Model (TAM), including perceived usefulness, perceived ease of use, behavioural intention, and actual system use. Respondents were asked to indicate their level of agreement with a series of statements about ERP functionalities, efficiency, and usability. The analysis focuses on identifying general response patterns, highlighting areas of strong consensus or disagreement, and interpreting how these patterns relate to the proposed research questions and hypotheses.

In particular, the findings are used to assess whether administrative staff perceive ERP systems as tools that enhance their work performance and streamline operational processes. Attention is also given to the extent to which staff view ERP systems as easy to use and whether these perceptions translate into a clear intention to adopt and use



the system in their daily tasks. The following subsections present the results for specific survey items, beginning with staff perceptions of the impact of ERP systems on operational efficiency.

1) Responses to the statement: "ERP Improves Operational Efficiency"

Figure 2 shows the results from the participants' responses to the statement: "ERP Improves Operational Efficiency". The majority of respondents (86.6%) expressed agreement or strong agreement with the statement that reads: *ERP systems improve operational efficiency*. Only a small percentage of the participants showed neutrality (6.7%) or disagreement (6.7%) with the statement. The findings of this study indicated that the participants predominantly had positive perceptions regarding the ERP's impact on operational efficiency.

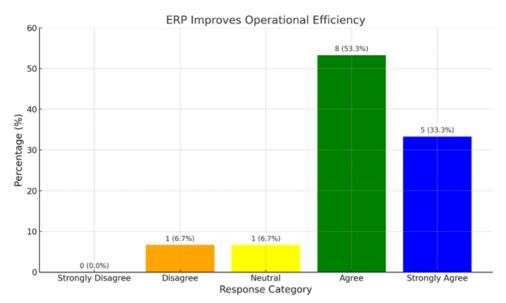


Figure 2. Responses to the statement: ERP Improves Operational Efficiency

2) Responses to the statement: "ERP is user-friendly"

Figure 3 shows that the majority of respondents (73.4%) have a positive perception of the usability of the ERP system they use. The majority of respondents showed positive appreciation for the user-friendliness of ERP systems. The survey results show that 13.3% of respondents maintained a neutral stance while 13.3% of participants disagreed that ERP systems are user-friendly. The research results demonstrated that most participants considered the ERP system to be user-friendly.

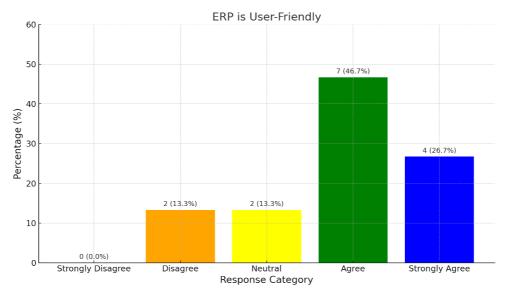


Figure 3. Responses to the statement: "ERP is user-friendly"

3) Responses to the statement: "Training was adequate"

The majority of participants (60%) expressed positive opinions about the training program, as shown in Figure 4. They believe that it was adequate 40% selected "Agree" and 20% "Strongly Agree." The participants who disagreed with the training made up 20% of the total, while 20% of participants maintained a neutral stance. The study results indicated that most participants thought the training was adequate, but some participants expressed doubts about the training quality.



Figure 4. Responses to the statement: "Training was adequate"



4) Response to the statement: "ERP enhances decision-making"

The data in Figure 5 above show responses to the statement: ERP enhances decision-making. It shows that 80% of respondents have a positive perception of the impact that ERP systems have in enhancing decision-making. It shows that 60% of the respondents agreed that the ERP systems enhanced decision making, and 20% strongly agreed with the statement. In contrast, only a small proportion of the respondents remained neutral (13.3%), and 6.7% disagreed with the statement. The findings of the study showed that the use of ERP systems is generally seen as an effective tool for facilitating better decisions.

