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# **INFLUENCE OF TECHNOLOGY IN BANKING-**

## **A CUSTOMER CENTRIC STUDY WITH SPECIAL REFERENCE TO KERALA**

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*Thesis submitted to the*



***Mahatma Gandhi University, Kottayam***  
***Under the Faculty of Commerce***

*For the award of the Degree of*  
***Doctor of Philosophy in Commerce***

*By*

**RAJU V. P.**

*Under the supervision of*

**DR. G. S. GIREESH KUMAR**  
*Associate Professor & Research Guide*



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RESEARCH & POST GRADUATE DEPARTMENT OF COMMERCE  
**NIRMALA COLLEGE MUVATTUPUZHA**  
ERNAKULAM DISTRICT, KERALA, PIN-686 661 (INDIA)

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**RESEARCH & POST GRADUATE DEPARTMENT OF COMMERCE**  
**NIRMALA COLLEGE MUVATTUPUZHA**  
Muvattupuzha P.O., Ernakulam District, Kerala, PIN 686 661  
Ph: 0485-2832361, 2836300, 2834689 Fax: 0485-2836300/2831463  
[www.nirmalacollege.ac.in](http://www.nirmalacollege.ac.in) e-mail: [nirmalacollege@vsnl.com](mailto:nirmalacollege@vsnl.com)

**DR. G. S. GIRESH KUMAR**

*M.Com., M.Phil., M.B.A., Ph.D.*

*Associate Professor & Research Guide*

## **CERTIFICATE**

*This is to certify that the thesis entitled "INFLUENCE OF TECHNOLOGY IN BANKING - A CUSTOMER CENTRIC STUDY WITH SPECIAL REFERENCE TO KERALA", submitted to Mahatma Gandhi University, Kottayam for the award of the degree of Doctor of Philosophy in Commerce, is a bonafide record of research work carried out by Mr. Raju V. P., Associate Professor, Department of Commerce, Nirmala College, Muvattupuzha, Ernakulam District, Kerala, under my supervision and guidance. No part of this thesis has been previously submitted for the award of any degree, diploma, associateship or other similar title or recognition in any University or Institute.*

*He is permitted to submit the thesis.*

*Muvattupuzha*  
*29 January 2014*

*Dr. G. S. Gireesh Kumar*  
*(Supervising Teacher)*

Over the past decade, there has been a huge drive amongst the banks to implement new technological solutions since they realised that the technology can help them to achieve a better competitive position. Today, most of the transactions can be done at any time from where the customer is. Introduction of Self Service Banking Technology (SSBT), which consists of ATM, Internet Banking (IB) and Mobile Banking (MB), has added a different dimension to banking. A noticeable shift from traditional to channel-based banking was witnessed recently due to SSBT services.

Despite the application of sophisticated technology, the basic trust and confidence of the people on their bank matters most not only in the selection of their bank but also for availing banking services. Therefore, SSBT poses both opportunities and challenges. So, the real success of a bank depends on its operational excellence and delivery of high value-added and customised services in tune with the changing demands of the customer force.

The present research is a customer centric study based on Self Service Banking Technology (SSBT) in Kerala. The intention of this research is to study the purposes and extent of use of SSBT services, to identify the influencing factors for adoption of SSBT, to identify the pull factors which limit the use of SSBT, to study the level of customer satisfaction and to analyse the problems confronted by the customers in using SSBT.

Bank customers use SSBT services for both *informational* and *transactional* purposes. However, the paramount purpose of using all SSBT services (ATM, IB and MB) is *informational* in nature. The purpose of use is influenced by the *sector, region, age, computer experience, internet experience, banking experience, ATM experience* and *IB experience*.

Of the adoption factors of SSBT such as *Perceived Usefulness (PU)*, *Perceived Ease of Use (PEOU)*, *Privacy & Security (PS)*, *Reliability & Trust (RT)*, *Efficiency (EF)*, *Economy (EC)* and *Demonstrability & Trialability (DT)*, *PU*, *PS*, *EC* and *DT* have direct influence on the adoption behaviour of customers.

However, *PEOU*, a *TAM* variable, has no direct effect on *EUSSBT*, but a mediating effect through *PU*.

Though there are numerous *SSBT* Services offered, they are not widely used by the respondents to the fullest extent possible due to myriad reasons. These pull factors are *Inaccessibility* (*INA*), *Inertia* (*INE*), *Lack of human touch* (*LH*), *Lack of knowledge* (*LK*), *No perceived need* (*NPN*), *Cost aspect* (*COS*) and *Risks involved* (*RIS*). *RS* and *INE* are the most prominent pull factors which limit the full fledged use of *SSBT*. *INA* and *LH* and *NPN* are also the major reasons for the restricted use of *SSBT*. The lower *EOUMB* is due to customer affinity to *IB* than *MB* and they are waiting for some more time for further penetration.

