AAMC 2019
The 13th Asian Academy of Management International Conference 2019

THE RELATIONSHIP BETWEEN ORGANIZATIONAL FACTORS AND ERP ADOPTION

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Abstract

This study is undertaken to examine how organizational factors affect the adoption and usage of new technology by organizational employees. The study particularly focuses on employees' adoption of the Enterprise Resource Planning (ERP) Application. The relationships between employees' adoption of the ERP application and organizational factors: managerial support, training, organizational culture and incentives are explored through semi-structured interviews and thematic analysis. Findings of this study can help us to understand employees' acceptance and adoption of enterprise-level technology. Through successful identification of relevant factors, organizations will be able to sustain their positive behavioural and cognitive outcomes that can ultimately create a work environment conducive to implementation of new enterprise-wide technology. The study also offers a broader theoretical and practical understanding of the technology acceptance phenomenon and acts as a resource for organizations' managers intending to boost overall organizational performance through successful adoption of much needed new technologies.

1.   Introduction

Organizations are dedicating substantial investment in new information technologies to align business strategies and to facilitate innovative efficient functional operations (Kirkbesoglu & Ogutcu, 2012). New technologies are adopted by the organizations to foster key activities to enhance and sustain their competitive advantages (Chen & Tsou, 2007); to improve productivity and performance to maximize their return on investments. While within an organization IT innovation evolved from its traditional to a more strategic role, only the appropriate adoption of new technology (innovation) can add value to the Organizations. Numerous factors seem to accelerate or hinder the organizational diffusion of IT innovation (Teo & Pian, 2003). Identifying the factors that influence this adoption process is crucial for providing a successful adoption of new technology in organizations.

Organizational policies, strategies and actions influence the new technology adoption together with individual attitudes (Leonard-Barton & Deschamps, 1988; Peansupap & Walker, 2005). The availability of technology resources, organizational structure, and managerial capabilities combined into organizational culture are described in a number of prior studies as organizational factors that affect technology adoption (Frambach & Schillewaert, 2002). Organizational influences affect an individual's awareness of the functioning and application of a new technology. Its usefulness and fit with the job will lead or motivate a person for its adoption (Chang & Cheung, 2001; Frambach & Schillewaert, 2002).

Training helps to form the core of apprenticeships and provides the backbone to successfully use and adopt the new technology within the organization. Successful employee training will achieve specific goals of improving one's capability, capacity, performance and adoptability. Off-the-job and on-the-job training contribute favourably towards new technology adoption. Perceptions of a training program's reputation remain relatively under-represented in the training literature (e.g. Facteau et al., 1995). In the United States alone, organizations spend approximately $60 billion dollars on training per year, and the average employee receives approximately 30 hours of training per year (Noe, 2002).

Managerial support which includes support from top management, peers, supervisors, and subordinates (Baldwin & Ford, 1988)—could play a crucial role for employees' effective utilisation of the new system on the job. Of these four social support sources, Facteau et al. (1995) found supervisor support is positively related to training attendance and learning, pre-training motivation, , and post-training use and adoption of the newly installed system. In addition, Baumgartel and Jeanpierre (1972) found that supportive organizational climate helps employees to implement knowledge and skills acquired through training. Clark et al. (1993) study indicated that, even before training, the trainee may consider whether the supervisor will support efforts to transfer trained skills from the classroom to the job.

Incentive, which refers to financial or non-financial factor enables or motivates a particular course of action or acts as a reason for preferring one option over other choices. It encourages people to behave in a certain way (O'Sullivan & Steven, 2003). Since human beings are purposeful creatures, incentive structures play a very important role to the individual's decision-making process, including competition or co-operation to adoption within a larger corporate setting. Along with financial gains, organizational career advancement, formal and informal recognition, increased autonomy, beliefs about self-worth and achievement, greater job security personal facilities and control over management could be considered as

proper incentives by corporate employees. Incentive refers to the individual's belief about the benefits or consequences of adopting a new technology (Chang & Cheung, 2001).

