READINESS OF EMPLOYEES TO ACCEPT TECHNOLOGY AFFECTING THEIR BEHAVIOURAL INTENTION TO IMPLEMENT E-PROCUREMENT – AN EMPIRICAL STUDY

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ABSTRACT

Innovative use of the internet has enabled business operations and processes resulting in improved productivity, improved services and reduced procurement costs and times. It is playing a major role in enhancing all aspects of day-to-day business. An understanding about the employees' acceptance of new technology owing to its prominence in the e-commerce initiatives by the organizations is arrived in this study. Readiness to accept technology is the extent to which employees tend positively towards a newly evolved technology. This study assesses if employees' readiness to accept new technology affects their behaviour to implement e-procurement system in their organizations and if so to what extent in Indian shipping industry.

KEYWORDS: *Technology acceptance model, e-Procurement system, Behavioural intention to use e-procurement.*

1. INTRODUCTION

Purchasing is to procure all the necessary material needed for production or daily operation of any organization. Purchasing describes determining the need, selecting the supplier, arriving at a fair and reasonable price and terms, preparing the contract or purchase order and following up to ensure timely delivery (MacManus, 2002). Procurement is an important and expensive business activity for business firms (Joyce et al., 2003). Given the importance of procurement, organizations want to manage procurement with low levels of risk maintaining adequate quality.

A simple definition of e-procurement given by Przymus (2003) is that e-procurement is acquisition of goods and services without the use of paper processes. E-procurement has become one of the most successful applications of electronic commerce, having been implemented by many companies seeking better business processes (Aberdeen, 2001).

There are a number of variables that are to be considered for any e-procurement initiative to be successful. They are user acceptance of new information system, information quality, trust, risk perception, early supplier involvement, staff training, users and buyers, compliance with best practices, top management support, continuous measurement of the key benefits, re-designing affected business processes and actual selection of e-procurement solution. User acceptance of new information system has a profound impact on the overall usage and success of e-procurement (Venkatesh et al., 2003). User acceptance and usage of a system defines the effectiveness or ineffectiveness of the system (Pikkarainen et al., 2004).

2. RESEARCH METHODOLOGY

In this research study, two types of variables were used - independent variables and dependable variables. The dependent variable used in this study is behavioral intention to use e-procurement system. The independent variables are used to find the positive or negative impact of these variables on dependent variable. The independent variables used in this research are Infrastructure support, Perceived ease and usefulness, Computer knowledge and Employee Training.

A theoretical framework was developed from the secondary data, comprised of the published literature. A structured survey instrument was used to generate primary data. In line with the research problem, primary data was generated by a survey, conducted in Indian marine industry. The survey instrument was self-administered and was distributed among the respondents.

2.1 Survey Instrument Design:-

The respondents are administered a structured survey instrument. This survey instrument is developed on the basis of previous studies. The survey instrument used 5-point Likert type statements and open ended questions. The variables were put in the form of 14 statements and the respondents were asked to record their opinion on a 5-point Likert-type interval scale i.e. strongly agree, agree, neutral, disagree, and strongly disagree.

2.2 Sampling:-

Simple random sampling method was used to generate primary data. The sample taken for this study is employees from Indian marine industry. A total of 395 survey questionnaire were distributed amongst the employees and on final filtration 206 (50.1%) usable responses were identified and used for the data analysis.

2.3 Hypotheses:-

In view of the proposed research problem, the following hypotheses were framed in null form.

$H1_0$: Infrastructure support does not have significant effect on behavioral intention to use e-procurement system.

$H2_0$: Perceived ease and usefulness does not have significant effect on behavioral intention to use e-procurement system.

$H3_0$: Computer knowledge does not have significant effect on behavioral intention to use e-procurement system.

$H4_0$: Employee training does not have significant effect on behavioral intention to use e-procurement system.

3. DATA ANALYSIS
3.1 Factor Analysis:-
3.1.1 Readiness to accept technology:-

After checking the completeness and accuracy of data, it was analyzed with the help of Statistical Package for Social Sciences (SPSS) ver. 17. The 12 variables (statements) were subjected to factor analysis by using Principal Component Method with unities in diagonal. Following the recommendation of Kaiser, the extraction of factors was stopped when Eigen value (latent roots) came to be less than 1.00. Five factors were obtained, whose Eigen value exceeded 1.00. The extracted factors were rotated in accordance with the criterion of Kaiser's Varimax Procedure. Factor loadings greater than 0.30 are found significant at .05 level.