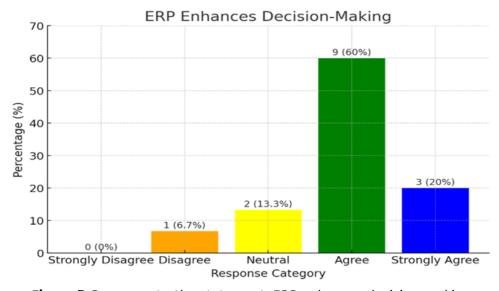


Figure 5. Response to the statement: ERP enhances decision-making

5) Responses to the statement: "ERP integrates well with current tools"

The data in Figure 6 shows that 53.3% of respondents have a negative perception regarding the integration of ERP systems with existing tools at the university. On the other hand, only 26.6% have a positive view regarding the integration of ERP systems with the existing tools. Only 20% remained neutral. This indicates that the users most users experienced some potential challenges with the compatibility of ERP systems with existing systems at the university.

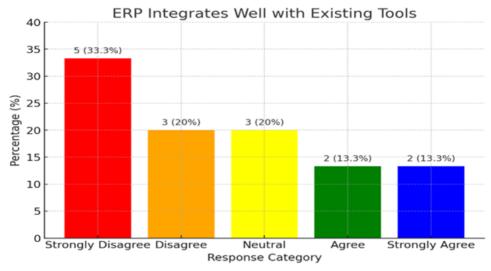


Figure 6. Responses to the statement: ERP integrates well with existing tools at University

6) Responses to the statement: "ERP enhances my ability to complete tasks faster"

The data in Figure 7 shows data on the responses of the participants to the statement: *ERP enhances my ability to complete tasks faster*. The data shows that many respondents (80%) have a positive perception of the impact of the use of ERP systems on task efficiency. In contrast, only a small proportion (6.7%) of the respondents remained neutral, while 13.3% disagreed with the statement. This suggests that it significantly improves workflow speed.

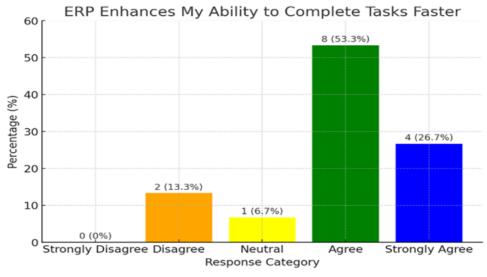


Figure 7. Response to the statement: ERP enhances my ability to complete tasks faster



7) Responses to the statement: "The ERP system is easy to learn and use"

The data in Figure 8 shows the responses of participants to the statement: The ERP system is easy to learn and use. The data shows that the majority of respondents (66.7%) have positive perceptions of the ERP system's ease of use. Only 6.7% disagreed, and 6.7% strongly disagreed with the statement, showing that only a few of the respondents felt ERP systems are not easy to learn and use. The findings showed that the ERP system used at the university is generally user-friendly.

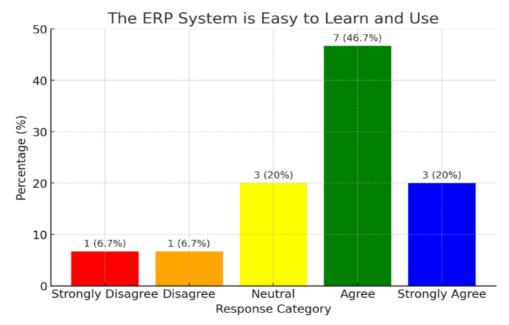


Figure 8:Responses to the statement: The ERP system is easy to learn and use

8) Responses to the statement: "I intend to use ERP system Frequently"

The data in Figure 9 shows the responses of respondents to the statement: I intend to use the ERP system frequently. The data shows that the majority of respondents (60%) have positive intentions to use the ERP system frequently. The data shows that 40% of respondents agreed they intend to use the ERP system frequently, and 20% strongly agreed. Only 20% remained neutral, indicating some indecision. The data suggests that there is generally a good adoption and acceptance of the ERP system among the respondents.

