An Investigation on the Application of the Technology Acceptance Model (TAM) to Evaluate the Adoption of ERP Solutions in MSMEs of Odisha

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Abstract: *Micro, Small and Medium Enterprises (MSMEs) have played a vital role in economic development of India. MSME in India has the potential to increase the share of contribution to GDP from the current 8 per cent to about 15 per cent by the year 2020. Despite the prevalence of computing in all aspects of society, some computer systems may not be fully accepted by their intended users or become underutilized. ERP systems have become the most common IT strategy for most large companies but still many small companies have not used it yet in their organisations. ERP (Enterprise Resource Planning) is a way to integrate the data and processes of an organization into one single system. Its main goal is to integrate data and processes from all areas of the organization and unify it, to provide ease of access and an efficient work flow. Thus, acceptance and use of information technologies in MSMEs remain a paramount issue in information systems (IS) research and practice. Extending previous research by integrating computer self-efficacy, Prior experience, technical support and subjective norms as external variables to the technology acceptance model (TAM), this study examines the direct and indirect effects of these factors on ERP system acceptance and use. The results indicated that external variables had significant direct effects on perceived usefulness and perceived ease of use as well as indirect effects on attitude and behavioral intention. However, the effect of perceived ease of use on attitude was stronger than that of perceived usefulness. In turn, attitude demonstrated a negligible impact on behavioural intention. These findings highlight several implications for research and practice.*

Keywords: ERP solutions, TAM, Adoption, MSMEs, Odisha

1. Introduction

Micro, Small and Medium Enterprises (MSMEs) have played a vital role in economic development of India. This sector consisting of 36 million units, as of today, provides employment to over 80 million persons. The Sector contributes about 8 per cent to GDP besides 45 per cent to the total manufacturing output and 40 per cent to the exports from the country. MSME in India has the potential to increase the share of contribution to GDP from the current 8 per cent to about 15 per cent by the year 2020.According to the 4thAll India census of MSME, around 60 per cent of MSME enterprises are based in rural areas. The MSME sector has the potential to spread industrial growth across the country and can be a major partner in the process of inclusive growth. According to Small & Medium Business Development Chamber of India (2012), SMEs form 95 per cent of the total industrial units in the country and manufacture around 8,000 quality products for the Indian as well as for international markets (MSME, 4th All India Census of MSMEs 2006-2007). Odisha is one of the top ten States in creation of job by MSME sector although it is positioned at 11thin respect of number of MSME units as compared to other States.

The contribution of industrial sector to State GDP is 25.40 per cent in 2015-16, which is slightly higher than the previous years. But most of the contribution comes from large industries which are located in selected parts of the State. Most of the districts of the state are industrially backward even

if there is a large deposit of minerals. Industrial Policy Resolution (IPR) 2007 focused on acceleration of industrial growth and to bring technological efficiencies in the operation of industrial sector. Further, IPR 2015 highlighted that the contribution of small industries (MSME sector) is very less even if there is an increasing trend in the number of units. Most of the small industries are mineral and metal based even if there is a wider scope in agriculture sector.

Another major constrains for development of MSMEs in India is the less use of modern technology in their business process. In Odisha, around 50 % of the MSMEs are using old and traditional technology mainly due to lack of fund (RBI, 2015). Digital technologies also offer businesses the ability to innovate and achieve higher efficiencies through improved communication and digital productivity tools e.g. ICT, ERP and CRM systems (KPGM, 2017). Recognising the importance of up-gradation of technology government has launched Credit Link Capital Subsidy Scheme (CLCSS) and has provided assistance of Rs.2267 crore to MSMEs across the country (MSME, 2016). The report shows that a staggering 68 per cent of SMBs in India are completely offline and only 2 per cent of MSMEs are digitally engaged. It identifies low awareness of the benefits of digital technologies, lack of digital skills and knowledge, and limited internet infrastructure as the key reasons for such low uptake (KPGM, 2017).

Today ERP is used in almost any type of organization it doesn't matter whether it is large, small or what industry it

falls in However, many of today's ERP systems can cover more than just two functions and integrate them into one unified Data Base. Human Resources, Supply Chain Management, Customer Relations Management, Financial, Manufacturing functions and Warehouse Management functions can be found on modern companies under one umbrella – the ERP system. The study mainly focuses on identifying the bottlenecks and favourable factors in the process of adoption of ERP in MSMEs in Odisha.