Technology cannot be introduced in a vacuum. Managers and employees have a backlog of experiences with their organization that they draw upon when forming their expectations about digitization and when judging its impact on their job and careers. Organizations that are marked by adversarial labour-management relations or a tradition of top-down control, may experience more conflict when implementing technological change or to gain the compliance of users. Meanwhile, the introduction of new technology also provides an organization with an opportunity to send new signals to its employees regarding the character of the company culture. In addition, differences in the technology strategy, the change management plan, the expectations and assumptions of users and the import of company culture define success or failure in the new technology adoption. The way each organization defines its performance gap, develops its new technologies, and educates and prepares the employees are all influenced by prevailing beliefs and practices about how to manage change through organizational culture.

2. Problem Statement

Although technology adoption has been studied extensively and is considered one of the most established information systems (IS) research fields (Venkatesh et al., 2007), and numerous innovation acceptance models have already been developed, research on the factors driving and shaping technology adoption and individual technology acceptance in the organizational context remain inadequate (Frambach & Schillewaert, 2002). Leonard-Barton (1990) observes that scholarly investigation often stops at the point where top management decides to adopt the new technology, not proceeding to investigate its subsequent diffusion throughout the organization. The existing literature explains relatively little about the ways in which individuals adopt new technology and the dynamics that affect individual adoption (Frambach & Schillewaert, 2002).

3. Research Questions

The goal of this study is to explore and investigate the relative importance of the organizational factors that shape the adoption and continued use of new technology (ERP) by individuals in an organization.

4. Purpose of the Study

The study will address the following research question:

What is the relative importance of the organizational factors that shape the adoption and continued use of new technology (ERP) by individuals in an organization?

5. Research Methods

5.1. Data Collection

A semi-structured interview protocol was used to conduct the interviews. In the beginning of each interview, the participant was asked some preliminary questions like his or her educational, technical and professional background, experience and exposure with ERP, tenure with the current company and overall years of experience in the industry. After collecting this information, a series of exploratory questions was asked to understand the ERP adoption process among employees in general. The next set of questions asked for the respondents' specific views regarding the factors the researcher is using for this research. Finally, they were asked open ended question to provide their specific observations and views on technology adoption in general and ERP adoption in specific by the employees' and management's role specific to this process.

The interview participant group consisted of eleven fulltime management level employees of four organizations which included Canadians and Americans; and government and non-government organizations that have implemented and used the ERP Application in their respective organizations and four ERP industry experts who participated in multiple ERP implementation projects across various industries in North America.

5.2. Data Analysis

The thematic and narrative analyses were used to analyse unstructured textual material from semi-structured interviews to develop concepts, categories, and themes. Thematic analysis is utilised to pinpoint and analyse the findings of the semi-structured interviews, in order to identify relevant rudiments that affect employees' ERP adoption.

Organizational influence can motivate individual employees adopting a new technology (Beatty et al., 2001; Chang & Cheung, 2001; Cheung et al., 2000). All participants univocally agreed that organizational factors: training, management support, incentives and organizational culture play a vital role in the ERP adoption decision of the organizational employees.

6. Findings

6.1. Training and ERP Adoption

Employee training can contribute to the increase of their knowledge and expertise using the new system, which helps with the adoption to new technology (Al-Gahtani & King, 1999; Igbaria et al., 1997). In the research, a positive relationship between the training and individual's adoption of new technology was identified (Igbaria et al., 1996; Jasperson et al., 2005). Every participant saw the benefit of proper and appropriate training as an important factor in the employees' adoption decision. The following statements from various participants reflect the importance of training in adoption:

"I believe training is the key."

"I think training helps."

A few participants felt that training was important and quite needed but that the organizations' method of training was faulty. Employees are given mechanical training for a system but lack the overall

picture of the system and general understanding about the task they are supposed to accomplish. This makes them the perfect candidate for failure to achieve the desire outcome. The related deficiency in proper and effective training could be one of the reasons for the failure of a lot companies' implementation of a new application. The following narrative explains the experience the manager went through in his own company where they implemented oracle E-Business suit as an ERP solution:

"If somebody doesn't understand how their payroll works, how their vacation days work or rules of the company then it doesn't matter which ERP system you put in front of them they will be confused because they don't know what it tries to accomplish as they don't understand it. This was one of the many downfalls in our company, the training we did here for oracle is exactly the reflection of that: where you sit-down and click through this piece of machinery and you click this and that slide after slide to some conclusion. But there is no grand understanding what the system was supposed to do for the business and how it will be helping the business and justification and explanation of the context".