Customer satisfaction in e-environment is determined by the *Website of the bank*, followed by *Efficiency of the bank*, *Competency of the bank* and *Information provided by the bank*. These are influenced by the *gender*, *income*, *computer knowledge* and *EOSSBT*. There are divergent problems experienced by customers in availing *SSBT* Services. The intensity of problems related to *ATM*, the most accepted and widely used *SSBT* service, is the highest and the intensity of problems in *MB* is comparatively lower. *Unexpected service failure of ATMs*, *Restricted amount of withdrawal*, *Complex rectification procedure for wrong debit*, *Charges payable for the use of other bank's ATM* and *Lengthy queue before ATMs during peak hours* are the prominent *ATM*-related problems. *Restricted delivery of services during off-time*, *Lack of speed and difficulty to get network connectivity* and *Lack of sufficient demo and help menu in web site* are not sufficient are the major problems faced by *IB* customers. Among the *MB*-related problems, *Inconvenience of keyboard and small display of mobile phones*, *Restricted amount of transaction* and *Restricted delivery of services during off time* are the major problems. the nature and extent of problems are influenced by the *gender* and the *EOSSBT*.

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**Keywords:** Self Service Banking Technology, Technology in Banking, ATM, Internet Banking, Mobile Banking, Virtual Banking, e-banking, Core Banking, m-banking, *SSBT*, *TAM*, *PU*, *PEOU*.

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## GLOSARY

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- Brick-and-mortar Banks:** Old-economy organisations (banks) that perform most of their business off-line
- CFMS:** Centralised Funds Management System (CFMS), is a system set up, operated and maintained by the Reserve Bank of India to enable operations on current accounts maintained at various offices of the Bank, through standard message formats in a secure manner. The CFMS comprises two components – the Centralised Funds Enquiry System (CFES) and Centralised Funds Transfer System (CFTS).
- Click-and-mortar Banks:** Organisations (banks) that conduct some online activities but do their primary business in the physical world
- e-Banking:** e-banking is used to describe supplying banking services through electronic intermediaries or electronically based channels, which include Automated Teller Machines (ATMs), personal computer (PC), World Wide Web (www), telephone, mobile phone, digital television set, etc.
- GPRS:** General Packet Radio Service (GPRS) is a standard for wireless communications with speed upto 115 KBs/second. It is a packet oriented mobile data service on 2G and 3G cellular global communication system.
- IMPS:** Immediate Payment Service (IMPS) is an instant interbank electronic fund transfer service through mobile phones. It is also being extended through other channels such as ATM, Internet Banking, etc.
- KCC:** Kisan Credit Card Scheme (KCC) aims at providing adequate and timely support from the banking system to the farmers for their short-term credit needs for cultivation of crops. This mainly helps farmers to purchase of inputs etc., during the cropping season.
- MMID:** Mobile Money Identification Number (MMID) is a seven digit number of which the first 4 digits are the unique identification number of the bank offering IMPS.
- m-KCC:** A mobile linked Kisan Credit Card (m-KCC), using mobile technology, enables farmers to carry out purchase of agricultural inputs in cash-less manner.
- NPCI:** National Payments Corporation of India (NPCI) was set up in 2005 by the RBI as an umbrella institution for all the retail payment systems in the country. It is functioning as a hub in all electronic retail payment systems which is ever growing in

terms of varieties of products, delivery channels, number of service providers and diverse technology solutions. NPCI has a mandate to create a domestic card scheme and the brand name finalised for the same is RuPay.

**Online Banking:** Banking via Internet

**Plastic money:** Plastic money comes in many forms such as cash cards, credit cards, debit cards, pre-paid cash cards etc. which is used in place of actual currency notes.

**Satellite Banking:** Satellite Banking refers to a way of organising a bank's branch network so that it is clustered around larger branches.

**USSD:** Unstructured Supplementary Service Data is a protocol used by GSM cellular telephones to communicate with the service provider's computers. USSD can be used for WAP browsing, prepaid callback service, mobile-money services, location-based content services, menu-based information services, and as part of configuring the phone on the network.

**Virtual Banks:** Organisations (banks) that conduct their business activities solely online.

**White-label ATM:** ATMs which are owned and operated by non-banking companies are called white-label ATMs (WLAs). They function just the same way as any other bank-run ATM.

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