CREATING COMPETITIVE ADVANTAGE THROUGH EMPLOYEE'S ATTITUDE TOWARDS IT INTERVENTION -A CASE STUDY OF INDIAN PUBLIC BANKS

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ABSTRACT

This study, based on the belief–attitude–performance chain, uses Davis's technology acceptance model (TAM) to identify the factors that lead employees to support or resist the introduction of information technology (IT). Survey data collected from 60 employees were used to examine the role of employee attitude towards IT to create competitive advantage at Indian public sector banks. For this purpose Technology Acceptance Model (TAM) was considered to assess employees' perceived usefulness and satisfaction towards IT. A questionnaire with five-point Likert scale is distributed to respondents and analyzed, using SPSS 16 software by employing correlation and stepwise regression analysis. Results indicate that that employees are exclusively concerned with 'Information sharing', 'Participation and empowerment', 'Timeliness' 'Relevance', 'Reliability' and 'Accessibility', as important factors for them to apply IT. The paper contains relevant material to the banking industry, implications are discussed and recommendations are offered for improving internet banking services.

Keywords: Employee's attitude, Technology Acceptance Model, Information Technology, Competitive advantage.

Introduction:

Successful implementation of modern technologies is a critical issue for companies getting enhanced productivity and to be in a competitive position (Clemons, 1986; Joshi, 1990). In fact, these beliefs create a situation where Indian banks put their resources in information technology (IT); they invest massive resources in IT in the hope of gaining significant positive financial return. Therefore, they believed that such investments could improve their performance and increase their competitive advantages by lowering costs, enhancing differentiation and even increasing organizational effectiveness. On the other hand employees' satisfaction may be indirectly affecting the underlying drivers of customers' value perceptions about the overall quality of the product and the reliability of the firm, thus giving clues to future transactional behavior as well as relationship building. The IT artifacts take the form of a system interface, a combination of software packages and the hardware on which they run. The usual measure of the quality of the interface is user friendliness, which is purposed to be a measure of ease of use, although it is not quantifiable. Therefore, the organization's ability to enforce existing idiosyncratic processes is likely by using

IT, accepted by its end users. So, IT should be considered 'valuable' by the end user in relation to their work and by the organization in relation to the strategic effectiveness of the organization (Helmreich, 1987).

This interest in this subject has been manifested in the abundant research and studies carried out to identify the factors that lead to successful adoption and use of IT. In fact, the last two decades have generated a multi disciplinary research body that expands over the field of technology, human computer interaction (HCI) and social psychology to shed light on user acceptance of technology (Agarwal & Prasad, 1998; Davis et al., 1989; Rose & Straub, 1998; Thompson & Rose, 1994). As a result of the rich research findings, many models have been developed to predict the relationship between user perceptions and technology acceptance. This part shows variables affecting technology acceptance; individual's perceived ease of use, usefulness and satisfaction. In addition, the theory of reasoned action and Technology Acceptance Model (TAM) is described.

Technology Acceptance Model (TAM):

The technology acceptance model TAM (Davis, 1989) is considered the most feasible model in describing user

acceptance and usage. TAM uses two employees' perceptions; 'perceived case of use' and 'usefulness', which determine the individual's behavioral intention to use a technology (Taylor & Todd, 1995). Several studies were developed about TAM model by focusing specifically on antecedents of ease of use (Al-Gahtani & King, 1999; Venkatesh, 2000; Lederer et al., 2000; Pavlou, 2003) and perceived usefulness (Pavlou, 2003; Venkatesh & Davis, 2000). Perceived ease of use (PEU) is defined as "the extent to which a person believes that using a technology will be free of effort" (Davis, 1989). This is a construct reflecting an individual's assessment of the effort involved in the process of using the system. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance job performance"; moreover, 'attitude' was understood in terms of an individual's feelings or emotions about using the technology, whereas 'intention to use' was understood in terms of the likelihood that an individual would use the technology in the future. (Davis, 1989) and behavioral

ease of use (convenience) and usefulness have been treated as a strong predictor to increase a system usage.(fig 1)

Literature Review:

For decades, researchers from a variety of disciplines have studied technology usage and acceptance, in order to better understand and manage the process of new technology adoption. Several theoretical models have been proposed, of which the TAM has received the most attention (Hsieh & Wang, 2007).