2. Literature Review

In the modern era Information technology has significantly transformed the landscape in which the businesses are being conducted. Large companies in India have adopted modern technology to upgrade themselves in order to achieve cost effectiveness and competitiveness in the market [1]. But the MSMEs in India are still finding it difficult to adopt modern technology (CII, 2015). The financial constraints associated with high switching and implementation costs become a bottle neck for adopting new technologies. So, to safeguard this segment an extensive literature review using internet and various databases of published work is done and a conceptual model is developed.

2.1. Technology acceptance model (TAM)

The technology acceptance model (TAM) is an information systems theory that signifies how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. Many studies had been conducted to identify critical factors that determine the success of ERP implementation. Several studies have identified the various issues that an organization faces, that hamper the success of ERP implementation in the small enterprises [2] [3].

TAM is one of the better known models for explaining intention to use a technology. It provides the basis with which one can trace how external variables influence belief, attitude, and intention to use. It is assumed that the perceived usefulness (PU) and the perceived ease of use (PEOU) are central in influencing a person's attitude and behavioral intention towards using it. The technology acceptance model (TAM) has commonly been used by researchers to analyze the impact of various factors on acceptance of a technology [4][5][6]. It provides empirical support to clarify the determinants of behavioral intention in users' adoption of ERP [7]. TAM comprises the causal relationship between perceived ease of use (PEOU), perceived usefulness (PU), attitude (AT), and behavioral intention (BI). According to the model, PU and PEOU are the main component which explains the BI of the individual. In addition, it proposes that PU and PEOU are affected by several external variables like user traits, environmental and organizational elements [8]. There are some explanatory factors responsible for adoption ERP in the MSMEs. The literature concerning the determinants of adopting ERP suggests a grouping of variables into three

categories. These determinants can be classified as (1) environmental factors, (2) characteristics of the firm and (3) management factors, which in general refer to entrepreneurial and managerial characteristics of owner. The external variables selected for this study are (i) computer self efficacy, (ii) prior experience, (iii) technical support and, (iv) Subjective norms.

2.2. Computer Self-Efficacy

According to Bandura & Wood [9] Self-efficacy (SE) is one's belief in his/her capability to mobilize the motivation and cognitive resources necessary to meet given situational demands. Thus, recognition of self-efficacy reflects an important aspect in implementing computer-based systems effectively. Hence, it is essential to have a reliable measurement of SE [10]. On the other hand, Computer Self-Efficacy (CSE) is the ability of the individual's self-assessment to apply computer skill to achieve their tasks [10]. CSE has three effects on the individuals which are (i) the product of their computer use, (ii) their emotional reaction toward computers, and (iii) the degree of actual utilization of computers in their work. Several empirical studies found significant effects of CSE on the PU and PEOU of an e-learning system [11] [12]. CSE's main effect is found on PEOU, because it is recognized that, the higher the core competence in the use of computers, the easier the system will appear to the system user. Therefore, it is an important construct that affects instructors' perspective towards their use of e-learning systems.

2.3. Prior Experience

Experience with the use of technology is defined by the level of use and the type of computer skills a person acquires over a period of time [13]. In the learning process, Prior Experience (PE) plays an important role in the initial adaptation of new technology [14]. In the view of many studies that adopted TAM, the effect of PE on user acceptance of information systems was among the most studied external variables. Instructors' previous experience in using e-learning systems will have a positive effect on their behaviour toward using other e-learning systems[15][16]. Thus, PU and PEOU have a positive correlation with PE [17]. In other words, the more experience the instructor has in using an e-learning system, the stronger their intention to use other e-learning systems will be [18]. User PE has complex relationships with other variables and show both direct and indirect effects on a user's acceptance [19]. The positive experience toward technology will encourage them (positive attitude) to use e-learning systems, as instructors will feel like they can use it without difficulties (PEOU).

