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The Impact of Technological Factors on the Intention to Use Zero-Based Budgeting System in Yemeni Public Entities: The Mediating Role of TAM Model Factors

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ABSTRACT

Purpose: This study aims to identify the influence of technological factors on the intention to use of zero-based budgeting system in Yemeni public entities, as well as the mediation role of TAM factors for those relationships.
Design/ Method/ Approach: The descriptive-analytical approach was used in this study because it is one of the most popular approaches for examining social and psychological phenomena and is appropriate for the topic. Additionally, it focuses on a phenomenon or problem that already exists and about which information may be gleaned to provide answers to research questions without the need for a researcher's involvement.
Findings: It was found that the relative advantage connected to zero-based budgeting has a positive and significant impact on the perceived usefulness and perceived usability of zero-based budgeting. In contrast, the perceived barriers negatively and significantly impact the perceived usefulness, usability, and intention to adopt zero-based budgeting. On the other hand, contentment with traditional budgeting has a negative and significant impact on the perceived usefulness of zero-based budgeting. While the intention to adopt zero-based budgeting is unaffected by the relative advantage and satisfaction with traditional. It was also revealed that the perceived usefulness mediated the association between the intention to embrace zero-based budgeting and relative advantage, satisfaction with traditional budgeting, and perceived hurdles. Additionally, the association between the intention to embrace zero-based budgeting and perceived obstacles, relative advantage, satisfaction with traditional budgeting, and the perceived ease of use of zero-based budgeting does not serve as a mediator in this regard.

1. Introduction

In recent years, the public budgeting system reform has been a crucial component of the crisis response and will continue to be crucial for creating the future. Thus, pursuing economic growth through various reform efforts is the top goal for all governments (Chignell, 2017). Over the past 40 years, several problems have been related to the public budgeting system, such as an insufficient system, the politicisation of government, lack of transparency, lack of citizens' participation (Sarker et al., 2017), and changes in accounting earnings and stock prices (Araya & Miras, 2015). Yemen's public budget wasn't far from that and has been plagued by multiple problems, including extra-budgetary spending, large deficits, high recurrent spending and debt service costs, poorly designed projects and programs, a lack of accountability and transparency, a low level of capital budget implementation, and a reliance on manual and antiquated processes. As a result, the budget has been unable to effectively fulfil its mandate in terms of resource allocation and contribution to economic growth and development (Gaghman, 2020; Basaloom, 2017; Ylaoutinen, 2014; Moriani & Al-Zawm, 2013; W. Bank, 2008). Prior studies have shown that budgeting systems have undergone new changes in recent years (Harun et al., 2020; Kenno & Sainty, 2017; Valuckas, 2019). It may be attributed to the increased need to improve the productivity, effectiveness, and transparency of the budget, which has led to a shift in expenditure-based budget and adjusted cash, a novel approach to results and costs (Curristine et al., 2007; Pereira Monteiro & Corrêa Gomes, 2013). As a result, governments are increasingly aiming at reforming their existing budget systems, even though several challenges could hinder the acceptability and implementation of such budgeting systems (Ellul & Hodges, 2019). Like other developing countries, Yemen has started restructuring its public budgeting system (Al-Saidi, 2020). because the confidence in the public financial management system, which was already unstable, was undermined by current spending (Al-Maamari et al., 2018). Specifically, the Yemeni public sector reform focuses on implementation and restructuring in four main areas: improving public governance, reforming the budget and financial management, streamlining public expenditures, and mobilising and controlling revenue (World Bank, 2015).
The starting point for the reform process must be long-term, governance-focused, and instructive, starting with the lessons learned from prior experiences and the country's history of reform. The fiscal framework should be strengthened by creating an emergency budget (Al-Saidi, 2020). Determination and execution of fiscal responsibility will have a significant role to play in building confidence and trust (Okegbe, 2019). The timely disclosure of credible data on the budget and its implementation (firstly) would help open doors for public debate. It will also enable accountability over distributing and using public resources to citizens and developmental associates alike (Yemen Policy Note, 2017). Furthermore, improving the Government budgeting system has lately been at the centre of numerous studies in many

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least-developed countries, including the Republic of Yemen, supported by strong government commitments and assistance from international organisations. Thus, efforts have been made to implement reforms and restructure Budgeting System to enhance public finances' effectiveness (World Bank, 2014a). Moreover, Studies have shown that adopting cutting-edge technology is necessary for fiscal transparency, effectiveness, and efficiency of public budgeting (Montes et al., 2019). Additionally, ZZB provides the microeconomic tool to translate these objectives into an effective operating plan and budget, allowing managers to assess the impact of different funding levels on programs and program components to spend limited resources. Meanwhile, PPBS offers the macroeconomic mechanism for centralised decision-making on important policy matters and fundamental budget allocations (Thompson, 1993). This study aims to identify the influence of technological factors on the intention to use a zero-based budgeting system (ZBB) In Yemeni public entities, as well as the mediation role of TAM factors for those relationships. The remaining sections of this research are designed as follows: Section 2 defines the literature review towards the study variables; Section 3 focuses on illustrating the model used in the study as well as the hypotheses development; Section 4 shows the methodology used; Section 5 analysis the collected data; Section 6 discusses the findings and compare them with the findings of previous studies; and finally, Section 7 represents conclusion which includes future research directions.

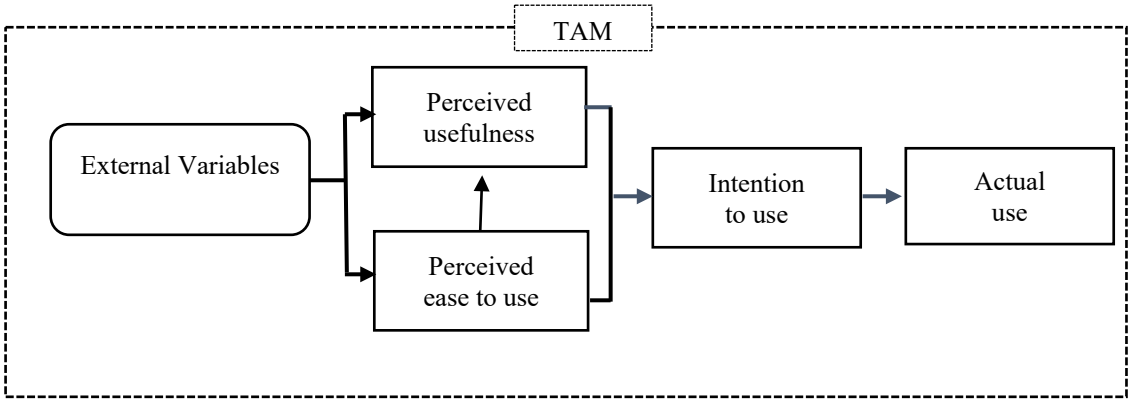
2. Literature Review

2.1 Technological Factors

The technological factor identifies the factors that determine an organisation's decision to adopt cloud technology by defining the characteristics of cloud technology (Nouf et al., 2014). Such technology is anticipated to radically revamp the digital phenomenon by innovating in transactions, reinventing industries, and pushing transformation worldwide (Araya, Dahalan, & Muhammad, 2021a). It expressed itself in various characteristics, such as availability, reliability, security, privacy, trust, relative advantage, compatibility, and complexity (Oliveira & Martins, 2011). The technological factors (TF) are variables that impact existing technologies on the market but are not currently in use. They are crucial in the adoption process because they limit the scope and speed of technological change a company can take (Tornatzky and Fleischer, 1990). It comprises: relative advantage, perceived complexity, perceived compatibility, tolerance for ambiguity, satisfaction with traditional budgeting system, perceived barriers, and training (Alghushami et al., 2020; Ali et al., 2020; Alkhater et al., 2015; Alsafi & Fan, 2020b; Ehsein, 2014a; Hadi et al., 2020; Kluvers, 1999; Kousar et al., 2017; Martins et al., 2016; Qin et al., 2020; Tornatzky & Klein, 1982; Usman, 2017). A review of the direction of relationships revealed that relative advantage, perceived compatibility, tolerance for ambiguity, and training all reported are positive with the innovation adoption. Meanwhile, perceived complexity, satisfaction with traditional budgeting systems, and perceived barriers all reported are negative with the innovation application. Empirical evidence reported by many studies supports this.