The TAM was designed by Davis (1989) to predict the use of information systems. Klaus et al., (2003) conducted a study in this area to examine various external variables to determine what affects a user's attitude towards the use of information technology systems. The TAM continues to be the subject of a variety of studies, which have confirmed the usefulness and predictive validity of the original model. Replication of the original work by Davis (1989) suggests that the TAM has been widely studied and
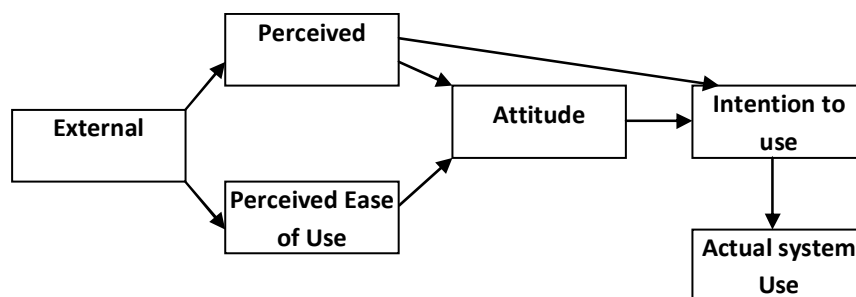

Figure 1: TAM Model

intention is a measure of how strong one's intention to perform the specified behavior could be. (Ajzen & Fishbein, 1980).

Therefore, my study assessed individual's performance at work by using the Davis's (Davis, 1989) Technology Acceptance Model (TAM), which was developed from the Theory of Reasoned Action (TRA). TRA (Ajzen, et al., 1980, Fishbein & Ajzen, 1975) is a well-known model for predicting and explaining individual behavior. TRA asserts that individual behavior is determined by behavioral intentions to perform the behavior, and that behavioral intentions are jointly determined by individual attitudes.

The TAM has emerged as a powerful way to represent the antecedents of system usage through beliefs about these two factors (Davis *et al.*, 1989). Computer usage is determined by intention, which is viewed as being jointly determined by the person's attitude towards using the system and perceived usefulness. Figure 1 demonstrates the original TAM. Proposing attitude (positive response) and usefulness may have the potential to influence the intention to perform actual system use. The relationship between usefulness and intention implies a person's belief that his job performance is enhanced regardless of positive or negative feelings. Consequently, TAM has proven a successful framework in predicting and explaining usage across a variety of systems. In other words, the improved

accepted as a valid model to predict individual acceptance behavior across various information technologies and their users (Kim et al, 2009).

The TAM postulated that both perceived ease-of-use and perceived usefulness have been considered important in determining the individuals' acceptance and use of information technology (Yoon & Kim, 2007). The Davis (1989) model described the relationship between the independent variables of perceived usefulness and perceived ease-of-use and the dependent variables of user attitudes, intentions, and computer usage behavior. The two perceived variables have an effect on attitudes toward using a technology. Attitude affects the intention to use, and the intention to use affects actual usage (Yoon & Kim, 2007). Adams *et al.* (1992) and Davis (1989) found was that in both studies, usefulness was significantly more strongly linked to usage than was ease-of-use. Davis (1989) believed that perceived usefulness is defined as "the prospective user's subjective probability that using a specific application system will increase his/her job performance within an organizational context".

Davis *et al.* (1989) defined perceived usefulness as the prospective user's subjective probability that his/her job performance within an organisational context would be increased as a result of using a specific application system. In the broader context of e-commerce and in a

similar vein to Kleijnen et al. (2004), perceived usefulness, was described in terms of how well consumers believed internet services could be integrated into their daily routine. Next, perceived ease of use was defined by Davis et al. (1989) as the degree to which the prospective user expected the target system to be free of effort. They also suggested that perceived usefulness may impact on behavioral intention to use the technology-based system, irrespective of attitude towards this system, provided that use of the system is perceived to offer direct benefits to the user.

Previous TAM research (Moon & Kim, 2001; O'Cass & Fenech, 2003; Wang et al., 2003; Pikkarainen et al., 2004) suggested that the intention of branch employees of banks to use the Internet will be affected by their attitudes to its use.

Hong et al. (2001) added two categories of external variables – individual differences and system characteristics – and Chau (1996) modified it by using only four constructs—PEU, perceived long-term usefulness, perceived short-term usefulness, and behavioral intention to use. He divided usefulness into separate near-term and long-term perceived usefulness constructs. Chau (1996) used behavioral intention as the dependent variable. The perceived long-term usefulness construct was added to the original TAM and was hypothesized to have a positive effect on intention to use the technology.