2.4. Technical Support

Technical Support (TS) is one of the most important factors that have a direct effect on PU and PEOU, which affects the users' attitudes toward the e-learning system [20]. According to Ralph (1991) [21], TS is represented by organization staff

that has adequate knowledge to assist system users with computer hardware and software problems. Such support can include online support help desks, hotlines, services, machine-readable support knowledge base, faxes, automated telephone voice response systems, remote control software, and other facilities. Although KU CDL and KUCIS have provided software and hardware support on all systems and to all users, the support provided by both centres has never been studied from the perspective of their contribution in shaping instructors' beliefs on e-learning at KU. Therefore, TS is considered one of the external factors in the study's theoretical model.

2.5. Subjective norms

Subjective norm (SN) is defined as the result of an individual's response to the perceived expectations of his or her peer group and his belief that he must comply with those expectations [22]. Subjective norms have a strong influence on user's perceptions. Subjective norms play a strong and complex part in the usage of a software system [23]. People who are close and important to the individuals are like family members, friends, and colleagues. Perceptions are also formed due to influences from experts and media reports [24]). Subjective norms have been found to be an important factor of intention to use information technology.

Subjective norm did not influence men in using the system but influence women in the beginning of the introduction of the system but after a short time there is no effect on the women's intention to use the system despite the increase in experience [25]. So when supervisors or peers say that using the particular technology will be more useful at work, this may affect the perception of the user. Therefore, subjective norm is considered a determinant for intention to use and perceived usefulness examined critical factors that need to be considered to ensure successful ERP system implementation in the construction industry. The study found that subjective norms have a significant relation with perceived usefulness, and perceived usefulness has a significant relation with perceived ease of use. Perceived usefulness and perceived ease of use were found to have a significant relation with intention to use and perceived ease of use has indirect relation with the intention to use through perceived usefulness. Additionally, there is a strong effect for subjective norm on intention to use and perceived usefulness, which was confirmed by [26].

3. Research objectives and Hypotheses:

The MSMEs in Odisha lags behind their counterparts across the globe in adoption of ERP. The studies conducted by [27][28][29][30] have indicated various factors responsible for use of ERP by small firms in different parts of the world. Based on the literatures reviewed earlier, the following objectives are developed for the proposed research. They are;
1) To identify the factors responsible for adoption of Information Technology by MSMEs in Odisha from user's perspective;
2) To study the perception and behavioural intention of owners/managers for use of ERP in their business transactions;

Figure 1: Conceptual Model
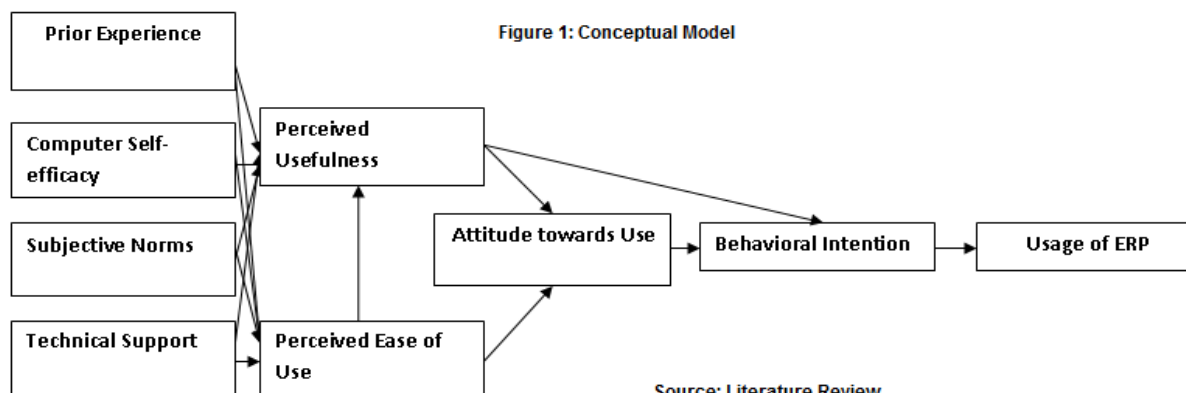
Source: Literature Review

The conceptual model cited in Figure 1 has depicted relationship of different variables and their influence on use of Information Technology for benefit of MSMEs. The following hypotheses are conceptualised for the proposed study.