Factor 1: High positive loadings have been observed on five variables.

Table 1: Infrastructure support

Q.No	Statements	Factor Loadings	%of Variance Explained
Q35	Adequate information technology will improve procurement procedure	.740	19.652%
Q37	Our firm has computers in appropriate pre-defined configurations to use e-procurement.	.870	
Q38	Our organization has well skilled IT personnel to help with e-procurement.	.626	

While examining these items, it is found that all those items reflect availability of technological and human resources. Therefore, this factor is labeled 'Infrastructure Support.'

Factor 2: High positive loadings have been observed on four variables.

Table 2: Perceived Ease and Usefulness

Q.No.	Statements	Factor Loadings	%of Variance Explained
Q34	It is easy to order goods/services through internet.	.945	30.662%
Q36	Employees can become more skillful using e-procurement.	.889	
Q40	I can choose the goods from a wide range of varieties available.	.633	
Q41	I can accomplish tasks more quickly with e-procurement.	.941	

While examining these items, it is found that all these items reflect the respondents' feeling of easiness and usefulness of computers. Therefore, this factor is labeled 'Perceived ease and usefulness'.

Factor 3: This factor comprises of three loaded variables.

Table 3: Computer Knowledge

Q.No	Statements	Factor Loadings	%of Variance Explained
Q42	I am able to use e-mail.	.901	17.259%
Q43	I am able to use word processors and spreadsheets for documentation and calculations	.687	
Q44	I am able to use internet to search for information and resources.	.676	

While analyzing, it is observed that these three items reflected the familiarity of employees with computers. Therefore, this factor is labeled 'Computer Knowledge.'

Factor 4: Two variables together form this factor.

Table 4: Employee Training

Q.No.	Statements	Factor Loadings	%of Variance Explained
Q39	It would be easy to learn new technology with some training.	.747	15.217%
Q46	I would like to have training on how to use new systems.	.926	

It is found that these two items represent tendency of respondents towards training. Therefore, the factor 4 is labeled 'Employee Training.'

3.1.2 Behavioural Intention to use e-procurement:-

The 9 variables (statements) were subjected to factor analysis by using Principal Component Method with unities in diagonal. Following the recommendation of Kaiser, the extraction of factors was stopped when Eigen value (latent roots) came to be less than 1.00. Five factors were obtained, whose Eigen value exceeded 1.00. The extracted factors were rotated in accordance with the criterion of Kaiser's Varimax Procedure. Factor loadings greater than 0.30 are found significant at .05 levels.

Factor 1: High positive loadings have been observed on five variables.

Table 5: Attitude towards e-Purchase

S.No.	Statements	Factor Loadings	%of Variance Explained
Q46	Search for suppliers.	.881	43.637%
Q47	Search on-line catalogues.	.828	
Q48	Purchase of office supplies.	.892	
Q49	Purchase computer products.	.906	
Q50	Purchase maintenance and repair products.	.816	

While analyzing these items, it is found that these items reflected the behavioural intention of the employees to perform e- purchase activities. Therefore, this factor is labeled 'Attitude towards e-purchase.'

Factor 2: High positive loadings have been observed on four variables.

Table 6: E-procurement Process

S.No.	Statements	Factor Loadings	%of Variance Explained
Q45	E-mail.	.664	31.219%
Q51	Payment to supplier.	.845	
Q52	Order tracking.	.642	
Q53	Use e-procurement provider services.	.629	

While examining, it is observed that these items speak about the process ofe-procurement. Therefore, this factor is labeled 'e-procurement process.'

3.2 Correlation Analysis:-

Correlation analysis was done to know the relationship between the independent and dependent variables.