Participants reflected on how actual training is conducted. They felt more visual contents with appropriate examples would be a more effective method of training. The following statement represents this idea:

"If you want to train me and expect to learn then you have to go over some concrete examples of how I can achieve certain tasks. In particular, you need to talk more about system those are not intuitive, but you require less effort if the system is quite intuitive".

6.2. Managerial Support and ERP Adoption

Researchers have established that managerial support is positively related to the individual's adoption (Igbaria, 1993; Trevino & Webster, 1992). All participants accepted that managerial support is required for better adoption by employees. According to participants, managerial support includes providing appropriate resources, influencing them to use the system and getting used to and facilitating appropriate training. Some statements below are the reflection of these views:

"It is critical. Employees need managerial support for adoption, especially when the system is quite complicated like ERP."

"Managerial supports are critical as managers are the first person employees are going to go for that (any) kind of support."

Some participants felt that upper management has to possess the know-how first and diffuse that knowledge to the bottom layers and every one of the companies can execute the task uniformly using the new application. You cannot just give the new tool to the employees and expect them to figure it out and you expect good end results. They think expertise, support, commitment and motivation should flow down from top. If managers are not functionally and technically capable enough themselves, it is their duty to find and provide necessary resources and training to their subordinates. The following statement highlights this idea:

"I do not necessarily believe in the idea that we give you a new tool and go and figure it out by yourself and don't worry about that. Even though sometimes you do that like when you hire someone to perform something specific, you say go and do it and I will look into the end products and you can use any tools you want. But that doesn't apply when you talk about day to day tools used by general employees of the organization".

6.3. Incentives and ERP Adoption

Incentive refers to the individual's belief about the benefits or consequences of adopting a new technology (Chang & Cheung, 2001; Cheung et al., 2000). Appropriate incentive is often considered a prevailing motivator of employee behaviour in adopting a new technology (Nilakant & Rao, 1994; Sappington, 1991). All participants' management and industry experts stressed the importance of incentives to individual adoption. The following statements highlight this importance:

"There has to be incentives"

"There might a need for incentives for achieving the goal"

"That (Incentive) is the key for making sure the proper adoption"

The majority of the attendees highlighted the need for non-monetary incentives compared to monetary incentives. They mentioned that if the new technology or application is being used to complete the existing task and employees are hired and paid for, then financial incentives over and beyond the salary are not required or given. Only when employees are asked and required to do something over and above their routine activities, monetary incentives might be provided and could be encouraging towards positive adoption. Without completely eliminating the need for financial incentives, they identified a few small prizes and drawings that were taking place in the organization especially when they were in the early phases to encourage more early adopters to the new application. The following statements elaborate on these thoughts:

"Usually you can't say people I will give you this much and do it right, because they are already paid as they are the employee of the company".

"Let's talk about something that is little difficult and require me to do some extra work like ERP, expects an obvious extra payment as an individual".

"I am not sure whether incentives apply to this specific example. If you are using an ERP solution and it is doing specific things and employees are supposed to use it because they were hired to do that and must do that. I don't think you need any additional incentives to do that. Actually keeping the job itself will work as incentives in this case".

6.4. Organizational Culture and ERP Adoption

The way each company defined its performance gap, developed its new technologies, educated and prepared the workforce were all influenced by prevailing beliefs and practices within the company culture about how to manage change. Research has concluded that corporate culture is predictive of technology adoption (Kitchell, 1995). All interviewers stressed the relevance of organizational culture in building the appropriate culture to assist and ease the adoption process of the employees. The following statements support this assertion:

"I think culture does play an important role".

"Obviously organizational culture is important".