$H1_a$: Prior experience (PE) influences perceived usefulness (PU) of owner for adoption of ERP

$H1_b$: Prior experience (PE) influences perceived ease of use (PEOU) of owner for adoption of ERP.

$H2_a$: Computer self-efficacy (CSE) influences perceived usefulness (PU) of owner for adoption of ERP.

$H2_b$: Computer self-efficacy (CSE) influences perceived ease of use (PEOU) of owner for adoption of ERP.

$H3_a$: Subjective Norms (SN) affect perceived usefulness (PU) of the owner for adoption of ERP.

$H3_b$: Subjective Norms (SN) affect perceived ease of use (PEOU) of the owner for adoption of ERP.

$H4_a$: Technical Support (TS) affects perceived usefulness (PU) of the owner for adoption of ERP.

$H4_b$: Technical Support (TS) affects perceived ease of use (PEOU) of the owner for adoption of ERP.

H5: Perceived ease of use have an impact on Perceived usefulness (PU) towards the use of ERP in MSMEs.

H6: Perceived usefulness and Perceived ease of use have a combined impact on attitudes (AT) towards the use of ERP in MSMEs.

H7: Attitude (AT) towards use and perceived usefulness (PU) influence behavioral intentions (BI) to use ERP in MSMEs.

H8: Behavioral intention (BI) for use of ERP impacts the actual usage (US) of ERP in MSMEs.

4. Research Methodology

The study is descriptive in nature. It includes qualitative and quantitative methods as both approaches help to develop rich insights into various phenomena of interest that cannot be fully understood using a single method (Venkatesh*et al.*, 2013). A structured questionnaire was developed by considering various factors under study. The population for this study are the MSMEs registered in District Industries Centers (DICs) of Odisha. The population for this study are the registered MSMEs in the DICs of Odisha and purposive sampling technique will be adopted to draw the samples. The sample size will be around 100 industrial units covering different categories of MSMEs operating in different districts of the state. The sources of data were both primary and secondary. The secondary data were collected from different DICs, Reports of Annual Survey of Industries (AIS), MSME Census Report of GOI, and Economics Survey Report of both GOI and Govt. of Odisha.

A structured questionnaire was developed to measure the perception of owners/ managers responsible for in-charge of adoption of ERP in the sample MSMEs. The questionnaire had two parts based on different parameters involve in adoption of technology from earlier literatures. The 'Part A' included questions to elicit responses on socio-demographic characteristics of the respondents. 'Part B' contained perceptual constructs of Technology Adoption (Perceived ease of use (PEOU), usefulness (PU), attitude (AT), behavioural intention (BI) and usage (US)). This part also included questions on factors affecting the adoption of ERP in MSMEs like Computer Self-efficacy (CSE), Prior experience (PE), Technical Support (TS) and Subjective Norms (SN). A 5-point Likert scale will be used to measure, with a rating scale from (1) 'strongly disagree" to (5) "strongly agree". The questionnaire items for this study were developed based on various sources (see for example, Davis, 1989; Rhee and Riggins, 1997; Hu et al., 1999; Malhotra and Galletta, 1999; Tan and Teo, 2000; Wu and Lin, 2000), since it is practical to use existing, well-developed questionnaires that have been tested for their validity and reliability (Lucas, 1991).

5. Data Analysis

The data collected from the field were put into excel sheet for editing, compiling and manipulation. Then the data were transferred to SPSS for further analysis. Statistical techniques like descriptive statistics, inferential statistics and multivariate analysis were used to draw inference about the population.

Table 1: Demographic characteristics of Owner and business

Variable	Levels	Frequency	Percentage
Gender	Male	88	80
	Female	22	20
Educational Qualification	Illiterate	20	18.2
	Matriculation	26	23.6
	10 +2	24	21.8
	Graduate	33	30.0
	Post Graduate	7	6.4

Income (Monthly)	Below 10000	33	30.0
	10000-20000	52	47.3
	Above 20000	25	22.7
Type of Business	Manufacturing	38	34.5
	Trading	21	19.1
	Services	51	46.4
Duration of Use of ERP	Less than 1 year	55	50.0
	1-3 years	27	24.5
	3-5 years	17	15.5
	Above 5 years	11	10.0

Source: Field Data

A regression analysis was applied to find out causal effect between dependent and independent variables and to test the hypotheses. The SPSS was used analysis tool. The following tables (3-7) show causal relationship between independent and dependent variables. Table 8 summarises the result of regression shows below. This confirms the original hypothesis made in the literature concerning the Technology Acceptance Model.