2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a popular IT adoption theory. TAM illustrates how external variables may influence adoption decision-making regarding several fundamental aspects and suggests PU and PEOU as the key causes for IT adoption. The intention of an individual to utilise an application is interpreted and predicted by his perception of the innovation's usability and simplicity (Davis & Venkatesh, 1996). The perceived utility can be determined by perceived ease of use and attitudes. According to Hussein et al. (2019b), TAM has had a lot of success in terms of acceptance, use. In fact, TAM replications preceded over the years (Bryan & Zuva, 2021).



Source: Bryan and Zuva (2021)

Figure: 1 Technology Acceptance Model

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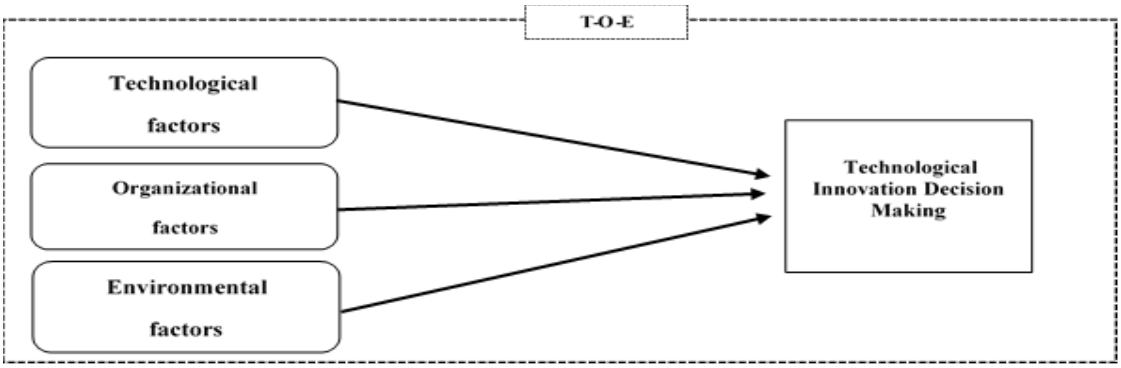
2.3 T-O-E Theory

According to Tornatzky and Fleischer (1990), three aspects of the company's context affect the process by which it adopts and implements innovation: the technological context, the organisational context and the environmental context. The technological context defines all internal and external technologies relevant to the company. It entails contemporary organisational procedures. The term "organisational context" refers to the descriptive indications of the organisation, such as scope, size, and organisational structure. The environmental context is the arena in which the corporation conducts its operations. Its industry, rivals, and relations with the government are all examples of this.



Source: Bryan and Zuva (2021)

Figure: 2 The Technology–Organisation–Environment Framework

3. Research Model and Hypotheses

Technological factors are variables that are used to contrast various options in terms of technological capability and are categorised into seven dimensions: relative advantage, perceived complexity, perceived compatibility, tolerance for ambiguity, satisfaction with line items, perceived barriers, and training (Klein , Tornatzky, 1982). This study will evaluate only relative advantage, line-item satisfaction, and perceived barriers.

3.1 Relative Advantages and the Intention to use of Cloud-Based Zero-Based Budgeting System

According to Moore and Benbasat (1991), the degree to which the invention is 'considered' to be superior to its predecessor is a relative advantage. In other words, relative advantage relates to the extent to which new or fresh ideas are considered superior to old ones (Rogers et al., 2019). Tung and Rieck (Tung & Rieck, 2005) investigated the elements that influence corporate organisations' use of electronic government services. According to their research, there is a link between perceived advantages, external stress, and Singaporean firms' use of electronic government services. Sparling et al. (2007) investigated the factors impacting e-commerce readiness to adopt in Canada's Central Okanagan Region. The authors identified three important factors: organisational computer support, relative advantage, and compatibility. According to the study, computer support inside organisations, relative advantage, and compatibility are important variables in adopting e-commerce in Canada's Central Okanagan Region. According to Teo et al. (1997), the relative advantage is positively connected to new technology adoption. The contingency model is being used to investigate the factors influencing internet adoption. This conclusion has been consistent throughout the literature, beginning with Tornatzky and Klein (1982), who discovered that relative advantage was an important factor in determining the acceptance of new technologies, and ending with Rogers, who addressed the impact of relative advantage on innovation diffusion at the organisational level. The studies above support the TEO framework and DOI model's utility in investigating factors that affect innovation adoption. Thus, it can be inferred that the use of relative advantage as a basis for proportional effectiveness in achieving a common target is justified. In Yemen, financial indicators such as relative advantage usefulness in overcoming the problem of line-item budgeting influenced the degree to which innovation is viewed as superior to the previous line-item budgeting scheme as the country tries to improve its reputation with the international community and investors through the public budgeting system reform process (Gaghman, 2020). Since perceived advantages of innovation are regarded as one of the best predictors of adoption behaviour in many studies of innovation adoption, this study aims to confirm that perceived advantages are significant innovation characteristics in the context of Yemen public organisations. Based on the discussion, the proposed hypotheses are as follows:

H1a: Relative advantage (RA) of Zero-based budgeting will have a positive impact on the perceived usefulness of Yemeni public entities' intention to adopt Zero-Based Budgeting.

H1b: Relative advantage (RA) of Zero-based budgeting will have a positive impact on the perceived ease of use of Yemeni public entities' intention to adopt Zero-Based Budgeting.

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H1c: Relative advantage (RA) of Zero-based budgeting will have a positive impact on the Yemeni public entities' intention to adopt Zero-based budgeting.

3.2 Satisfaction with Traditional Budgeting System and the Intention to use of Cloud-Based Zero-Based Budgeting System

A traditional budget is a quantitative assessment of management's planned course of action for a specific period of time and a tool for coordinating what needs to be accomplished to support that plan. Its key goal is to help managers accomplish their goals by planning, coordinating, tracking, and rewarding their efforts (Réka et al., 2014). User satisfaction is a broad term that has been defined in various ways. For instance, Ives, Olson, and Baroudi (1983) described user satisfaction as the degree to which users believe a system meets their needs. According to Oliver (1999), the experience of a pleasurable accomplishment of an operation is satisfaction. Satisfaction with Line-Item refers to a user's perspective of whether or not Line-Item is satisfying and pleasant. User satisfaction is described by Au et al. (2008) as a cognitive response based on a positive experience while using a system. Oliver (1999) defined an effective system as one that adds value to the company. Bourassa and Chalal (Bouaissa & Chalal, 2017) confirmed that user satisfaction is the most common metric for analysing the efficiency of information systems and their effect on the organisation. The focus of the study was on the proposed model, which synthesises the characteristics of the construct obtained directly from the user satisfaction measurement literature through the analysis of selected articles from the literature about the evaluation of information systems. Thong et al. (1993) reviewed the effect on information retrieval and information systems to determine what user satisfaction is, how it is determined, what factors influence it, and why user satisfaction results have been so diverse and conflicting. More research into the use of user satisfaction as a system performance indicator was suggested to be carried out by the author. As a result of the study, Thong and Yap (1996) offered some principles to bear in mind when using user satisfaction as a measure of IS effectiveness. Based on the discussion, the proposed hypothesis is as follows:

H2a: Higher levels of satisfaction with the traditional budgeting method will have a negative impact on the perceived usefulness of Yemeni public entities' intention to adopt Zero-Based Budgeting.

