Cognition and IT Adoption: Study of Bank Employees and Customers in India

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CERTIFICATE

The thesis titled "Cognition and IT Adoption: Study of Bank Employees and Customers in India", being submitted by Ms Rupanjali Nath to the Indian Institute of Technology, Delhi, for the award of the degree of Doctor of Philosophy (Ph.D), is a record of bonafide research work carried out by her. She has worked under my supervision, and has fulfilled the requirements for the submission of this thesis, which has attained the standard required for Ph.D. degree of the Institute. The results presented in this thesis have not been submitted elsewhere for award of any degree or diploma.

Dated:

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Date: Rupanjali Nath

ABSTRACT

The diffusion of technological innovation is a multidisciplinary field with a long record of research. Information technology (IT) usage is a key dependent variable in IT innovation adoption research and many studies have empirically examined its determinants. According to the industrial organization, IT affects the products and services offered in the marketplace, the structure of the industry, competitive forces and production economies, improving the efficiency of the activities of the value chain. The promotion and development of Internet and information technology has gradually changed the way that enterprisers conduct their business.

Since the mid-1990s, there has been a fundamental shift in banking delivery toward using self-service channels such as online banking. During the past years online banking acceptance has been rapid and current worldwide and the financial market has undergone a sea change. Many new private banks have penetrated the market. Even the foreign banks that have traditionally always had a low key presence in India have become very active in the past 1990s. Since then the well established public sector banks have started facing competition for the first time.

Banking industry is relying on Information Technology (IT) as an important tool for its sustained development. Hence, it is an imperative to understand and influence user's acceptance and diffusion of information technology in banking organizations. The success of internet banking is determined not only by banks or government support, but also by users' acceptance. The employees and customers have a great influence on the adoption of internet banking. The current study is an attempt to discover the factors affecting the bank employees' and customers' decision to adopt e-banking in India. Understanding the models and the factors determining effective technology adoption becomes highly relevant in view of strategy and practice. From the

literature survey, it could be observed that there remains a gap in research on technology adoption in the context of model comparisons. To the best of our knowledge, no single study tested cognitive models used in IT adoption in the banking sector, in India in particular. Considering the business and social domain and taking banking industry as research field, this research aims to compare the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB) and Decomposed Theory of Planned Behavior (DTPB) to find out the best model for making the adoption successful.

A qualitative study on the basis of in depth interviews and two quantitative studies through questionnaire survey have been conducted. The case study was necessary to observe the factors and the linkages that make technology implementation a success or moderate success. The case study i.e., the study 1 was analyzed through grounded theory to determine critical issues for technology implementation and thereby two different linkages emerged from the study. In both, organizational readiness and organizational co-ordination appeared as prime issues responsible for making the implementation process a successful event or a moderate success.

There were two sets of quantitative study, namely study 2 for employees' perspective and study 3 for customers' perspective. Data for quantitative studies were collected through questionnaire survey from both bank employees and customers. 238 employees of different banks of west and south Delhi constituted the sample for the study 2 and for the study 3, the data were collected from 300 bank customers having their bank accounts in different private sector banks and public sector banks in New Delhi. All respondents for customers' perspective of the study were selected randomly.

For both the quantitative studies, the data was collected via questionnaires that were administered in person. The respondents were assured of confidentiality and were informed that the information would be used for academic and research purposes only.

The survey for both the study assessed the respondents' beliefs, determinants of intention, intention to use electronic banking and their usage behavior. Prior to distribution of the questionnaires in each bank, some general enquiries were made like whether they had started practicing the uses of different IT schemes like Real Time Gross Settlement (RTGS), Core Banking Solution (CBS) etc through discussion. This information was used to design the questionnaire. Similarly for customer part of the study information about the different uses of e-banking by the respondents were gathered to design the questionnaire. The operational measures were based on the scales developed by Davis (1989) and Moore and Benbasat (1991). All measures were adjusted to reflect the specific target behavior, use of the e-banking. Items to measure the constructs were identified based on the existing scale as described above. Discussion with bank employees and customers were then employed to ensure that the beliefs were consistent with the context of the use of e-banking.

The data was analyzed through structural equation modeling (SEM). The study chose AMOS for windows (version 17) as the SEM software for model estimation. AMOS is a covariance-based approach similar to LISREL, in which the covariance structure obtained from the observed data is used to simultaneously fit measurement and structural equations specified in the model. AMOS estimated both the measurement and structural models using the generalized least square estimator. For analyzing the data, Confirmatory Factor Analysis (CFA) was performed to decide whether the measured variables reliably reflected the hypothesized latent variables. Then, structural models were tested to find out best fitted model (including absolute, incremental, as well as parsimony fit measures) and then the path coefficients, explanatory power [squared multiple correlation (SMC) = R^2] of the best fitted model was interpreted.

TAM appeared to be the best fitted structural model for both perspectives of the quantitative studies. The predictive power of the model for employees' perspective of the study was 19.8 % and that of customers' perspective was 33.4%. Perceived ease of use and perceived usefulness appeared as important factors for users' acceptance of e-banking for study 2 & 3.

In view of competition in the growing market, it is important for banks to get a critical market share in the early stage of the product lifecycle. It is, therefore, important to understand the current adoption of e-Banking, in this case, in India, and to identify the accelerators, inhibitors and drivers that enhance e-banking adoption. Marketing plans are more effective when these major factors of adoption are understood. This research has attempted to provide such an insight. The research concludes that perceived ease of use and perceived usefulness is of significant concern for adoption of e-Banking in India. Perceived ease of use and perceived usefulness offered by the banks to promote e-banking were seen as accelerators of the adoption of e-banking by the employees in study 2. Similarly, perceived ease of use was found to be significant factor for creating intention as well as attitude and perceived usefulness appeared as significant towards developing intentions to use e-banking among customers' in the study 3 as well. Finally the research has suggested TAM as best suited model for both employees' and customers' perspective usage behavior of e-banking. The judgment on TAM for best significant model will help researchers and professionals from the industry benchmark their own ideas and of strategy and technology implementation.

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