Table 3: Regression Analysis between external Variables and Perceived Usefulness

Model	Un-standardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	0.676	0.034		1.987	.049
Prior Experience	0.269	0.099	0.281	2.717	.007
Subjective Norms	0.268	0.104	0.268	2.579	.011
Computer Self Efficacy	0.153	0.056	0.183	2.737	.003
Technical Support	0.157	0.067	0.167	2.354	.029
Perceived Ease of Use	0.462	0.050	0.539	4.251	.000
Notes: R^2=0.734 ; Adj. R^2 =0.707 ; Sig. F = 0.001 ; F-value = 24.832; Dependent variable: Perceived Usefulness, $p < 0.05$					

Source: primary data

The table 3 studies the regression analysis between the independent variables and dependent variable. The hypothesis of association between external variables and perceived usefulness was studied by multiple regression analysis. The results are analysed to show that predictor variables contributes significantly and predict 73 percent (R^2=.734) of variation in perceived usefulness in usage of ERP in MSMEs. The corresponding ANOVA values of F=24.832 ($p<0.001$) for the regression model indicates significant predictors of perceived usefulness in usage of ERP in the selected firms. The coefficient summaries as shown in Table 3 reveals that Beta values of prior experience =0.281 ($p<0.01$), Subjective norms= 0.268 ($p<0.05$), computer self efficacy = 0.183, ($p<0.01$), and technical support= 0.167 ($p<0.05$) which have conspicuous impact on perceived usefulness in usage of ERP. Here prior experience of the owner on using ERP has emerged as a major influencing factor followed by Subjective Norms, computer efficacy and technical support. The positive sign of the estimates show that the greater the extent of these variable the more is perceived usefulness of the implementation of ERP in MSMEs. Thus, the hypotheses H1a, H2a, H3a and H4a are accepted. Similarly, the coefficient summaries as shown in

Table 3 also reveals that beta values of perceived ease of use= 0.539 (p<0.01) has significant impact on perceived usefulness in usage of ERP. The positive sign of the estimates show that the greater the extent of these variable the more is perceived usefulness of the implementation of ERP in MSMEs. Thus, the hypothesis H5 is accepted.

Table 4: Regression Analysis between external Variables and Perceived Ease of Use

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.904	0.888		2.597	.014
Prior Experience	0.287	0.159	.295	1.802	.030
Subjective Norms	0.189	0.200	.180	0.946	.042
Computer Self Efficacy	0.154	0.121	.203	1.275	.011
Technical Support	0.262	0.158	.289	1.653	.027
Notes: R^2=0.637 ; Adj. R^2 =0.601 ; Sig. F = .000 ; F-value = 45.67; dependent variable: perceived ease of use, p < 0.05					

Source: primary data

The hypothesis of association between external variables and perceived ease of use was studied by multiple regression analysis in Table 4. The results are analysed to show that predictor variables contributes significantly and predict 63 percent (R^2=.637) of variation in perceived ease of use in usage of ERP in MSMEs. The corresponding ANOVA values of F=45.67 (p<0.01) for the regression model indicates significant predictors of perceived ease of use in usage of ERP for the selected firms. The coefficient summaries as shown in Table no.4 reveals that Beta values of prior experience =0.295 (p<0.05), Subjective norms= 0.180 (p<0.05), computer self efficacy = 0.203, (p<0.05), and technical support= 0.289 (p<0.05) which have conspicuous impact on perceived ease of use in usage of ERP. Here prior experience of the owner on using ERP has emerged as a major influencing factor followed by technical support, computer efficacy and Subjective Norms. The positive sign of the estimates show that the greater the extent of these variable the more is perceived ease of use of the implementation of ERP in MSMEs. Thus, the hypotheses H1b, H2b, H3b and H4 are accepted.