H2b: Higher levels of satisfaction with the traditional budgeting method will have a negative impact on the perceived ease of use of Yemeni public entities' intention to adopt Zero-Based Budgeting.

H2c: Higher levels of satisfaction with the traditional budgeting method will have a negative impact on the Yemeni public entities' intention to adopt Zero-based budgeting.

3.3 Perceived Barriers and the Intention to Use of Cloud-Based Zero-Based Budgeting System

Barriers refer to a lack of resources and expertise, a lack of a company's competence level, faith in the system, and preparedness (Ehsein, 2014a). According to the survey results, Ehsein (2014) findings suggested a negative link between obstacles and readiness to follow PBBS. On the other hand, Chau and Tam (Chau & Tam, 1997) observed a positive association between obstacles and new system adoption, which contradicts the conclusions of this research. Mental and physical barriers have been identified as barriers to the adoption and use of cloud computing in SMEs in Poland. Trust, data portability and access, data location evaluation of utility, legal stumbling blocks, local help, legal authority, customisation ownership incentives, fiscal barriers of technology, security and data protection, change management, and a slow internet connection are all issues that need to be addressed. The language used in the region, data security and confidentiality are also the barriers involved (Jelonek & Wysłocka, 2014). In this study, we emphasise that cloud technology can lead to cost savings through efficient use of resources. Similarly, security issues can limit the use of cloud technology. Based on the above theories and arguments, the study's third hypothesis is as follows:

H3a: Higher levels of perceived barriers to adopting a zero-based budgeting system will have a negative impact on the perceived usefulness of Yemeni public entities' intention to adopt zero-based budgeting.

H3b: Higher levels of perceived barriers to adopting a zero-based budgeting system will have a negative impact on the perceived ease of use of Yemeni public entities' intention to adopt zero-based budgeting.

H3c: Higher levels of perceived barriers to adopting a zero-based budgeting system will have a negative impact on the Yemeni public entities' intention to adopt zero-based budgeting.

3.4 Mediating Effects of Perceived Usefulness and Perceived Ease of Use

Perceived usefulness (PU) refers to the user's subjective likelihood that using a given application will improve operations. It provides analytic perspectives for determining how actual usage and intent to use are affected (Luu et al., 2019b). Perceived usefulness (PU) is a key component of TAM that influences both the intention and actual adoption of a technology-based application (Hussein et al., 2019a). Primary studies into perceived usefulness and the effects of external factors on this mental trait have yielded varied results (Chau & Tam, 1997; Davis, 1989). According to empirical research, perceived usefulness is positively related, implying that perceived usefulness is a crucial driver in users' intention to adopt cloud-based accounting (Eldalabeeh et al., 2021). Based on the preceding points, the study has come up with the following research hypotheses:

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H4: The perceived usefulness of zero-based budgeting (ZBB) will mediate the relationship between (relative advantages, satisfaction with traditional budgeting, and perceived barriers) and the Yemeni public entities' intention to adopt zero-based budgeting (ZBB).

The perceived ease of use (PEOU) determines the estimated mental effort required to use the target applications by the prospective user (Luu et al., 2019a). Perceived ease of use (PEOU) is one of the most crucial aspects of TAM in determining whether or not a technology-based application will be adopted (Hussein et al., 2019a). Improvement in it contributes positively to outcomes and eventually defines perceived usefulness (PU). Therefore, it impacts near-term usefulness (Eldalabeeh et al., 2021). The outcomes of primary research into perceived ease of use and the effects of external circumstances on this mental attribute have been mixed (Chau & Tam, 1997; Davis, 1989). Perceived ease to use is positively associated, according to empirical research, showing that perceived ease to use is a critical motivator in users' intention to embrace cloud-based accounting (Eldalabeeh et al., 2021). Based on the previous premises and rationale, the research hypothesis is as follows:

H5: The perceived ease of use of zero-based budgeting (ZBB) will mediate the relationship between (relative advantages, satisfaction with traditional budgeting, and perceived barriers) and the Yemeni public entities' intention to adopt zero-based budgeting (ZBB).

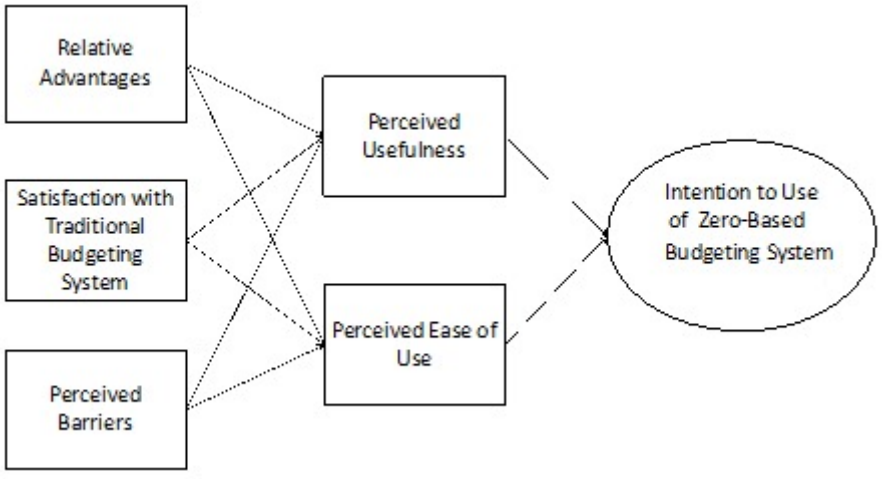

Figure: 3 Research conceptual model.