"Cultures always play a role. Sometimes it is simpler and sometimes could be problematic. I think there is an element of organizational culture in the employees' adoption process".

Organizations that are highly structured and have disciplined workforces possibly enjoy stable organizational culture and make the adoption process easier. Unstructured, less disciplined and less creative

workforce culture might present some challenges in terms of new technology adoption by employees. The following narrative from one of the experienced managers presents an excellent summary of this point:

"The large enterprise organizations that have an institutional sort of background will expect to follow all the rules all the times, and then it becomes easier to enforce something like this. Contrary in the smaller organizations where people are rogue and doing all sorts of wrong things, and tolerated (Even not encouraged), then it will be difficult to bring everyone on the same page. On the other hand, in the small organizations with rogue sometimes they are more creative and innovative. It means when you have a highly disciplined workforce and that's your culture then no worries. Compared to when you have a less disciplined and more creative workforce then face challenges".

Open door culture compared to closed door culture; collaborative compared to thwarting; supportive compared to unsupportive; information sharing compared to working in silo are all identified as positive stimuli towards favourable adoption by employees. Some of the statements will illustrate this point:

"If your managers are involved and supportive then employees will be involved".

"Culture is also good when people are cross sharing the information, some organization no one tells you how to do anything as they are protective about their information".

Youth-dominated versus old-dominated and conservative versus innovative corporate culture also play a vital role in the direction of the affirmative adoption by employees.

"But the organizations with high age average employees might think we were used to with the current system for that long and comfortable and this is just an extra work for us. How people are willing to adopt a change is based on age factor like younger one is easier to adopt changes than older folks. Like the person who worked as a Data Modeller for last forty years and think I am doing it for last 40 years and you are telling me to change now, he was not willing to make any changes. Also, I had a friend who used to work for a company, used to work with a technology for long time and all of sudden company decided to use another technology from another vendor, he never wanted to use the new product and never even wanted to hear about it for about training".

7. Conclusion

From the qualitative study, training was singled out as the central factor for a successful new technology adoption by employees. Training decreases anxiety and increases favourable perceptions about the new technology and consequently influences the adoption. Training augments individuals' self-beliefs and confidence improves knowledge and hands on skillset to complete the task effectively and efficiently. However, it was mentioned that effective and meaningful training is the key for success and self or e-learning might not be enough. The employees' workload, during and after training, needs to be managed accordingly in order to help employees focus and concentrate on training and learning. If training becomes an extra burden then this might impact adoption negatively.

It has been noted that managerial support in terms of moral, technical, workload management, time to learn and providing appropriate resources is essential for enabling employees to accept, use and adopt the new technology. Timely, appropriate and effective managerial responses to employees' needs and requirements will encourage employees to take on the extra load to learn and adopt the new technology.

Lack of effective managerial support is considered to be a hurdle to the utilisation and adoption of new technology.

The results found that incentives such as promises of career advancement, personal facilities, promotion, formal and informal recognition, encouragement, praise, recognition, increased autonomy, flexibility and greater job security have a good amount of impact and influence employees' new technology adoption. Non-financial incentives were more important than financial incentives as a motivator.

Qualitative results showed organizational culture such as structured compared to unstructured; disciplined compared to less disciplined; open door compared to closed door; collaborative compared to thwarting; supportive compared to unfavourable; information sharing compared to working in silo can assist and ease the adoption process and work as positive stimuli towards favourable adoption by employees. However, wrong or inappropriate organizational culture can demoralise employees and wipe out the benefit of any new technology.

References

Al-Ghatani, S., & King, M. (1999). Attitude, satisfaction and usage: Factors contributing to each in the acceptance of information technology. *Behaviour and Information Technology*, *18*(4), 277-297.

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, *41*(1), 63-105.

Baumgartel, H., & Jeanpierre, F. (1972). Applying new knowledge in the back-home setting: A study of Indian managers' adaptive efforts. *Journal of Applied Behavioral Science*, *8*(6), 674-694.

