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ICT acceptation : The case of CRM project

Mouna JEGHAM
Phd student, INT Evry, France

Jean-Michel SAHUT
Professor of finance
Professor, Geneva School of Business Administration
& Cerege EA 1722 - University of Poitier

Abstract

The implementation of Information and Communication Technology (ICT) project constitutes a major change for any organization, the actual implementation appears to be very heavily biased toward the technological aspects while paying little attention to managing the changes in process, structure and culture. Besides, we wonder what kind of measures should be taken along with the shifts induced by the ICT in order to make them accepted by the users.

To give a concrete answer to this challenge, we undertook a qualitative and exploratory study related to a CRM implementation project in a banking institution. To study the impact of change management measures of the ICT acceptation we propose to adopt, for the future research, an empirical approach based on the Technology Acceptance Model (Davis, 1989).

1. Introduction

Over the past twenty years the level of penetration and sophistication of information technology has grown dramatically, with computer-based information systems actively supporting all key business processes and significantly enhancing both the operational effectiveness and the strategic direction of organizations of all types.
In both the public and private sectors, organisation has been keen to harness the potential of ICT to enhance its administrative, managerial and clinical performance. Unfortunately, the acquisition and introduction of information technology is still dogged by high failure rates. Successful implementation of the new technology depended upon acceptance by organizational member targets as its end-users. Thus, having the Technology available is simply not enough; it must be accepted and used appropriately by its target user group in order to realize anticipated productivity gains.

In fact, the implementation of an Information Technology project constitutes a major change for any organization, the actual implementation appears to be very heavily biased toward the technological aspects while paying little attention to managing the changes in process, structure and culture.

Since the seventies, research has concentrated its efforts on identifying the conditions or factors that could facilitate the integration of IS into business. This search has produced a long list of factors that seem to influence the use of technology (Bailey & Pearson; 1983). From the mid-eighties, IS researchers (Cheney, Mann & Amoroso; 1986, Chau; 1996) have concentrated their efforts on developing and testing models that could help in predicting system use. Davis proposed one of them, the Technology Acceptance Model (TAM) in 1986 in his doctoral thesis. Since then, it has been tested and extended by many researchers (Davis; 1989, Venkatesh & Davis; 2000).

Despite the large number of empirical studies examining the determinant of ICT users' acceptation behaviours, few have examined the effects of specific measures undertaken by management to facilitate diffusion and acceptation. More research is needed to identify these measures so project managers can take them into account during system development and change management process.

The objective of this paper is to gain a more complete understanding of the change management factors affecting the acceptance of the ICT. It examines a number of issues relating to how change is managed

within the implementation of ICT in a French bank. It begins with an overview of the Technology Acceptance Model and then examines the key measures to be taken along with the shifts induced by the ICT in order to make them accepted by the users.

2. Theoretical research

2.1. Prior research

There is a large body of research on ICT innovation which has examined a specific factors or determinants of utilization; several contingencies have been empirically shown to affect success or failure of the new ICT projects (Lucas; 1978, Swanson; 1987, Zmud; 1979, Igbaria, 1990).

For example, Wetherbe (1990) tests Rogers' (1983) theory of the diffusion of innovations in the context of a specific information technology (spreadsheet software) with a focus on the individual as the unit of adoption. The factors they examine can be classified into individual and organizational categories. Kwon and Zmud (1987) review the literature on innovation and implementation in ICT and identify five major forces examined in the research literature: individual, structural, technological, task-related, and environmental factors. This classification provides a conceptually economic, yet comprehensive basis for situating existing research along the organizational dimension. Cooper and Zmud (1990), in their study of the implementation of manufacturing resource-planning systems, suggest that the inability to explain certain key aspects of diffusion could potentially be caused by the political nature of this process.

In another spirit of analysis, Davis (1989) proposes the Technology Acceptance Model TAM, based on the Theroy of Reasoned Action developed by Fishbein and Ajzen (1975). Davis (1989) has chosen to focus his analysis on ICT adoption at the individual and psychological level.

It has been widely applied, the TAM adapted the generic TRA model to the particular domain of user acceptance of computer technology, replacing the TRA's attitudinal determinants, derived separately for each behaviour (usage), with a set of two variables (perceived ease of use and perceived usefulness) employed in many computer technology acceptance contexts. Both models were found to predict intentions and usage satisfactorily; the TAM, however, was found to be much simpler, easier to use, and more powerful model of the determinant of user acceptance of ICT.