4. Methodology

The primary goal of the research is to examine the factors that may affect the perceived usefulness and ease to use related to the intention to adopt zero-based budgeting and to gain a better understanding of participants' perspectives on it in the context of Yemeni public entities. In sequential explanatory design, the quantitative data and their subsequent interpretation provide a general understanding of the research problem in this design. The quantitative approach is chosen for the current study. In the quantitative phase of the study, the research questions focused on determining the impact of determinant variables (technological factors) on the intention to use ZBB. Many factors were studied in the literature. However, there is a lot of inconsistency, and the information is fragmented (Saeed, Bekhet and Sciences 2018); (Saeed, Bekhet and Dhar 2017). Several researchers have investigated the relationship between independent variables and dependent variable in many contexts (Araya, Dahalan, & Muhammad, 2022). But there is a challenge when constructing models resulting from a broader collection of variables. Following (Araya, Dahalan, & Muhammad, 2021b) a regression with two or more explanatory variables is called a multiple regression. Multiple regression is used to test the effects of an independent (predictor) variables on a single dependent (criterion) variable, which can be written as:

$$Y = \beta_0 + \beta_1 STB_{it} + \beta_2 PBZBB_{it} + \beta_3 PUZBB_{it} + \beta_4 PEUZBB_{it} + \beta_5 ITUZBB_{it} + \varepsilon_i \quad (1)$$

Where:

Y= the dependent variable

βo = Constant term

STBit = Satisfaction with the traditional budgeting

PBZBBit = perceived barriers to adopting a zero-based budgeting

PUZBBit = Perceived usefulness of zero-based budgeting

PEUZBBit = Perceived ease of use of zero-based budgeting

ITUZBBit = Intention to adopt zero-based budgeting

From β_0 to β_5 are coefficients of the independent variables, and Ɛ is errors terms

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4.1 Study Sample

The sample of this study consists of employees of finance, auditing, planning, and information technology divisions, as well as policymakers, make up the study's population from 16 ministries, as well as three control and consultation institutions in Yemen make up the target population which the departments have a total of 3,820 employees (source: Ministry of Civil Service and Social Afire). Furthermore, the research sample was 346 employees. A questionnaire was used for the quantitative approach. To collect preliminary data from the study population and will be analysed using predictive statistical analysis, where the data will be collected and analysed by SPSS software and Smart-PLS software, SPSS for descriptive statistical analysis, while the path analysis will be used to test this study hypothesis.

5. Data Analysis and Results

5.1 Reliability Test

Reliability is the extent to which results are consistent and provide measurement stability over time. The research instrument is considered reliable if the results can be reproduced under a similar methodology. Traditionally Cronbach's alpha is the main reliability analysis used to measure the internal consistency of each item in the construction component. Cronbach's alpha works on the assumption that all items are equally reliable (Hair et al., 2014). This measure is sensitive to the number of items in the scale and underestimates the internal consistency reliability. Both Cronbach alphas were used as the lower bound of the internal consistency reliability, and composite reliability was used as the upper bound for true reliability (J. F. Hair et al., 2010). Table 1 shows the construct reliability in this study. Hair et al., 2017 suggested loading values equal to or greater than 0.708 will be retained. It indicated a latent variable could explain at least 50% of the indicator's variance. As depicted in table 1, the composite reliability for all indicators is more than 0.700. CR values range from 0.850 to 0.947, indicating adequate convergence or internal consistency. The CA values of all constructs ranged from 0.766 to 0.917, which is above 0.700. As per the content validity, all items in this study represent different meanings supporting the theory applied.

Table: 1 Reliability Test

Constructs	CA	CR
Relative advantage of zero-based budgeting	0.908	0.935
Satisfaction with the traditional budgeting	0.917	0.938
Perceived barriers to adopting a zero-based budgeting	0.766	0.850
Perceived usefulness of zero-based budgeting	0.892	0.932
Perceived ease of use of zero-based budgeting	0.916	0.947
Intention to adopt zero-based budgeting	0.894	0.922

5.2 Multicollinearity

In the present study, we have seven exogenous variables (relative advantage of zero-based budgeting, satisfaction with traditional budgeting, perceived barriers to adopting zero-based budgeting, perceived usefulness of zero-based budgeting, and perceived ease of use of zero-based budgeting). Therefore, to advance to hypothesis testing, we must determine if our latent variables are distinct from each other with the help of VIF. Hair et al. (1995) suggest that the VIF scores, among the constructs, in a hierarchical latent variable model should be below the cut-off point of ten. The scores for the collinearity (VIF) of the constructs for the current study are displayed in table 2. It can be observed from the results presented that the VIF score for each construct is lower than the threshold value of "7", meeting the thresholds established by Hair et al., 1995. Therefore, the researcher proceeded with further assessments as the results indicated no significant potential collinearity issues among the constructs.

Table: 2 Test for Multicollinearity on Assessment of Tolerance and VIF Values

Constructs	VIF
Relative advantage of zero-based budgeting	3.517
Satisfaction with the traditional budgeting	2.492
perceived barriers to adopting a zero-based budgeting	1.522

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Perceived usefulness of zero-based budgeting	3.332
Perceived ease of use of zero-based budgeting	4.402

5.3 Convergent Validity

Convergent validity is "the extent to which an indicator correlates positively with alternative indicators of the same construct (Hair et al., 2017a). The assessment of convergent validity can only use an item-construct relationship that is reflective. Hair et al. (2010) argued that a standard measure used to assess convergent validity is using the Average Variance Extracted (AVE) and factor loadings. The assessment of convergent validity, i.e., the factor loadings and the AVE for all constructs, can be observed in table 3.

Hair et al. (2017) postulate that an AVE with a value of 0.5 or higher indicates that, on average, a construct explains half or more than half of the variance of its indicators. As illustrated in table 3, the AVE of all the constructs is higher than 0.5, indicating their validity. Table 3 also presents the summary of factor loadings and the model's AVE of the reflective constructs. As shown in table 1, the factor loading for each item is greater than the threshold of 0.708. Therefore, it is reported that the criteria for convergent validity are met for all constructs in the measurement model.

Table: 3 Convergent Validity

Constructs	Average Variance Extracted (AVE)
Relative advantage of zero-based budgeting	0.784
Satisfaction with the traditional budgeting	0.751
Perceived barriers to adopting a zero-based budgeting	0.587
Perceived usefulness of zero-based budgeting	0.821
Perceived ease of use of zero-based budgeting	0.856
Intention to adopt zero-based budgeting	0.702

5.4 Discriminant Validity

Discriminant validity is "the degree to which the measures of different constructs differ (Hair et al., 2017a). The assessment of discriminant validity can use the Fornell-Larcker condition. Fornell and Larcker (1981) stipulate that a latent variable must share more variance with its assigned indicators than any other latent variable to test the discriminant validity using PLS.

Fornell and Larcker (1981) postulate that comparing the square root of the AVE values for two factors to the correlation estimate (r) between the same two factors for discriminant validity is evaluated. The square root of the AVE must be bigger than the correlation estimations of the two components ('/AVE > r) to establish discriminant validity. As illustrated in table 4, it indicates that the discriminant validity of the constructs in the model is sufficient, which means that each concept differs significantly from the others.

Table 3 also presents the summary of square root of the AVE and the correlation of the reflective constructs in the model. Therefore, it is reported that the criteria for discriminant validity are met for all constructs in the measurement model.

Discriminant validity is established to ascertain the distinctiveness of the constructs in the study. It shows that constructs in the study have their identity and are not too highly correlated with other constructs. However, when the constructs in the path model are conceptually more distinct, it should consider 0.85 as the threshold for HTMT (Henseler et al. 2015), fulfilled by this study, as shown in Table 4.

Table: 4 Discriminant Validity - Heterotrait-Monotrait (HTMT)

	ITUZBB	PBZBB	PEUZBB	PUZBB	RAZBB
PBZBB	0.246				
PEUZBB	0.132	0.318			
PUZBB	0.209	0.390	0.537		
RAZBB	0.147	0.383	0.440	0.587	
STB	0.248	0.090	0.100	0.193	0.069

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5.5 Descriptive Analysis

Table 5 displays the descriptive summary mean scores for the main constructs of this study. As indicated, modes were in the moderate category with the means of the constructs ranging from 3.101 to 3.972 and standard deviation ranging from 0.602 to 0.916, indicating respondents are skewed towards acceptance levels.