Lymperppoulos and Chaniotakis (2005) investigated factors affecting acceptance of the internet among employees of Greek bank branches. They identified the importance that branch employees of Greek banks attach to the Internet as a tool of marketing intelligence, and the factors that affect its acceptance as such a tool. They used the technology-acceptance model (TAM) as a basis. They reported branch employees of Greek banks felt that a marketing-intelligence system is a prerequisite for effectiveness in their work; although the internet was the fourth-most important source of market intelligence for branch employees of Greek banks, they required greater access to the internet to meet their market-intelligence needs; perceived usefulness and perceived ease of use of the internet directly affect bank employees' attitudes - which, in turn, affect the employees' intentions of using the internet as a marketing-intelligence tool; and education and working experience affect employees' attitudes indirectly (through perceived usefulness).

Wang *et al.* (2005) indicated that technology utility positively and directly influenced perceived usefulness and behavioral intention and indirectly impacted behavioral intention through perceived usefulness. Perceived number of users directly and positively affected perceived usefulness, perceived ease of use and behavioral intention as well as indirectly influenced perceived usefulness and behavioral intention through perceived ease of use. Davis (1989) suggested that potential users of the system made their usage decisions based on their perceptions of the quality of the system output and that the expected enjoyment of using the system had an effect on their attitude towards using the technology system.

Moon and Kim (2001) also studied the use of the World Wide Web using the TAM. The Internet is used for both work and pleasure; they added the variable of playfulness to the TAM to account for the varied uses of the Internet. As Davis *et al.* (1992) contended enjoyment of computers is an example of intrinsic motivation and has an influence on technology use.

A banking company and an engineering company in the United Kingdom were studied using the parsimonious TAM by Horton *et al.* (2001) to explain the acceptance of internet usage. Perceived usefulness was shown to have an impact on user's intention in the banking firm while perceived ease of use affected usage and was fully mediated by user intention to use the system. In the case of the engineering firm, perceived ease of use explained actual and self-reported usage while the impact of perceived usefulness was not shown to have a significant relationship on intention.

Ahuja and Thatcher (2005) proposed that overload negatively influenced information technology innovations while autonomy (employees decide how and when to accomplish assignments) positively influences information technology innovations.

Overload refers to an individual's perception that they cannot perform a task because they lack critical resources (Sales, 1970). Autonomy refers to the degree to which the job provides substantial freedom, independence, and discretion in scheduling the work and in determining the procedures to be used in carrying it out (Hackman & Oldham, 1975).

The researchers further proposed that autonomy moderates the influence of overload on information technology innovations, suggesting that the strength of these relationships vary based on gender. Ahuja and Thatcher (2005) focused on a research question: Do perceptions of the work environment such as overload and autonomy influence individuals' trying to innovate with information technology?

Pfeffer & Leblebici (1977) found to be associated with greater autonomy for middle managers as well as less predetermined decision procedures. In another study, managers perceived IT as improving their confidence in decision making, removing uncertainty from decisions, and overall increasing their role in the organization (Buchanan & McCalman, 1988). Snell *et al.* (1995) suggested that increased employees' autonomy may result from using sites such as web applications that are a result of increased IT usage. They also mentioned that IT helps employees as it becomes a more horizontal and self-learning organization, by enabling employees to contribute to the strategic focus of the organization. Gardner *et al.* (2003) also indicated this theorized impact suggesting that with more extensive use of IT, employees' tasks are further automated making employees more efficient through their responsiveness and autonomy. They also mentioned that IT's transforming impact may lead

employees to create new innovative practices or to innovatively deliver employees practices to their clients. In case of empowerment, they found that IT appears to serve as an empowering function for employees, providing a medium in which they can provide increased value in their work. IT is one tool that they can utilize in order to provide more value to the organization (Ulrich, 1998).

Martin (2009) focused on technology acceptance differences in terms of perceived usefulness and perceived ease-of-use toward utilizing new technology. In this study the TAM was the theoretical framework utilized to identify the technology acceptance of differences between genders (women and men) and racial groups (European American, African American, Native American, Hispanic, and others). The results of study offered organizations a better understanding of the gender and the racial grouping perception towards new information technology, which ultimately creates a positive social change for organizations working towards maximizing their technology investment through the enhancement of communications and the sharing of knowledge that would reduce the anxiety of the user.

Pfeffer (1994) issued sixteen practices of competitive advantage through people:

• Employment security	• Selectivity in recruiting	• High wage
• Incentive pay	• Employee ownership	• Information sharing
• Participation and empowerment	• Teams and job redesign	• Training and skill development
• Symbolic egalitarianism	• Wage compression	• Promotion from within
• Long-term perspective	• Measurement of practices	• Overarching philosophy
• Cross-utilization & cross- training		

In the case of Indian banks for generating required information, items which can help to create sustainable competitive advantages were gathered from extant literature on:
• employees' commitment (Singh, 2000);
• employees' participation (Gani & Shah, 2001);
• employees' performance appraisal (Singh, 2003);
• incentives (Lings & Greenley, 2001);
• training (Mathieu et al., 1992);
• service quality (Malhotra & Mukherjee, 2004);
• information sharing (Lings and Greenley, 2001); and
• internal suppliers' overall satisfaction (Hartline *et al.*, 2000).