Table 5: Regression Analysis between Perceived Ease of Use, Perceived usefulness and Attitude

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.284	0.197		1.519	0.130
Perceived Usefulness	0.327	0.048	0.346	6.754	0.000
Perceived Ease of Use	0.595	0.065	0.540	9.542	0.000
Notes: R^2=0.613 ; Adj. R^2 =0.609 ; Sig. F = .001 ; F-value = 32.45; dependent variable: Attitude, p < 0.01					

Source: Primary data

The regression analysis attempts to find out causal relationship between Perceived Ease of Use, Perceived usefulness and Attitude. The coefficient summaries as shown in Table 5

reveals that Beta values of perceived ease of use=0.595 (p<0.01) and perceived usefulness = 0.327 (p<0.01) have significant impact on attitude towards use of ERP. The positive sign of the estimates show that the greater the extent of these variables the more is attitude towards use of ERP in MSMEs. Thus, the hypothesis H6 is accepted.

Table 6: The impact of Attitude and Perceived usefulness on Behavioural intention

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.313	0.174		11.755	0.000
Perceived usefulness	0.605	0.068	0.553	8.932	0.000
Attitude towards use	0.288	0.62	0.290	4.672	0.000
Notes: R^2=0.723 ; Adj. R^2 =0.719 ; Sig. F = .000 ; F-value = 55.67; dependent variable: Behavioural Intention to use , p < 0.01					

Source: Primary data

Similarly, the coefficient of independent variables shown in the table 6 reveals that Beta values of perceived usefulness =0.605 (p<0.01) and attitude=0.288 (p<0.01) have significant impact on behavioural intention to use ERP. Thus, the hypothesis H7 is accepted.

Table 7: Regression Analysis between Behavioural Intention and Actual Usage

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.443	0.183		9.545	0.000
Behavioural Intention	0.765	0.054	0.732	6.432	0.000
Notes: R^2=0.938 ; Adj. R^2 =0.933 ; Sig. F = .000 ; F-value = 31.23; dependent variable: Actual Usage of ERP , p < 0.01					

Source: Primary data

The table 7 studies the regression analysis between the independent variables and dependent variable. The hypothesis of association between behavioural intention and actual usage was studied by regression analysis. The results are analysed to show that predictor variables contributes significantly and predict 93 percent (R^2=0.933) of variation in actual usage in usage of ERP in MSMEs. The corresponding ANOVA values of F=31.23 (p<0.01) for the regression model indicates significant predictors of actual usage of ERP in the selected firms. The coefficient summaries as shown in the table 7 reveals that Beta values of behavioural intention =0.765 (p<0.01) which has significant impact on actual usage of ERP. The positive sign of the estimate show that the greater the extent of behavioural intention the more is perceived actual usage of ERP in MSMEs. Thus, the hypothesis H8 is accepted.

Table 8: Hypothesis summary

Hypothesis	Statement	Result
H_{1a}	Prior experience (PE) has a significant influence on perceived usefulness (PU) of owner for adoption of ERP	Supported
H_{1b}	Prior experience (PE) significantly influences perceived ease of use (PEOU) of owner for adoption of ERP.	Supported
H_{2a}	Computer self-efficacy (CSE) significantly influences perceived usefulness (PU) of owner for adoption of ERP.	Supported
H_{2b}	Computer self-efficacy (CSE) significant impact on perceived ease of use (PEOU) of owner for adoption of ERP.	Supported
H_{3a}	Subjective Norms (SN) has a significant impact on perceived usefulness (PU) of the owner for adoption of ERP.	Supported
H_{3b}	Subjective Norms (SN) has a significant influence on perceived ease of use (PEOU) of the owner for adoption of ERP.	Supported
H_{4a}	Technical Support (TS) has a significant impact on perceived usefulness (PU) of the owner for adoption of ERP.	Supported
H_{4b}	Technical Support (TS) significantly affects perceived ease of use (PEOU) of the owner for adoption of ERP.	Supported
H_5	Perceived ease of use (PEOU) has a significant impact on Perceived usefulness (PU) towards the use of ERP in MSMEs.	Supported
H_6	Perceived usefulness and Perceived ease of use have a significant combined impact on attitudes (AT) towards the use of ERP in MSMEs.	Supported
H_7	Attitude (AT) towards use and perceived usefulness (PU) have a significant influence on behavioural intentions (BI) to use ERP in MSMEs.	Supported
H_8	Behavioural intention (BI) for use of ERP significant impact on the actual usage (US) of ERP in MSMEs.	Supported

The above table 8 summarises the hypothesis after the testing was done. The alternative hypotheses were accepted and conclusions are drawn about the population of the study. The hypotheses show there is an significant impact of independent variables on dependent variable. The major find and conclusions are highlighted in the following sections.