Table: 5 Descriptive Statistics for Study Variables

Construct	N	Mean	Std. Deviation
Relative advantage of zero-based budgeting	346	3.972	0.785
Satisfaction with the traditional budgeting	346	3.101	0.916
Perceived barriers to adopting a zero-based budgeting	346	3.816	0.602
Perceived usefulness of zero-based budgeting	346	3.951	0.667
Perceived ease of use of zero-based budgeting	346	3.643	0.746
Intention to adopt zero-based budgeting	346	3.298	0.681

5.6 *Direct Effect Analysis (Hypotheses Testing)*

The path coefficient was assessed to evaluate the significance of the hypothesis tested between the constructs. Based on the model, there were 9 direct relationship results. T-statistic for all paths was generated using SmartPLS bootstrapping to test the significance level. Running t-statistic on the sample size of 346 respondents and the direct hypotheses should result in≥1.96 and indicate a significant p-value of < 0.05. From table 5, the assessment of the path coefficient, 6 relationships were found to have a t-value ≥ 1.96, thus at the significant value of 0.05 level. At the same time, 3 relationships were found not supported.

Table: 6 Summary of the path analysis – the direct effect

Hs	Paths	Betas	SD	T	P-Values	Result
H1a	RAZBB -> PUZBB	0.451	0.043	10.395	0.000	Significant
H1b	RAZBB -> PEUZBB	0.357	0.054	6.546	0.000	Significant
H1c	RAZBB -> ITUZBB	-0.041	0.064	0.644	0.520	Not Significant
H2a	STB -> PUZBB	-0.275	0.051	5.415	0.000	Significant
H2b	STB -> PEUZBB	0.063	0.058	1.099	0.272	Not Significant
H2c	STB -> ITUZBB	0.078	0.057	1.362	0.174	Not Significant
H3a	PBZBB -> PUZBB	-0.218	0.058	3.760	0.000	Significant
H3b	PBZBB -> PEUZBB	-0.161	0.073	2.207	0.028	Significant
H3c	PBZBB -> ITUZBB	-0.312	0.079	3.935	0.000	Significant

Key: RAZBB: Relative advantage of zero-based budgeting; STB:Satisfaction with traditional budgeting; PBZBB: perceived barriers to adopting zero-based budgeting; PUZBB: perceived usefulness of zero-based budgeting; PEUZBB: Perceived ease of use of zero-based budgeting; and ITUZBB: Intention to adopt zero-based budgeting.

5.7 *Mediation Effect Analysis*

Hair et al., (2017a) postulate that a mediating effect is created when a third construct intervenes between two other related constructs. This section presents and evaluates the mediating impact of perceived usefulness and perceived ease of use. Six sub-hypotheses were created to examine the mediating effect of perceived effectiveness and perceived ease of use between technological factors and the intention to use of cloud-based zero-based budgeting system. Since the reliability and validity of the measurement model for the mediators and other constructs have been established, the mediation analysis applied the Preacher and Hayes' (2013) method by bootstrapping the indirect effects. According to Zhao et al. (2010), a full mediation is when the predictor variable does not significantly impact the dependent variable upon the inclusion of the mediator. Meanwhile, partial mediation exists if the predictor variable has a significant and direct effect on the dependent variable. The results of the mediation analysis are presented in table 7.

Table: 7 Mediation Analysis

Hs	Paths	Bets	SD	T	P Values	Decision	Type of Mediation
H1d	RAZBB -> PUZBB -> ITUZBB	0.094	0.031	2.991	0.003	Significant	Full medation

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H2d	STB -> PUZBB -> ITUZBB	-0.014	0.006	2.245	0.025	Significant	Full medation
H3d	PBZBB -> PUZBB -> ITUZBB	0.045	0.018	2.507	0.012	Significant	Partial medation
H1e	RAZBB -> PEUZBB -> ITUZBB	-0.037	0.021	1.726	0.085	Not Significant	Direct only
H2e	STB -> PEUZBB -> ITUZBB	-0.007	0.008	0.808	0.419	Not Significant	Direct only
H2e	PBZBB -> PEUZBB -> ITUZBB	-0.017	0.014	1.230	0.219	Not Significant	Direct only

6. Discussion and Implications

This study aims to contribute to the body of knowledge by studying the characteristics that influence public servant preparedness to embrace zero-based budgeting. To fulfil this objective, 9 hypotheses were formulated for the technological factors (relative advantage, satisfaction with the traditional budgeting, and perceived barriers) relationships with the perceived usefulness, perceived ease of use, and intention to use adopting a zero-based budgeting system. The empirical findings revealed that relative advantage relationships with perceived usefulness (β=0.451, t-stats=10.395, p-value=0.000), (β=0.343, t-stats=7.603, p-value=0.000), perceived ease of use (β=0.357, t-stats=6.546, p-value=0.000), (β=0.262, t-stats=4.562, p-value=0.000). This result is in line with previous studies, where relative advantage was consistently found to be a significant factor (Rogers et al., 2019; Tung & Rieck, 2005; Sparling et al., 2007; Teo et al., 1997; Tornatzky and Klein, 1982; Ehsein, 2014; Martins et al., 2016; Alghushami et al., 2020, Ali et al., 2021).). On the other hand, insignificant results were found in the relationship between relative advantage and the intention to adopt a zero-based budget (ZBB) (β=-0.041, t-stats=0.644, p-value=0.520). The reason for the insignificant findings could perhaps be that perceived relative advantage cannot significantly directly influence the intention to adopt ZBB. The government entities appear to be less interested in the benefits of adopting the new approach of budgeting in their ministries since they continue to use the old system that they are accustomed to. Furthermore, Yemen's established governmental institutions may not be as confident in the ZBB system as they would be in the country's more established traditional budgeting system because the country is still in the early stages of adopting the ZBB system is still relatively new to those institutions.

As for satisfaction with traditional budgeting, the empirical results support the negative relationship with the perceived usefulness of ZBB (β=-0.275, t-stats=5.415, p-value=0.000). This meant that the less satisfied the employees were with the current budgeting system the better the chance of adopting an alternative solution. Previous literature supported this result (Rogers et al., 2019, Ehsein, 2014; Alshamaila et al., 2013). Meanwhile, satisfaction with the traditional budgeting relationship with the perceived ease of use of ZBB (β=0.063, t-stats=1.099, p-value=0.272), and the intention to adopt Zero-based Budgeting (ZBB) (β=0.078, t-stats=1.362, p-value=0.174) were insignificant. These findings contradicted what has been indicated by Sari et al. (2021), who found a significant relationship between satisfaction with Information System adoption and the quality of information systems. The satisfaction level with existing systems plays a significant role as far as the stimulus in change is concerned (Chau and Tam, 1997). The explanation for the insignificant findings underlined that in terms of users' aims and requirements, zero-based budgeting is frequently different from using another form of budgeting system (Bunch & Tang, 2006). Therefore, this may account for the study's insignificant direct and indirect association between the adoption of ZBB and perceptions of ease of use and satisfaction with the current system.