Because of the TAM's strong base in theory and the relatively large number of studies that support it, this model provides the starting point for building our research model relating technology use and change management.

2.2. A framework for the acceptation: the TAM

Davis (1989) and Davis et al (1989) proposed the TAM to explain why users accept or reject information technology. Their model is an adaptation of the theory of reasoned action proposed by Fishbein and Ajzen (1975) to explain and predict the behaviour of people in a specific situation. (Figure 1 depicts a simplified version of the model).

The goal of the TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user population. It postulates that two particular beliefs perceived usefulness and perceived ease of use are of primary relevance of ICT acceptance behaviours.
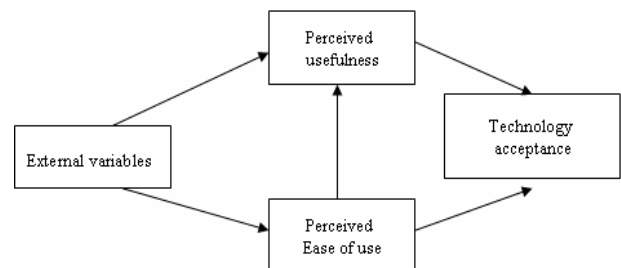

Figure 1 : simplified version of Technology Acceptance Model (adapted from Davis et al. 1989)

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" pp. 320 (Davis 1989)

Perceived ease of use is defined as " the degree to which a person believes that using a particular system would be effortless ".

Perceived ease of use has a direct positive effect on perceived usefulness, as effort saved due to improved ease of use may be redeployed, thus enabling a person to accomplish more work for the same effort. Both

constructs also have direct effects on acceptance of the technology. They can be affected by various external variables such as system features, user characteristics, training, documentation etc.

Since Davis' elucidation of these constructs, numerous researchers have discovered that technology acceptance theory yields consistently high-explained variance for why users choose to utilize systems (Mathieson; 1991, Thompson & Higgins; 1991).

The model was not only shown to have good predictive validity for the use of several information technologies, but also the linkages among its variables, clearly reminiscent of the constructs PU and PEU and relationships in technology acceptance, have been empirically verified in the IS literature.

In the following paragraph, we present a recent application of the TAM.

3. Extensions of the TAM

Recently, Dahab (2001) in her doctoral thesis used an extended version of the TAM to study the acceptation behaviour of the electronic mail in an industrial organization in France. She added eight external factors (individual, organizational and system characteristics) that might predict perceived usefulness and perceived ease of use : variety of task, organizational support and operational support (IC support), user participation, management support, E-mail characteristics, End-user training, task autonomy, and users general experience.

In general, the tested conceptual model confirms several previously proposed notions, including the effects of individual, organizational and system characteristics on perceived ease of use and perceived usefulness. Results also confirm the influence of perceived ease of use and perceived usefulness on usage of ICT (measured by variety of use, user satisfaction and volume of use). Note that the effects of ease of use on usage were found to be channelled through perceived usefulness, thus demonstrating the key intervening role of perceived usefulness. This shows that if the users perceive the system to be easy to use, they need less effort to use it, and will have more time for other activities, which may contribute to overall job performance.

A **variety of task** was found to have **direct and indirect** effects on the usage of the electronic mail. This finding is consistent with the results from Desq (1991) showing strong correlation between variety of task and usage of the electronic mail.

According to expectations, the results show an **indirect** effect of the **management support** on the usage via user perceptions.

The findings from this study strongly corroborate the importance of **organizational support** and **operational support (IC support).** It has a direct and an indirect (via perception of ease of use) effect on user satisfaction.

Surprisingly, results do not corroborate the influence of user training, the user general experience and the autonomy of the task on users perceptions and eventually their use of the system.

4. The merits and the limits of the TAM

The TAM has proven to be useful theoretical model in helping to understand and explain use behaviour in IS implementation. It has been tested in many empirical researches based in different organizational context (Igbaria & al, 1997 and Venkatesh & al, 2000), with various implementation of Information Systems such as Text-editor (Davis et al 1989), Spreadsheet (Mathieson, 1991), Electronic mail (Szajna, 1996), and digital libraries (Hong et al, 2002).

But the results of different studies of the TAM are not totally consistent or clear. A recent meta-analysis proposed by Legris et al. (2002) shows that, although the results are mostly convergent, there are situations where they are conflicting. This suggests that significant factors are not included in the models. Legris et al. (2002) concluded that the TAM is a useful model, but has to be integrated into a broader one which would include variables related to both human and social change processes, and to the adoption of the innovation model. However, even if established versions include these additional variables, the model would not explain more than 40 % of the variance in use.