Table 7: Readiness to accept technology and behavioural intention to use e-procurement

S.No.	Variables	Behavioural Intention to use e-procurement
1	Infrastructure Support	.619** .000
2	Perceived ease and usefulness	.491** .000
3	Computer Knowledge	.994** .000
4	Employee Training	.640** .000
5	Behavioural Intention to use e-procurement	1

It is evident from the above correlation results table that all the four variables, namely 'Infrastructure Support" (r=0.619, p=0.000), 'Perceived ease and usefulness' (r=0.491, p=0.000), 'Computer Knowledge' (r=0.994, p=0.000), and 'Employee Training' (r=0.640, p=0.000) are positively and significantly correlated with 'Intention to use e-procurement'. Further, all the four variables have moderate positive relationship with 'Intention to use e-procurement' indicating that as the perception of readiness improves 'Intention to use e-procurement' also increases significantly.

3.3 Regression Analysis:-

The next level of the inferential statistical analysis was done using regression Analysis between the independent variables thatreflect the readiness of employees to accept technology and dependent variable behavioral intention to use e-procurement.

The results from the analysis revealed that all the four variables came out to be the significant predictors of intention to use e-procurement. To be more specific, 'Perceived ease and usefulness' (=3.545, t=20.851, p=0.000) emerged as the most significant predictor variable affecting Behavioural intention to use e-procurement. In other words,

if the perception of ease and usefulness improves by one unit, 3.5 units of intention to use e-procurement increases significantly.

Table 8: Predictor Effects and Beta Estimates

S.No.	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β(beta)	Std. Error	β (beta)		
1	(Constant)	23.891	2.523		9.468	.000
2	Infrastructure Support	.643	.066	.436	9.755	.000
3	Perceived ease and usefulness	3.545	.170	.782	20.851	.000
4	Computer Knowledge	.511	.198	.115	2.585	.010
5	Employee Training	.273	.116	.105	2.363	.019
R	R²	Adjusted R²	Std. Error of the Estimate	F	df	P=
.766ᵃ	.586	.582	5.79567	147.926	3, 313	.000ᵃ

The beta value of the variable 'Infrastructure Support' (=.643, t=9.755, p=0.000) is the next predictor affecting intention to use e-procurement. If the variable Infrastructure Support increases by 1 unit, then the Behavioural intention to use e-procurement increases by 0.6 units.

The variable 'Computer Knowledge' (=.511, t=2.585, p=0.010) comes as the third predictor. In other words, for one unit change in Computer Knowledge, intention to use e-procurement would change by 0.5 units.

The beta value of the variable 'Employee Training' (=.273, t=2.363, p=0.019) is the last predictor affecting intention to use e-procurement. If Employee Training increases by 1 unit, then the intention to use e-procurement increases by 0.2 units.

Thus, the following regression model is evolved for intention to use e-procurement.

$Y=23.891+.643X_1+3.545X_2+.511X_3+.273X_4$

Where Y= Intention to use e-procurement

X_1= Infrastructure Support

X_2=Perceived ease and usefulness

X_3 = Computer Knowledge

X_4 = Employee Training

The coefficients of determination when computed taking all the perceptions together yielded an adjusted R square of .582 which is statistically significant as indicated by the f value (147.926). This indicated that readiness to accept technology predicted 58 per cent of change in employees' behavioural intention to use e-procurement.

4. DISCUSSION

Four distinct dimensions emerge out of the data analysis – Infrastructure support, Perceived ease and usefulness, computer knowledge and employee training. All the four variables have a positive effect on the employees' behavioural intention to use e-procurement. The results obtained from regression analysis conducted between the dependent and independent variables showed that all the four independent factors are the most influential factors and predict a larger percentage of variance in behavioural intention to use e-procurement by 58 per cent.

Behavioral intention is as an indicator of a person's readiness to perform certain behaviour. The results show that the more tendency employees display to accept newly

evolved technology the higher their behavioural intention to implement e-procurement system in their organizations.

5. CONCLUSION

The incredible rise of Internet and information technology has changed the way of conducting business. Today most of organization and firms adapt Internet and information technology into their business process. Internet and information technology provide new methods for firms to perform their businesses and improve their effectiveness (Wang & Wang, 2006).

Innovative use of the web has enabled company-specific business operations and processes to be e-enabled, resulting in improved productivity, a rise in collaboration between partners, a strong customer base, improved services to customers, and reduced procurement costs and times. The web has become a ubiquitous tool for enhancing all aspects of day-to-day business. E-procurement has become one of the most successful applications of electronic commerce, having been implemented by many companies seeking better business processes (Aberdeen, 2001). It is the procedure that involves goods procurement automation by use of internet.