Proposed Research Model And Purpose Of The Study:

In order to fill up the research gap, the TAM has been focused as a research model. The purpose of this study is to evaluate employees attitude towards IT intervention and, specifically predicting the key factors of the employee perceived usefulness in terms of '*Measurement of practices', 'Information sharing', 'Innovation', 'Employee ownership', 'Training and skill development'* and '*Participation and empowerment'* towards IT in Indian

public sector banks. And the proposed hypotheses of the present study are:

H₁: There is significant positive relation between perceived usefulness and intention to use IT among employees in select banks.
H₂: There is significant positive relation between satisfaction and intention to use IT among employees in select banks.

Methodology Used:

The study investigated employees' perception regarding IT. In this section TAM was considered as a reliable model to evaluate the employees' attitude towards IT intervention. For this purpose, Preffer (1994) issued sixteen practices of competitive advantage through people. Wiseman (1988) also showed that *Innovation* is the important factor to create competitive advantage for a firm in the market. Therefore, in this part, according to discussion with experts and review of literatures, six dimensions were considered that could be impressionable through IT implication. Therefore, six dimensions in terms of '*Measurement of practices', 'Information sharing', 'Innovation', 'Employee ownership', 'Training and skill development'* and '*Participation and empowerment'* were focused to evaluate the usefulness of IT in banking operations.

The Sample:

Two public banks (SBI and Canara bank) were deliberately selected giving due recognition to size, operational status, origin and sector of the banks. The present study used 30 respondents from each bank (total 60 respondents) including branch, IT, senior managers and frontline staff were selected through stratified sampling method at regional and zonal levels.

The Instrument:

The primary data used for the current study has been collected through the survey method. The questionnaires were distributed to the respondents. They were requested to fill them in a self-administered manner. The questionnaire deals with employee' perception and satisfaction of IT attributes. In this section of the questionnaire, the respondents were asked to indicate the level of perceptions based on a Likert scale from one (strongly Disagree) to five (Strongly agree). SPSS 16.0 for windows was employed in order to access the particular

Table 1: Correlation Analysis

	Usefulness	Satisfaction	Intention to use
Usefulness	1.000	0.753**	0.666**
Satisfaction		1.000	0.286*
Intention to use			1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 2: Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	Information sharing	0.826a	0.752	0.743	2.365	0.752	196.557	0.009
2	Participation and empowerment	0.852b	0.829	0.614	2.445	0.077	16.228	0.007

Dependent Variable: Intention to use

a: Predictors: (Constant), Information sharing

b: Predictors: (Constant), Information sharing, Participation and empowerment

Table 3: Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	Timeliness	0.789a	0.507	0.488	5.293	0.507	29.452	0.002
2	Relevance	0.808b	0.653	0.643	4.556	0.146	16.394	0.007
3	Reliability	0.942c	0.791	0.775	3.454	0.138	18.875	0.001
4	Accessibility	0.963d	0.843	0.825	2.987	0.052	12.981	0.000

Dependent Variable: Intention to use

a: Predictors: (Constant), Timeliness

b: Predictors: (Constant), Timeliness, Relevecne

c: Predictors: (Constant), Timeliness, Relevecne, Reliability

d: Predictors: (Constant), Timeliness, Relevecne, Reliability, Accesiibility

results required for the scale measurement. Descriptive analysis such as means, standard deviation and frequencies were calculated. Reliability of the scale was tested, dimensionality of the scale was confirmed through an exploratory factor analysis and regression analysis produced causal results.

Discussion and Results:

In this section, statistical tools such as correlation and stepwise multiple regression analysis were applied to test the hypothesis to evaluate the employees' attitude towards IT intervention.

Stepwise multiple regression analysis was used to predict. It includes regression models in which the choice of predictive variables is carried out by an automatic procedure (Draper& Smith, 1981). The stepwise regression algorithm was terminated when an incoming variable was no longer significant at the 0.10 level. Each variable is entered in sequence and its value assessed. If adding the variable contributes to the model then it is retained, but all other variables in the model are then re-tested to see if they are still contributing to the success of the model. If they no longer contribute significantly they are removed.