In addition, through a large body of the TAM's studies, we highlight other different limits of this model. In fact, most of the empirical research has been conducted in the laboratory with student subjects (Davis et al; 1989, Mathieson; 1991). Although this minimized the costs, we think that research would be of greater benefit if it were performed in an organizational environment.

We also found that most of the studies examined the implementation of single-function technology such as word processor and Spreadsheet (Jackson et al 1997). This makes it difficult to draw conclusions about modern and complex technology such as Customer Relationship Management applications. We think that future research could be more attractive and robust if the introduction of business process applications were examined. Thus, the results of this research would be better put into practice in more general contexts.

We notice that there are three different constructs measuring ICT usage: perceived usage, variety of use and user satisfaction. While perceived usage refers to the amount of time spent interacting with an ICT and frequency of use, variety of use refers to the importance of use and the collection of specific software packages used. All these measures are self-reported; we suggest that more research is needed to investigate more objective measures. At best, reported use should serve as a relative indicator.

The empirical studies of the TAM consider IS implementation to be an independent issue in organizational dynamics. Research in the field of innovation and change management suggests that technological implementation is related to organizational dynamics, which will have a strong impact on the outcomes. Orlikowsky and Hofman (1997) acknowledge that the effectiveness of any change process relies on the interdependence between the technology, the organisational context, and the change model used to change management.

5. A TAM application to CRM project in a French bank

We support the view of some researchers (Lucas & Spitler; 1999, Legris et al; 2002) who suggests that the TAM should be modified to include other components in order to explain consistently more than 40% of system use. According to Legris et al (2002), who emphasizes that it may be difficult to increase the predictive capacity of the TAM if the organisational and social factors are not integrated into the broader model, we try to find some significant components from a field study and past research that extended the TAM.

Our study is based on series of exploratory interviews and observations in the French bank "Société Générale". This study also features data from multiple sources such as project documentation, presentations, meetings etc. The survey had access to a representative sample of CRM users in the different branches of the Metropolitan area of Paris. We asked them to describe their experience of organizational change during the implementation of this CRM application.

A major conclusion of this research is that in this field study, change management variables such as communicating the change to the users, top management support, and behavioural training are very important in predicting use of the technology.

Results reveal that the information activity is an important component in the change process. Contact with other users or different actors implicated in the project stimulate the user's interest, which are essential for ICT acceptation. These findings are consistent with the vision of Zmuds (1983) who suggests that the organizational interventions should be focused on communicating relevant information that emphasizes the benefits of using the innovation. Examples of interventions include seminars, newsletters, the use of opinion leaders, and other public forums.

We also notice that diversity of communication channels is relatively important during all phases of the project development. However, the nature of the diverse sources of information as it affects the success of innovation is not the same for all stages of project. For example, according to Rogers (1971) mass media is very relatively important during the initiation stages (such as electronic mailing, project presentation…) and informal networks are efficient in the ICT implementation stage (such as coffee break).

The results also have an implication for training and education. It is very interesting to note that it is very tempting to stop training once users understand the mechanics of how to use the application. In other words, to obtain the full benefits from complex technology, organizations should consider training which demonstrates how the user might do his or her job differently, and how the technology enables different strategies and different approaches to one's job. We recommend organizing behavioural training that focuses on the development of new job practices.

Findings indicate that top management behaviour is an important factor in the success of ICT implementation. High levels of top management support are thought to promote more favourable beliefs and greater system usage; furthermore, lack of top management support is considered as a critical barrier to the effective utilization of ICT (Igbaria et al, 1995).
The external consultant on the ICT project should participate in the design and development of training.

With the objective of adapting the TAM for our field study of CRM applications, we propose to add this the previously mentioned variables.

A future study will be designed to address three interrelated research questions:
- What is the impact of change management factors on CRM application usage?
- What is the impact of perceived ease of use and perceived usefulness on CRM application usage?
- Do perceived ease of use and perceived usefulness mediate the effects of change management factors on CRM application usage?

We expect that this study will make a contribution to the growing IS literature on technology acceptance and it will present several managerial implications. This type of work should prove useful for understanding and improving the chances of successful implementation of ICT. It will also offer management the possibility of assessing the interventions and initiatives that have to be undertaken to influence the individual acceptance behaviours.

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