Beatty, R., Shim, J., & Jones, M. (2001). Factors influencing corporate web site adoption: a time-based assessment. *Information and Management*, *38*(6), 337-354.

Chang, M., & Cheung, W. (2001). Determinants of the intention to use Internet/WWW at work: A confirmatory study. *Information & Management*, *39*(1), 1-14.

Chen, J. S., & Tsou, H. T. (2007). Information technology adoption for service innovation practices and competitive advantage: the case of financial firms. *IR Information Research*, *12*(3), 1-25.

Cheung, W., Chang, M., & Lai, V. (2000). Prediction of Internet and WWW usage at work: A test of an extended Triandis model. *Decision Support Systems*, *30*(1), 83-100.

Clark, C. S., Dobbins, G. H., & Ladd, R. T. (1993). Exploratory field study of training motivation. *Group and Organization Management*, *18*(3), 292-307.

Facteau, J. D., Dobbins, G.H., Russell, J. E. A., Ladd, R. T., & Kudisch, J. D. (1995). The influence of general perceptions of the training environment on pretraining motivation and perceived training transfer. *Journal of Management*, *21*(1), 1-25.

Frambach, R., & Schillewaert, N. (2002). Organizational innovation adoption: A multi-level framework of determinants and opportunities for future research. *Journal of Business Research*, *55*(2), 163-176.

Igbaria, M. (1993). User acceptance of microcomputer technology: an empirical test. *International Journal of Management Science*, *21*(1), 73-90.

Igbaria, M., Parasurman, M., & Baroudi, J. (.1996). A motivational model of micro-Computer usage. *Journal of Management Information Systems*, *13*(1), 127-143.

Igbaria, M., Zinatelli, N., Cragg, P., & Cavaye, A. (1997). Personal Computing Acceptance factors in small firms: A structural equation model. *MIS Quarterly*, *21*(3), 279-305.

Jasperson, J., Carter, P., & Zmud, R. (2005). A comprehensive conceptualisation of post-adoptive behaviours associated with information technology enabled work system. *MIS Quarterly*, *29*(3), 525-557.

Kirkbesoglu, E., & Ogutcu, G. (2012). Impact of inter organizational networks on adoption process of information technology. *International Journal of Business and Social Research*, *2*(3), 19-28.

Kitchell, S. (1995). Corporate culture, environmental adaptation, and innovation adoption: a qualitative/quantitative approach. *Journal of the Academy of Marketing Science*, *23*(3), 195-205.

Leonard-Barton, D. (1990). *The Intra-Organizational Environment: Point to Point Versus Diffusion*. In F. Williams & D. Gibson (Eds.), *Technology Transfer: a Communication Perspective* (pp. 43-62). Sage Publications.

Leonard-Barton, D., & Deschamps, I. (1988). Managerial Influence in the Implementation of New Technology. *Management Science*, *31*(10), 1252-1265.

Nilakant, V., & Rao, H. (1994). Agency theory and uncertainty in organizations: An evaluation. *Organizational Studies*, *15*(5), 649-672.

Noe, R. A. (2002). *Employee Training and Development* (2nd edition). McGraw-Hill.

O'Sullivan, A. and Steven M. S. (2003). *Economics: Principles in Action*. Pearson Prentice Hall.

Peansupap, V., & Walker, D. (2005). Exploratory factors influencing information and communication technology diffusion and adoption within Australian construction organizations: A micro analysis. *Construction Innovation*, *5*(3), 135-157.

Sappington, D. (1991). Incentives in principal-agent relationships. *Journal of Economics Review*, *5*(2), 45-66.

Teo, T. S. H., & Pian, Y. (2003). A contingency perspective on Internet adoption and competitive advantage. *European Journal of Information Systems*, *12*(2), 78-92.

Trevino, L., & Webster, J. (1992). Flow in computer mediated communication: Electronic mail and voice mail evaluation and impacts. *Communication Research*, *19*(5), 125-143.

Venkatesh, V., Davis, F. D., & Morris, M. G. (2007). Dead or alive? The development, trajectory and future of technology adoption research. *Journal of the Association for Information Systems*, *8*(4), 267-286.