Correlation Analysis:

Table 1 contains Pearson Correlation between '*Usefulness*' and '*Satisfaction*' as the independent and '*Intention to use*' as the dependent variables. With respect to Table 1, there

are positive and significant correlation between *'Usefulness'* and *'Intention to use'* (r=0.666, p=0.000). So, we can establish evidence to support the hypothesis H$_1$. In case of hypothesis H$_2$, Table 1 indicates that *'Satisfaction'* is strongly associated with *'Intention to use'* (r=0.286, p=0.027). It reveals support for the second hypothesis.

Hence, it shows that public sector banks could increase the intension to use IT among employee through creating *'Usefulness'* and *'Satisfaction'* factors.

Stepwise Multiple Regression:

After correlation analysis, two independent variables- *Usefulness* and *Satisfaction* – were considered for two separate stepwise regression analysis. In this step the subsidiaries factors that could help to cerate the *Usefulness* and *Satisfaction* dimensions, were analyzed by stepwise regression.

First, the related variables of *'Usefulness'* were entered to the regression equation through stepwise method to predict the *'intention to use'* as a dependent variable. Table 2 reports that, in model 1 *'Information sharing'* variable significantly explains 75.2 % of the total variance. In model 2 *'Participation and empowerment'* as another dependent variable was added into the model. They could help significantly contribute to increase the explanation of the total variance by 0.077.

Overall, the R-square (0.829) in Table 2, tells us that the model can predict the intention to use IT among employees by the*' Usefulness'* dimension almost by 82.9%, correctly. In other word, it can be mentioned that the *'Usefulness'* dimension through *'Information sharing', 'Participation and empowerment'* variables strongly contributed to improve the intention to use IT among employees. Consequently, IT could help the public banks to improve the performance as well as competitive advantage (Pfeffer, 1994).

It means, in case of creating feeling of usefulness, public sector banks, attempted to create competitive advantage through improving the quality of availability of information, sharing the information of government regulation , gathering the useful data about banks' customers and decentralization of decision making to increase the employee's participation and empowerment in controlling their own work process, through IT.

In the second stepwise regression analysis, the related variable of *'Satisfaction'* were entered to the regression equation to predict the *'intention to use'* variable. Table 3 reports that, in model 1, *'Timeliness'* variable significantly explains 50.7 % of the total variance. In model 2, 3 and 4 *'Relevance','Reliability'* and *'Accessibility'* as other dependent variables were added into the model. They could help significantly contribute to increase the explanation of the total variance by 0.146, 0.138 and 0.052, respectively.

Overall, the R-square (0.843) in Table 3 tells us that the model can predict the intention to use IT among employees by the *'Satisfaction'* dimensions almost 84.3%, correctly.

In the other word, it can be mentioned that the *'Satisfaction'* dimension through *'Timeliness', 'Relevance', 'Reliability'* and *'Accessibility'* variables strongly contribute to improve the intention to the use of IT among employees in public sector banks in India.

Consequently, the findings of this study show that we can reduce the satisfaction gap up to 84.3% and 15.7 % for improving factors are that unaccounted and unexplained for recognition of employee satisfaction dimensions. These factors can relate to other banking policies, in terms of job security, amount of salary, reward, social relationship and job description (Jassim & Jaber, 1998).

In this case, it can be concluded Indian public sector banks succeed in applying IT to save the employee's time, share the relevant information among employees, provide accurate as well as reliable information and help to accesses to online information for performing the tasks easily.

Conclusion:

One factor that can set an organisation apart from its competitors, whether in services or products, in the private or public sector is its employees. The quality of the organisation's employees, their satisfaction with their jobs and the company, all have a significant impact on the organisation's productivity, level of customer service and reputation. In other words, human resources are a critical component in every area of the organization- from finance to sales to customer service to management level. The primary function of human resources today is to ensure the effective and efficient use of human talent to accomplish an organisation's goals and objectives. Successful companies know that there is a direct link between employee satisfaction and customer satisfaction. It is the responsibility of managers to make sure those employees are motivated, productive and positive-if not enthusiastic-about their work.

The empirical results for the full sample indicate that *'timeliness'* is a strong determinant of perceived satisfaction, and *'information sharing'* is another dimension which has strong impact on perceived usefulness towards using IT. It shows that IT attempted to cerate competitive advantage by providing more relevant information to meet employee needs and enhance their task performance by creating participation and empowerment to control their own work process.

Importantly, there are also unknown factors that are affecting employees satisfaction, which we suggest may relate to the absence of job security, high wages, good communication and strong respect for individuals, reward and social relationship and high training quality at Indian commercial banks. This approach will assist banks in assessing their employees' performance in relation to internet service quality, and provide a basis for researchers to further investigate alternate methods of employees' interaction that will assist in improving customer satisfaction and productivity on banking.

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