The relationship of perceived barriers with perceived usefulness, perceived ease of use and the intention to adopt ZBB, was one of the technological factors that were investigated in this study. The result revealed that the perceived barriers relationship with perceived usefulness ZBB (β=-0.218, t-stats=3.760, p-value=0.000), perceived ease of use ZBB (β=-0.161, t-stats=2.207, p-value=0.028), the intention to use ZBB (β=-0.312, t-stats=3.935, p-value=0.000). This study's findings align with the survey from Chau and Tam (1997), which found a negative relationship between barriers and the adoption of a new system. In contrast, perceived barriers were insignificantly related to perceived ease of use ZBB (β=-0.003, t-stats=0.044, p-value=0.965). While the statistical sign of beta is negative, the hypothesis was not supported. A possible explanation of the contradictory results is that the respondents might think other obstacles were more important to the ease of use for ZBB. However, Alsafi and Fan (2020) and Ehsein (2014) found a negative relationship between barriers and adopting PBBS.

Perceived usefulness and perceived ease of use have been extensively researched, and the empirical evidence supported their significant influence on behavioural intention, either directly or indirectly. According to TAM (Davis, 1989), behavioural intention to use technology is affected by two mediators: perceived ease of use and perceived usefulness. In the current study, six hypotheses were developed to investigate the mediation role of perceived usefulness and perceived ease of use in the relationship between (technological factors) and the adoption of ZBB. The findings of the current study found that perceived usefulness ZBB mediates the relationship between relative advantage ZBB (β=0.094, t-stats=2.991, p-value=0.003), satisfaction with traditional budgeting (β=-0.014, t-stats=2.245, p-value=0.025), perceived barriers ZBB (β=0.045, t-stats=2.507, p-value=0.012), and the intention to adopt ZBB. These results align with TAM by Davis (1989), who suggested that perceived usefulness mediators influence behavioural intention to use technology. It is also consistent with previous studies (e.g., Chirchir et al., 2019; Lui et al., 2021; Venkatesh, 2000; Zhao et al., 2020), which support the mediating role of perceived usefulness.

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On the other hand, the results of this study indicated that perceived ease of use ZBB does not mediate the relationship between relative advantage ZBB (β=-0.037, t-stats=1.726, p-value=0.085), satisfaction with traditional budgeting (β=-0.007, t-stats=0.808, p-value=0.419), perceived barriers ZBB (β=-0.017, t-stats=1.230, p-value=0.219), and the intention to adopt ZBB. These results are inconsistent with TAM postulation that perceived ease of use mediators influence behavioural intention to use technology (Davis, 1989). According to the findings, public entities seem to focus on the benefits of adoption rather than the ease of adoption or the perceived barriers. They intend to adopt the new system proactively rather than reactively.

7. Conclusion

This study aims to contribute to the body of knowledge by studying the factors that influence public servant preparedness to embrace zero-based budgeting. A research gap inspires this study in factors influencing the adoption of ZBB. Very little attention had been given not only to the direct relationship between factors supporting the adoption of ZBB but also the mediation role of perceived usefulness of zero-based budgeting and perceived ease of use of zero-based budgeting; on the relationship between technological factors and the intention to adopt zero-based Budgeting (ZBB) in the Yemeni government entities. After an extensive review of the literature, the various constructs used in the proposed integrated framework were conceptualised, and nine hypotheses were developed. The hypotheses were tested using PLS-SEM (smart PLS 3) using a sample of 346 public employees across Yemeni entities.

It was found that the relative advantage associated with zero-based budgeting had a positive and significant impact on the perceived usefulness and ease of use of zero-based budgeting. In contrast, satisfaction with traditional budgeting negatively and significantly impacts the perceived usefulness of zero-based budgeting. The perceived barriers negatively and significantly impact the perceived usefulness, ease of use, and intention to adopt zero-based budgeting. While the relative advantage and satisfaction with traditional don't impact the intention to adopt zero-based budgeting. Additionally, it was revealed that perceived usefulness mediates the relationship between the intention to adopt zero-based budgeting and relative advantage, satisfaction with conventional budgeting, and perceived barriers.

Moreover, the perceived ease of use of zero-based budgeting does not mediate the relationship between the intention to adopt zero-based budgeting and perceived barriers, relative advantage, and satisfaction with conventional budgeting. The factors used within the model of this study focus on the public environment. As a result, it is suggested that future studies include more technological factors that may significantly impact the intention to use ZBB, hence extending the contribution and applicability of the integration of TOE and the technology acceptance model.

References

Al-Maamari, Q. A., Kassim, R. M., Raju, V., Al-Tahitah, A., Ameen, A. A., & Abdulrab, M. (2018). Factors Affecting Individual Readiness for Change: A Conceptual Framework. International Journal of Management and Human Science, 2(1), 13–18.

Al-Saidi, M. (2020). Legacies of state-building and political fragility in conflict-ridden Yemen: Understanding civil service change and contemporary challenges. Cogent Social Sciences, 6(1), 1831767. https://doi.org/10.1080/23311886.2020.1831767

Ali et al. (2020). Cloud computing technology adoption : an evaluation of key factors in local governments. April. https://doi.org/10.1108/ITP-03-2019-0119

Alkhater, N., Wills, G., & Walters, R. (2015). Factors influencing an organisation's intention to adopt cloud computing in Saudi Arabia. Proceedings of the International Conference on Cloud Computing Technology and Science, CloudCom, 2015-Febru(February), 1040–1044.

Alsafi, T., & Fan, I. S. (2020). Cloud Computing Adoption Barriers Faced by Saudi Manufacturing SMEs. Iberian Conference on Information Systems and Technologies, CISTI, 2020-June(June), 24–27. https://doi.org/10.23919/CISTI49556.2020.9140940

Araya, A., Dahalan, J., & Muhammad, B. (2021a). Blockchain technology and regression methods: A case of conceptual framework. International Journal of Business Society (ijo-bs), 5(11), 450-463. doi:10.30566/ijo-bs/2021.11.66

Araya, A., Dahalan, J., & Muhammad, B. (2021b). Model of heterogeneous agents and noise traders' risk: A case of conceptual framework. International Journal of Business Society (ijo-bs), 5(12), 493-502. doi:10.30566/ijo-bs/2021.12.70

Araya, A., Dahalan, J., & Muhammad, B. (2022). The relationship between financial patterns and exogenous variables: Empirical evidence from symmetric and asymmetric adrl. International Journal of Business Society, 6(6), 638-661. doi:10.30566/ijo-bs/2022.06.90

Araya, A., & Miras, H. (2015). Determinant risk factors on valuation of banks' stock return: A case of financial institutions management. International Journal of Accounting and Business Management, 3(1), 353-367. doi:10.24924/ijabm/2015.04/v3.iss1/353.367

Au, N., Ngai, E. W. T., & Cheng, T. C. E. (2008). Extending the understanding of end user information systems satisfaction formation: An equitable needs fulfillment model approach. MIS Quarterly: Management Information Systems, 32(1), 43–66. https://doi.org/10.2307/25148828

Basaloom, R. S. M. (2017). The Applicability of New Public Management (NPM) In the Yemeni Public Sector [International Islamic University Malaysia]. http://studentrepo.iium.edu.my/jspui/handle/123456789/3467

Bouaissa, D., & Chalal, R. (2017). Modelisation of User Satisfaction in IS research. Fifth International Conference on Advances in Computing, Communication and Information Technology - CCIT 2017, May 2018, 108–112. https://doi.org/10.15224/978-1-63248-131-3-46

Bryan, J. D., & Zuva, T. (2021). A Review on TAM and TOE Framework Progression and How These Models Integrate. Technology and Engineering Systems Journal, 6(3), 137–145.