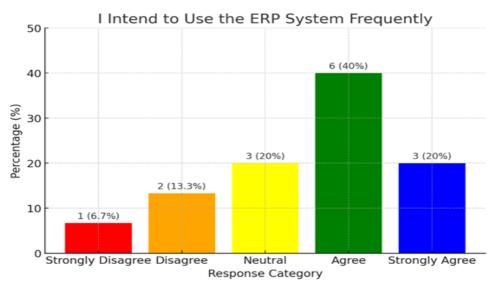


Figure 9. Responses to the statement: I intend to use the ERP system frequently

Table 2 provides a consolidated overview of participants' responses across all key items related to ERP adoption and use. Overall, the results show a predominantly positive perception of ERP systems among administrative staff, particularly in areas linked to perceived usefulness (PU) and perceived ease of use (PEOU). For example, a large majority either agreed or strongly agreed that ERP improves operational efficiency (86.6%), enhances decision-making (80%), and helps them complete tasks faster (80%). These findings support the notion that staff generally view the ERP system as a valuable tool that contributes meaningfully to their work performance, aligning with the PU construct of TAM.

The table also indicates favourable views about system usability. A combined 66.7% of respondents agreed or strongly agreed that the ERP system is user-friendly, and the same proportion felt that it is easy to learn and use. Although a small minority expressed disagreement, the overall pattern suggests that most administrative staff do not perceive ERP as overly complex or difficult to operate. These results point to a generally positive assessment of PEOU, which is important because ease of use can reinforce perceptions of usefulness and strengthen behavioural intention to adopt the system.

However, the results regarding training adequacy and system integration reveal some areas of concern. While 60% of respondents agreed or strongly agreed that training was adequate, 20% disagreed and another 20% remained neutral. This indicates that, although

training is viewed positively on balance, a notable proportion of staff may still feel underprepared or insufficiently supported. More critically, perceptions of ERP integration with existing tools at the university are largely negative: 53.3% disagreed or strongly disagreed that ERP integrates well with current tools, while only 26.6% agreed or strongly agreed. This suggests that technical and compatibility issues remain a major barrier to seamless ERP use, potentially undermining satisfaction and long-term system adoption.

In terms of behavioural intention (BI), 60% of respondents indicated that they intend to use the ERP system frequently, whereas 20% were neutral and a combined 20% disagreed or strongly disagreed. This pattern implies generally positive intentions to continue using ERP, consistent with the favourable views on usefulness and ease of use. Nonetheless, the presence of neutral and negative responses suggests that some staff members remain hesitant, possibly due to perceived integration challenges or mixed experiences with training. Taken together, the summary in Table 2 highlights that while core TAM-related perceptions (PU, PEOU, and BI) are broadly positive, addressing integration and training gaps may be crucial for strengthening actual and sustained ERP usage across the institution.

Table 2. Summary of the Responses from Participants

-						
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1	0 (0%)	1 (6.7%)	1 (6.7%)	8 (53.3%)	5 (33.3%)	15
2	0 (0%)	2 (13.3%)	2 (13.3%)	7 (46.7%)	4 (26.7%)	15
3	1 (6.7%)	2 (13.3%)	3 (20%)	6 (40%)	3 (20%)	15
4	0 (0%)	1 (6.7%)	2 (13.3%)	9 (60%)	3 (20%)	15
5	5 (33.3%)	3 (20%)	3 (20%)	2 (13.3%)	2 (13.3%)	15
6	0 (0%)	2 (13.3%)	1 (6.7%)	8 (53.3%)	4 (26.7%)	15
7	1 (6.7%)	1 (6.7%)	3 (20%)	7 (46.7%)	3 (20%)	15
8	1 (6.7%)	2 (13.3%)	3 (20%)	6 (40%)	3 (20%)	15

4.2. Correlations

Table 3 shows the correlation coefficients between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioural Intention (BI), and Actual Use. The research results revealed a powerful positive relationship between Perceived Usefulness (PU) and Behavioural Intention (BI) with a correlation coefficient of 0.930. The results indicate that



administrative staff members will adopt ERP systems when they believe these systems provide benefits.

Table 3: Correlation coefficients between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioural Intention (BI), and Actual Use.