6. Major Findings

The current study attempted to investigate the indirect effects of external factors, computer self-efficacy, prior experience, subjective norms and technological support, on determinants of ERP acceptance behaviour of MSMEs as outlined in TAM. The results provided a strong support for the proposed model and provide better understanding of the relationships among the o external variables and determinants of acceptance behaviour. The four external variables have a positive and direct impact on Perceived usefulness and perceived ease of use of EPR in MSMEs. Similarly, CSE, SN, PE and TS demonstrated a considerable indirect effect on attitude and behavioural intention, providing support for the suggestion that TAM provides a basis for mapping the effects of external

factors (Davis, 1989). But, prior experience of the owner in using ERP has emerged as a major influencing factor followed by subjective norms, computer efficacy and technical support for perceived usefulness. On the other hand, prior experience of the owner on using ERP has emerged as a major influencing factor followed by technical support, computer efficacy and subjective norms in case of perceived ease of use.

With respect to the relationships among TAM's constructs, the results of this study departed from previous research findings in two notable aspects: (1) ease of use demonstrated stronger effects on attitude and intention than did usefulness, and (2) attitude had a small, significant effect on intention. A plausible explanation for these findings may relate to the timeframe in which perceptions of usefulness become fully developed and matured. Davis (1989) suggests that perceptions of usefulness take longer to develop as users need more time to gain detailed knowledge about the system and learn how the system can improve their work. Thus, given the relatively short time in which perceptions of usefulness were measured in this study, it is possible that this period of time was not long enough for subjects to gain detailed knowledge about the system and its potential benefits to them. Another possible explanation pertains to the unfamiliarity of the technology. Because the effect of ease of use is more powerful than that of usefulness in the case of difficult technologies (Davis, 1989), the technology examined in this study might have been more complex compared to the more user-friendly and common window-based applications examined in past research. The results indicated that the effect of ease of use on intention was stronger than that of attitude towards use. The increased focus on ease of use and emphasizing the simplicity of a target system may yield more favourable beliefs and intentions toward the system. Providing user support mechanisms such as internal and external training (Igbaria et al., 1996) and other individual and organizational help resources (Mathieson, Peacock, & Chinn, 2001) could be useful in boosting users' perceptions of ease of use.

Perceived usefulness was posited to be directly determined by CSE, PE, SN, TS and perceived ease of use (PEOU). Among the five predictor variables, perceived ease of use demonstrated a strong, positive effect on perceived usefulness. This finding is consistent with TAM and corroborates the direct relationship between perceived ease of use and usefulness.

Finally, behavioural intention has a significant impact on actual usage of ERP. The finding of this study supported this formation, in which: (i) external variables were found to have significant positive effect on TAM; and (ii) the variables are indirectly influence, through PU, PE and PC of TAM, their BI to use the ERP application in their organisations.

7. Conclusion

In general, this study modified the original TAM in order to measure owner's behavioural intention to use an ERP. The current study adapts the core constructs used in TAM. Specifically, it validates the relationship between perceived

ease of use, perceived usefulness, attitude towards usage, and overall impact on behavioural intention to use. No surprising findings were found regarding the previous constructs. Therefore, this study confirms other empirical evidence and findings based on TAM. Further, the study successfully confirms the applicability of TAM in the MSMEs of Odisha.

The implication of this study can be surmised as follows. First, this study proposed a theatrical framework based on a robust acceptance model (TAM). This framework can be used to predict the behavioural intention to use an ERP prior to the actual implementation. Moreover, this study contributes to the efforts to empirically validate TAM in the MSME sector. Most significantly, this study could benefit to ascertain the owner's perception in their future plans to adopt ERP technologies.

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