Chau, P. Y. K., & Tam, K. Y. (1997). Factors affecting the adoption of open systems: An exploratory study. MIS Quarterly: Management Information Systems, 21(1), 1–20. https://doi.org/10.2307/249740

Chignell, P. (2017). Implementing Public Financial Management Reform (Issue 53, pp. 1–9). https://gsdrc.org/wp-content/uploads/2017/02/Implementing-Public-Financial-Management-Reform.pdf

https://dx.doi.org/10.30566/ijo-bs/2022.12.103

Chirchir et al. (2019). Perceived Usefulness and Ease of Use as Mediators of the Effect of Health Information Systems on User Performance. European Journal of Computer Science and Information Technology, 7(1), 22–37. https://doi.org/10.1017/CBO9781107415324.004

Curristine, T., Lonti, Z., & Joumard, I. (2007). Improving Public Sector Efficiency. OECD Journal on Budgeting, 7(1), 1–41. https://doi.org/10.1787/budget-v7-art6-en

Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: Three experiments. International Journal of Human Computer Studies, 45(1), 19–45. https://doi.org/10.1006/ijhc.1996.0040

Ehsein, A. J. (2014). Factors influencing the readiness to adopt Performance Based Budgeting Ssystem (PBBS) among Libyan institutions of higher learning. University of Malaya.

Eldalabeeh, A. R., Al-Shbail, M. O., Almuiet, M. Z., Baker, M. B., & E'leimat, D. (2021). Cloud-Based Accounting Adoption in Jordanian Financial Sector. Journal of Asian Finance, Economics and Business, 8(2), 833–849. https://doi.org/10.13106/jafeb.2021.vol8.no2.0833

Ellul, L., & Hodges, R. (2019). Reforming the government budgeting system in Malta: Pressures promoting or hindering the reform. Journal of Public Budgeting, Accounting and Financial Management, 31(4), 518–538. https://doi.org/10.1108/JPBAFM-10-2018-0108

Gaghman, A. (2020). The Importance of Good Governance on Achieving Sustainable Development Case Study: Yemen. KnE Social Sciences, 2019, 170–192. https://doi.org/10.18502/kss.v4i1.5987

Gupta, S., & Sami Ylaoutinen. (2014). Budget Institutions in Low-Income Countries : Lessons from G-20 (WP/14/164). https://www.imf.org/external/pubs/ft/wp/2014/wp14164.pdf

Hadi, H. J., Omar, M. A., Osman, W. R. S., & Hussaini, M. (2020). Factors affecting the intention to adopt software-as-a-service in public organisation from expert's perspective. Journal of Theoretical and Applied Information Technology, 98(10), 1751–1764.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Harun, H., Carter, D., Mollik, A. T., & An, Y. (2020). Understanding the forces and critical features of a new reporting and budgeting system adoption by Indonesian local government. Journal of Accounting and Organizational Change, 16(1), 145–167. https://doi.org/10.1108/JAOC-10-2019-0105

Henderson, D. X., & Green, J. (2014). Using mixed methods design to examine resilience, social connectedness, and re-suspension rates among youth in a community-based alternative-to-suspension program-TO-SUSPENSION PROGRAM. International Journal of Child, Youth and Family Studies, 5(3), 423–446. https://doi.org/10.18357/ijcyfs.hendersondx.532014

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the academy of marketing science, 43(1), 115-135.

Hussein Alghushami, A., Zakaria, N. H., & Mat Aji, Z. J. A. S. (2020). Factors influencing cloud computing adoption in higher education institutions of least developed countries: Evidence from republic of yemen. 10(22), 8098.

Hussein, L. A., Baharudin, A. S., Jayaraman, K., & Kiumarsi, S. (2019). B2b e-commerce technology factors with mediating effect perceived usefulness in jordanian manufacturing smes. Journal of Engineering Science and Technology, 14(1), 411–429.

Ives, B., Olson, M. H., & Baroudi, J. J. (1983). The measurement of user information satisfaction. Communications of the ACM, 26(10), 785–793. https://doi.org/10.1145/358413.358430

Jelonek, D., & Wysłocka, E. (2014). Barriers to the development of cloud computing adoption and usage in SMEs in Poland. Advances in Information Science and Applications, I(1), 128–133.

Kenno, S. A., & Sainty, B. (2017). Revising the budgeting model: Challenges of implementation at a university. Journal of Applied Accounting Research, 18(4), 496–510. https://doi.org/10.1108/JAAR-04-2015-0031

Kluvers, R. (1999). To PPB or not PPB - Budgeting in victorian local government. Australian Journal of Public Administration, 58(4), 68–77. https://doi.org/10.1111/1467-8500.00128

Kousar, S., Sabri, P., Zafar, M., & Akhtar, A. (2017). Technological factors and adoption of green innovation: Moderating role of government intervention: a case of SMEs in Pakistan. Pakistan Journal of Commerce and Social Sciences (PJCSS), 11(3), 833–861.

Lui et al. (2021). Consumer adoption of alipay in Malaysia: The mediation effect of perceived ease of use and perceived usefulness. Pertanika Journal of Social Sciences and Humanities, 29(1), 389–408. https://doi.org/10.47836/PJSSH.29.1.22

Luu, T. M. N., Nguyen, P. M., Dang, T. H., & Dao, P. Q. (2019). Factors affecting the adoption of social media in business: Evidence from individual and household retailers in Vietnam. International Journal of Entrepreneurship, 23(1 Special Issue).

Martins, R., Oliveira, T., & Thomas, M. A. (2016). An empirical analysis to assess the determinants of SaaS diffusion in firms. Computers in Human Behavior, 62, 19–33. https://doi.org/10.1016/j.chb.2016.03.049

Montes, G. C., Bastos, J. C. A., & de Oliveira, A. J. (2019). Fiscal Transparency, Government Effectiveness and Government Spending Efficiency: A Panel Data Approach for Developed and Developing Countries. Economic Modelling, 79(C), 221–225.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. Information Systems Research, 2(3), 192–222. https://doi.org/10.1287/isre.2.3.192

Moriani, F., & Al-Zawm, M. A.-H. A. (2013). Options for future form of Government and Decentralization in Yemen Policy Options in times of change.

Nouf et al. (2014). Factors Influencing an Organisation ' s Intention to Adopt Cloud Computing in Saudi Arabia. https://doi.org/10.1109/CloudCom.2014.95

Okegbe, T. O. (2019). Effect of Fiscal Responsibility Act on Budgeting and Accountability Practice in Nigeria. International Journal of Trend in Scientific Research and Development, 3(5), 1124–1138. https://www.ijtsrd.com/papers/ijtsrd26639.pdf

Oliveira, T., & Martins, M. F. (2011). Literature Review of Information Technology Adoption Models at Firm Level. The Electronic Journal Information Systems Evaluation, 14(1), 110–121.

Oliver, R. L. (1999). Whence consumer loyalty? Journal of Marketing, 63(4_suppl1), 33–44. https://doi.org/10.1177/00222429990634s105

Pereira Monteiro, B. R., & Corrêa Gomes, R. (2013). International Experiences with Accrual Budgeting in the Public Sector. Revista Contabilidade & Finanças - USP, 24(62), 103–112. http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=91510919&site=ehost-live

Qin, X., Shi, Y., Lyu, K., & Mo, Y. (2020). Using a TAM-TOE model to explore factors of Building Information Modelling (BIM) adoption in the construction industry. Journal of Civil Engineering and Management, 26(3), 259–277. https://doi.org/10.3846/jcem.2020.12176

Réka, C., Stefan, P., & Daniel, C. (2014). Traditional Budgeting Versus Beyond Budgeting a Literature Review. Annals of the University of Oradea: Economic Science, 23(1), 573–581.