Variable	PU	PEOU	ВІ	Actual Use
PU	1.000	0.904	0.930	0.979
PEOU	0.904	1.000	0.982	0.903
ВІ	0.930	0.982	1.000	0.906
Actual Use	0.979	0.903	0.906	1.000

The relationship between PEOU and BI demonstrates another strong connection (0.982). The relationship between Perceived Ease of Use (PEOU) and Behavioural Intention (BI) shows a very strong positive correlation (r = 0.982). Users of the ERP system demonstrate higher intentions to use the system when they experience ease of use during their interactions. In addition, the relationship between PEOU and PU (0.904) indicates that user perceptions of ease of use directly impact their assessment of system usefulness. The TAM theory demonstrates how usability directly affects BI adoption while simultaneously enhancing perceived utility. Behavioural Intention (BI) demonstrates a strong positive relationship with Actual System Use (r = 0.906). The study confirms that administrative staff members who intend to use the ERP system will actually use it. The relationship between PU and Actual Use demonstrates a very strong correlation (r = 0.979). The results indicate that users who find the ERP system useful tend to use it more frequently in their everyday tasks. The research shows that PU and PEOU play crucial roles in determining ERP adoption rates among administrative staff at the university. The study demonstrates that better ERP system usability and perceived usefulness directly result in stronger usage intentions and actual system usage, which supports the creation of targeted training programs and interface enhancements and system integration strategies.

4.3. Regression Analysis

The regression analysis was conducted to test the hypotheses. The calculation was based on the constructs of TAM, as shown in Table 4.





Table 4: Summary of Responses for ERP Adoption Constructs

PU	PU	PU	PU
0	1	1	0
2	1	2	1
1	3	3	1
8	7	6	8
4	3	3	5

Table 5 above shows the regression analysis results for the ERP adoption hypothesis. It shows that all relationships are strong and positive, confirming that the Technology Acceptance Model (TAM) is a relevant model for this study. The results show that Ease of use (PEOU) and usefulness (PU) strongly drive behavioural intention (BI). In addition, Behavioural intention (BI) leads to actual ERP system usage, and higher perceived usefulness (PU) leads to higher system usage.

Table 5: Regression Analysis Results for ERP Adoption Hypotheses

Unathasia	R²	F-	p-		0	0	Conclusion
Hypothesis	Hypothesis R² statistic value	β1	β ₁ p-value	Conclusion			
H₁: PU → BI	L. D.L D.L 0.004	0.864	19.11 0.0222 0.55 0.022	0.022	H₁ Accepted: PU positively		
H₁: PU → BI	0.004	0.664 19.11		0.55	0.022	influences Bl.	
II. DEOIL . DI	PEOU → BI 0.964 81.00 0.0029 0.75 0.003	0.964	964 81.00 0.0029 0.75 0.003	0.003	H₂ Accepted: PEOU positively		
H₂. PEOO → BI				.904 81.00	0.003	influences Bl.	
II. DEOIL . DII	PEOU → PU 0.817 13.36 0.0354 1.17 0.035	12.26	0.0354	117 0005	H₃ Accepted: PEOU positively		
H ₃ . PEOU → PU		0.617	17 13,30	13.30 0.0334 1.17 0.033	0.035	influences PU.	
II . DI . AII	H₄: BI → AU 0.821 13.80 0.0339 1.64 0.03	0.024	H₄ Accepted: BI positively				
H ₄ . BI → AU		521 15.80	0.0339	1.04	0.034	influences AU.	

1) H₁: PU → BI

The analysis shows that Perceived Usefulness (PU) has a significant effect on Behavioural Intention (BI) with R^2 = 0.864, F = 19.11, β_1 = 0.55, and p = 0.022. This means that PU accounts for 86.4% of the variance in BI. Therefore, the administrative staff will be more likely to use the ERP system if they believe that it will improve their work performance, efficiency and decision-making capabilities. The finding is consistent with TAM theory and previous studies, which show that perceived benefits are strong motivators for adoption.