User's acceptance of new technology is a crucial variable which puts at risk the success of the e-procurement implementation. E-procurement consists of change for the organization and specifically for the employees of the procurement unit. Abolition of the traditional handwritten procedure and its replacement of new procedures based on the use of computer and information technology consist some of the major changes. Since resistance to change is a barrier for e-procurement process, user's acceptance plays a major role.

The primary objective of this research is to identify to how far the readiness of employees to accept new technology influence their behavioral intention to use e-procurement system. The findings showed that employees' readiness to accept technology has a greater positive effect on their behavioral intention to use e-procurement system. Firms need to provide and fine tune the infrastructure support and sufficient training to employees to cope up with the upcoming technologies in daily business activities and also look further to find any other factors that are essential for successful implementation of e-procurement system.

REFERENCES

1. *Aberdeen (2001). E-Procurement: Don't Believe the Anti-Hype. Boston, MA: Aberdeen Group.*

2. *Alaweti, M.F., Azizan, N., & Faryadi, Q. (2014). Web E-Procurement Application: Using Technology Acceptance Model to Supplier's Use Of E-Procurement in Malaysia . International Journal Of Computers & Technology,12(10).*

3. *Aypay,A., Çelik, H.C., Aypay, A., & Sever, M. (2012). Technology Acceptance in Education: a Study of Pre-Service Teachers in Turkey, The Turkish Online Journal of Educational Technology, 11(4).*

4. *Batenburg, R. (2007). E-procurement Adoption by European Firms: A Quantitative Analysis. Journal of Purchasing and Supply Management, 13(3), 182-192.*

5. *Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology, MIS Quarterly,16 (2), 319-340.*

6. *Fagan, M. H., Neill, S., & Wooldridge, B., R. (2008). Exploring the Intention to Use Computers: an Empirical Investigation of the Role of Intrinsic Motivation, Extrinsic Motivation, and Perceived Ease of Use. Journal of Computer Information Systems, 48(3), 31-37.*

7. *Gupta, U.G. (1997). The New Revolution: Intranets, not Internet. Production & Inventory Management Journal, 38, 16 – 20.*

8. *Joyce, K., Chan,Y., Mattew, K., & Lee, O. (2003). SME E-Procurement Adaption in Hong Kong - The Roles of Power, Trust and Value. Proceedings of the 36th Hawaii International Conference on System Sciences. Hawaii, USA.*

9. *Maniam, K., Halimah, A., & Nurali, R. (2009). Government Purchasing: A Review of E-procurement System in Malaysia. The Journal of Knowledge Economy & Knowledge Management, 4.*

10. *McManus, S.A. (2002). Understanding the Incremental Nature of e-procurement Implementation at the State and Local Levels. Journal of Public Procurement, 2(1), 5-28.*

11. *Miller, M.D., Rainer, R. K. & Corley, J. K. (2003). Predictors of engagement and participation in an on-line course. Online Journal of Distance Learning Administration, 6(1).*

12. *Pasiopoulos, A. Siskou, O., Galanis, P., Prezerakos, P., Moisoglou, I., Theodorou, M., & Kaitelidou, D. (2013). The Implementation of e-procurement System in Health Sector in Greece: Attitudes of Potential Users and Implications for Hospital Management. International Journal of Health Research and Innovation,1(1), 15-23.*

13. *Pikkarainen, T., Karjaluoto, H., &Pahnila, S. (2004). Consumer Acceptance of Online Banking: an Extension of the Technology Acceptance Model. Internet Research,14 (3), 224 – 235.*

14. *Przymus, N.K. (2003). E-Procurement for a Municipal Government: What Minneapolis, Minnesota Can Learn from Other Governments. Metropolitan State University. Minnesota, MN.*

15. *Ramasubramanian. D. (2005). E-procurement Making Waves Offshore. Retrieved from http://www.offshore-technology.com/features/feature593/*

16. *Shoki, M., Ariff, M., Yeow, S.M., Zakuan, N., Jusoh, A., & Bahari, A.Z. (2012). The Effects of Computer Self-Efficacy and Technology Acceptance Model on Behavioral Intention in Internet Banking Systems. Procedia - Social and Behavioral Sciences, 57, 448 – 452.*