Rogers, E. M., Singhal, A., & Quinlan, M. M. (2019). Diffusion of Innovations 1. In An Integrated Approach to Communication Theory and Research (Issue March, pp. 415–434). Routledge. https://doi.org/10.4324/9780203710753-35

Saeed, M. A. Y., Bekhet, H. A., & Dhar, B. K. (2017). Constructing model to explore the influence of marketing audit on organizational performance–An innovative arena of marketing. International Journal of Business Society, 1(1), 37-47.

Saeed, M. A. Y., & Bekhet, H. A. (2018). Influencing Factors of Mobile Marketing among Young Malaysian Customers. Australian Journal of Basic and Applied Sciences, 12(9), 63-72.

Sari, K. R., Arifin, Z., & Indriasari, D. (2021). The Influence of Information Quality and Information System Quality of Regional Assets on User Satisfaction at the Provincial Government of South Sumatera. Proceedings of the 4th Forum in Research, Science, and Technology (FIRST-T3-20), 1(2009), 157–161.

https://dx.doi.org/10.30566/ijo-bs/2022.12.103

Sarker, M. N. I., Bingxin, Y., Sultana, A., & Prodhan, A. S. (2017). Problems and challenges of public administration in Bangladesh: pathway to sustainable development. International Journal of Public Administration and Policy Research, 3(1), 16–25.

Sparling et al. (2007). SME Adoption of e-commerce in the Central Okanagan region of Canada. ACIS 2007 Proceedings - 18th Australasian Conference on Information Systems, May 2014, 1046–1059.

Teo et al. (1997). A Contingency Model of Internet Adoption in Singapore. International Journal of Electronic Commerce, 2(2), 95–118. https://doi.org/10.1080/10864415.1997.11518310

Thompson, J. R. (1993). A Comparison of Planning, Programming, And Budgeting System and Zero Based Budgeting. U.S. Army War College.

Thong, J. Y. L., & Yap, C. S. (1996). Information systems effectiveness: A user satisfaction approach. Information Processing and Management, 32(5), 601–610. https://doi.org/10.1016/0306-4573(96)00004-0

Thong, J. Y. L., Yap, C.-S., & Raman, K. S. (1993). User Satisfaction as a Measure of Information System Effectiveness. In Systems Science (pp. 487–492). https://doi.org/10.1007/978-1-4615-2862-3_86

Tornatzky, L. G., & Fleischer, M. (1990). The process of technological innovation. Lexington Books.

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. IEEE Transactions on Engineering Management, EM-29(1), 28–45. https://doi.org/10.1109/TEM.1982.6447463

Tung, L. L., & Rieck, O. (2005). Adoption of electronic government services among business organisations in Singapore. Journal of Strategic Information Systems, 14(4), 417–440. https://doi.org/10.1016/j.jsis.2005.06.001

Usman, U. M. . (2017). A REVIEW OF KEY FACTORS OF CLOUD ENTERPRISE RESOURCE PLANNING (ERP) ADOPTION BY SMEs. September.

Valuckas, D. (2019). Budgeting reconsidered: exploring change initiative in a bank. Journal of Accounting and Organizational Change, 15(1), 100–126. https://doi.org/10.1108/JAOC-10-2016-0060

Venkatesh, V. (2000). Determinants of perceived ease of use: integrating perceived behavioral control, computer anxiety and enjoyment into the technology acceptance model. Information Systems Research, 11(1), 3–11.

World Bank. (2008). Republic of Yemen: Public Expenditure Financial Accountability Assessment (Issue June). https://openknowledge.worldbank.org/handle/10986/12670

World Bank. (2014a). Economic, Fiscal and Social Challenges in the Early Phase of a Post Conflict Yemen: Yemen Policy Note 2. In Policy Notes. https://openknowledge.worldbank.org/handle/10986/11872%0A

World Bank. (2015). Yemen: Unlocking the Potential for Economic Growth: A Country Economic Memorandum (Issue 102151). https://openknowledge.worldbank.org/bitstream/handle/10986/23660/Yemen00Republi00for0economic0growth.pdf?sequence=1

Zhao et al. (2020). Health advertising on short-video social media: A study on user attitudes based on the extended technology acceptance model. International Journal of Environmental Research and Public Health, 17(5), 1–21. https://doi.org/10.3390/ijerph17051501

https://dx.doi.org/10.30566/ijo-bs/2022.12.103

APPENDICES

APPENDIX A: LIST OF THE LABELS OF CONSTRUCTS/ VARIABLES

TYPE	LABEL	VARIABLE
Independent Variables	RAZBB	Relative advantage of Zero-based budgeting
	STB	Satisfaction with the traditional budgeting
	PBZBB	perceived barriers to adopting a zero-based budgeting
Mediator Variables		
	PUZBB	Perceived usefulness of zero-based budgeting
	PEUZBB	Perceived ease of use of zero-based budgeting
Dependent Variables		
	ITUZBB	Intention to adopt zero-based budgeting

APPENDIX B: TECHNOLOGICAL FACTORS DIMENSIONS ADAPTED FROM THE PREVIOUS STUDIES

Main Construct	Subfactors	Total Items	Sources
Technological Factors	Relative advantage	4	Ehsein (2014); Martins et al. (2016); Alghushami et al. (2020); Ali et al. (2021)
	Satisfaction with traditional budgeting system	5	Kluvers (1999); Ehsein (2014)
	Perceived barriers	4	Ehsein (2014); Nouf et al. (2014); Alsafi and Fan (2020)

APPENDIX C: MEASURES ITEMS ADAPTED FROM THE PREVIOUS STUDIES

Code	Item
Relative advantages contribute to perceived usefulness and perceived ease of use related to intention to adopt Zero-based budgeting system (ZBB)	
RA1	Zero-based budgeting (ZBB) is a budgeting technique; for planning and budget preparation; that required justifying all spending for each new from scratch.
RA2	Adoption of ZBB can be used to assess the costs and benefits of various activities.
RA3	A zero-based budgeting system (ZBB) could prevent overspending and save money.

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RA4	ZBB increases the operational efficiency of my ministry.

Code	Item
Satisfaction with the Current Traditional budgeting System contributes to perceived usefulness and perceived ease of use related to intention to adopt Zero-based budgeting system (ZBB)	
STB1	The Current Traditional budgeting system is adequate to allocation of resources.
STB2	Traditional budgeting system is suitable for evaluating management performance.
STB3	The Current Traditional budgeting system is suitable in generating accurate information for decision making.
STB4	The Current Traditional budgeting system leads to transparency.
STB5	Traditional budgeting system is adequate for control of expenditure

Code	Item
Perceived Barriers that affect perceived usefulness and perceived ease of use related to intention to adopt Zero-based budgeting system (ZBB)	
PB1	Lack of awareness on how to use zero-based budgeting system (ZBB).
PB2	The application of the ZBB rules is not easy.
PB3	Adoption of ZBB is costly.
PB4	There is a scarcity of necessary skills to adopt a (ZBB).

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