2) H₂: PEOU → BI

PEOU has a very strong effect on BI ($R^2 = 0.964$, F = 81.00, $\beta_1 = 0.75$, p = 0.003). This means that the ease of learning and using the system is a key factor in the intention to use ERP. High R^2 indicates that almost all the variation in BI is explained by PEOU, which means that usability and intuitive interface design are very important for administrative staff, especially those with little technical experience.

3) H₃: PEOU → PU

PEOU also has a significant effect on PU ($R^2 = 0.817$, F = 13.36, $\beta_1 = 1.17$, p = 0.035). This shows that when users find the ERP system easy to use, they are likely to see it as useful. The results support the indirect effect of usability on adoption. Making the system easy to learn will make users see its benefits, which will increase BI.

4) H₄: BI → AU

BI has a significant effect on AU (R^2 = 0.821, F = 13.80, β_1 = 1.64, p = 0.034). This shows that intentions can lead to actual system use when there is proper training and organisational support. This strong relationship shows that both PU and PEOU need to be enhanced to ensure that ERP systems are used consistently and effectively by administrative staff members.

4.4. Discussion

Higher education institutions use Enterprise Resource Planning (ERP) systems to achieve digital transformation of administrative and academic operations. Multiple standalone applications from different vendors create inefficiencies and delayed processes and fragmented data, and high maintenance costs because traditional approaches to accounting management and student records and communication rely on them [1], [10]. ERP systems resolve these problems through unified platforms which combine financial management with human resources and admissions and curriculum planning and timetabling, and reporting functions to deliver real-time analytics and stakeholder engagement tools, and evidence-based decision-making capabilities [2], [11], [13].

The findings from the review of literature show that ERP systems are not easy to implement in developing countries, including Botswana. Research shows that resistance





to change and insufficient training and complex systems, and limited institutional commitment are major obstacles to ERP adoption [8], [15]. In addition, the review of existing literature on ERP shows that the implementation barriers associated with ERP systems are a result of insufficient experienced implementers and insufficient empirical research that focuses on African universities regarding the implementation of ERP systems [16].

RQ1: How does the Perceived Usefulness (PU) of ERP systems influence Behavioural Intention (BI) for administrative staff to adopt and use ERP systems at universities?

To address research question 1, the regression analysis demonstrated that PU and PEOU significantly influenced BI (β = 0.412, p < 0.001; β = 0.368, p < 0.01). The findings indicate that administrative staff will show higher intentions to use the ERP system when they find it useful for their work and easy to operate. In addition, the results indicated that BI directly influenced actual system usage (β = 0.497, p < 0.001). These findings confirm TAM's main notion that users who find ERP systems useful and easy to use develop positive behavioural intentions toward their adoption. The findings align with previous studies conducted in other countries, which demonstrated that usability and perceived benefits directly affect technology acceptance [27], [28]. It is important to highlight that, based on these findings, in Botswana, where the adoption of ERP is still at an early stage, system designers should focus on simplifying the complexity of the ERP systems while enhancing job-related benefits.

RQ2: How does Perceived Ease of Use (PEOU) influence Behavioural Intention (BI) to adopt ERP systems in a university setting in Botswana?

The second research question examined how Perceived Ease of Use (PEOU) influences Behavioural Intention (BI). The regression analysis demonstrated a stronger effect than PU because PEOU explained 96.4% of the variance in BI ($R^2 = 0.964$, p = 0.0029) (Table 5). The survey results presented in Figure 8 indicate that 66.7% of participants strongly agreed or agreed that the ERP system has an easy learning curve and a user-friendly interface. The results demonstrate that system simplicity, together with intuitive





interfaces and straightforward navigation, play a vital role in adoption, especially for non-technical administrative staff. The university should invest in user-friendly dashboards, guided onboarding, and role-based interfaces to reduce learning barriers. Institutions that prioritise PEOU will speed up adoption and decrease staff resistance.

RQ3: Does the relationship between Perceived Ease of Use (PEOU) of ERP systems and Perceived Usefulness (PU) determine the ERP adoption among administrative staff at a technical university in Botswana?

The third research question investigated the connection between PEOU and PU. The regression analysis showed that PEOU has a positive effect on PU (R² = 0.817, p = 0.035) (Table 5), indicating that staff are more likely to find the ERP system useful when it is easy to use. Figure 7 and Figure 8 together show that participants who find the system easy to use also see its practical advantages for doing tasks quickly. This relationship is well-established in the literature. Research conducted in Indian and African universities shows that making navigation easier and using modular dashboards based on roles improves both PEOU and PU[29]In the Botswana context, this finding suggests that improving ERP usability not only facilitates immediate adoption but also strengthens staff perceptions of system utility over time. System designers and administrators should focus on designing systems that are easy to use and integrate workflows to improve both usability and perceived usefulness, which will increase the chances of long-term adoption.

RQ4: How does Behavioural Intention (BI) to use ERP systems influence the Actual Use (AU) of ERP systems among administrative staff in a technical university in Botswana?

The fourth research question examined whether Behavioural Intention (BI) functions as a predictive factor for actual ERP system usage. The regression analysis revealed a strong positive relationship between Behavioural Intention and Actual Use (AU) ($R^2 = 0.821$, p = 0.034) (Table 5). The survey results in Figure 2 reveal that 86.6% of participants strongly agreed or agreed that ERP systems enhance operational efficiency, thus showing high actual system usage in practice. The system integration challenges reported by





participants show that Behavioural Intention alone does not guarantee maximum system utilisation. The successful conversion of intention into effective use depends on supporting infrastructure as well as ongoing training and management support. The research confirms earlier studies, which showed that institutional backing, together with post-implementation support, was essential for actual ERP adoption[30], [31]. University administrators should enhance their BI improvement initiatives by providing strong institutional support, which includes technical assistance and training programs and system integration initiatives. Such measures guarantee that high behavioural intention leads to sustained effective system use.

5. CONCLUSION

The research investigated ERP system adoption at a technical university in Botswana by examining the effects of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioural Intention (BI) on Actual System Use. The study demonstrated that PU and PEOU directly influence BI which in turn drives robust actual ERP system usage. The research proves that administrative staff will use ERP systems in their work activities when they find the systems useful and easy to operate. The study shows that universities in Botswana should enhance ERP adoption by developing interfaces that are easy to use and providing focused training to administrative staff and maintaining robust technical assistance and post-implementation support. System customization together with user feedback engagement, will increase both system acceptance rates and continued system usage. The study also has some limitations. The research findings may not apply to other Botswana institutions or African educational institutions because of a small participant group from a single technical university. The study only examined administrative staff while omitting faculty member perspectives, which could have enhanced our comprehension of ERP adoption patterns. Future research should broaden its participant selection to include multiple universities and both faculty members and students, while studying how training programs and institutional policies impact the acceptance and extended usage of ERP systems. The research provides empirical evidence which helps higher education institutions and policymakers, and IT professionals develop effective ERP adoption and implementation strategies for Botswana and developing countries with comparable features.





This research adds to the existing knowledge base through its empirical investigation of Enterprise Resource Planning (ERP) adoption within higher education institutions in Botswana. The research confirms that the TAM constructs of Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Behavioural Intention (BI) play a crucial role in the implementation of ERP systems in higher education. The study results demonstrate that Perceived Usefulness and Perceived Ease of Use directly affect Behavioural Intention, which subsequently determines the Actual Use of ERP systems by administrative staff. In addition, the research findings demonstrate that ERP system adoption becomes more likely when users discover it useful and easy to use. The study demonstrates that TAM functions as an appropriate theoretical framework for analysing ERP adoption within academic institutions. The validated theoretical model serves as a foundation for future researchers to study technology adoption across various institutional settings. The research fills the existing knowledge gap regarding how higher education institutions adopt and use ERP systems. The research provides both theoretical insights and practical recommendations to enhance ERP implementation approaches in Botswana's higher education sector. Future research could expand on external factors influencing ERP adoption, such as organisational culture, leadership support, and funding availability. Comparative studies between different universities or regions could provide a broader perspective on ERP adoption trends in higher education. The study's quantitative methodology can be replicated in longitudinal studies to examine the long-term impact of ERP adoption on institutional efficiency and performance.

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