

Evaluating the Impact of ATM Locations on user Experience and Efficiency



ISBN 978-1-943295-24-1

**Vaishnavi Vijayakumar
Sujatha G.S**

College of Engineering Trivandrum
(vaishnavivijayakumar3110@gmail.com)
(sujahari2002@gmail.com)

The banking industry in India is a dynamic and crucial component of the country's economic landscape. The main objective of banking in our economy is mobilising savings and granting of credit, in order to have fast growing and productive economy. For this bank offer various financial products and services in order support the customers. One of them is the ATMs, which has both features of financial product and service as well. An automated teller machine (ATM) is an electronic telecommunications device that enables customers of financial institutions to perform financial transactions, such as cash withdrawals, deposits, funds transfers, balance inquiries or account information inquiries, at any time and without the need for direct interaction with bank staff. Location of such ATM is one of the prime issues as the performance of the ATM depends on location in most of the scenarios. The present paper attempts to understand the correlation between location of ATMs and their performance. The objectives of the study were to understand the factors affecting the performance of ATMs and how these influenced the performance levels. The methodology adopted for the study includes both primary data which was collected by circulating a structured questionnaire from a sample of 40 respondents. The study covers respondents from Kerala.

Keywords: Banking Industry, Financial Products and Services, Productive Economy, ATMs.

1. Introduction

An automated teller machine is an electronic telecommunications device that enables customers of financial institutions to perform financial transactions, such as cash withdrawals, deposits, funds transfers, balance inquiries or account information inquiries, at any time and without the need for direct interaction with bank staff. Using an ATM, customers can access their bank deposit or credit accounts in order to make a variety of financial transactions, most notably cash withdrawals and balance checking, as well as transferring credit to and from mobile phones. ATMs can also be used to withdraw cash in a foreign country. ATM can be placed at any location but most often placed near or inside banks, shopping centres, railway stations, metro stations, grocery stores, restaurants and other locations. ATMs are also found at tourist destinations. ATMs may be on- and off-premises. On-premises ATMs are typically more advanced, multi-function machines that complement a bank branch's capabilities, and are thus more expensive. Off-premises machines are deployed by financial institutions where there is a simple need for cash, so they are generally cheaper single-function devices.

As of 2022 there were over 249000 ATMs across India. This number has been steadily growing over the past years to improve accessibility to banking services, especially in rural and semi-rural areas.

Review of Literature

The main objective of the study was to examine the relationship between Automated Teller Services and financial performance of deposit taking SACCOS in Nairobi County Kenya. Results demonstrate a significant association between automated teller machine services and financial performance. This study recommends that deposit-taking savings and credit cooperatives; strategically position automated teller machines such that members do not have to use a third-party facility to access automated financial services (Geoffrey Obingo Okello, Thomas Senaji, Peter Kamaku December 2020)

This paper analyses some of the important studies conducted in various countries across the world for finding the dimensions of ATM banking service quality. On the basis of review, it has been found that there is no consensus among researchers on dimensions of ATM banking service quality (Rajeev Sindwani, Dr Manisha Goel, YMCA University of Science and Technology, Faridabad, May 2012)

The work tries to attempt the proposed framework is using the iris recognition technology combined with the one-time password (OTP) to detect and prevent the known as well as the unknown attacks on ATMs and provide a table of the attackers and the suspected attackers with a counter to take a preventive action with them. They compared the cost of various biometric technology. In this paper they are proposing a multi-authentication framework that detects and prevents the fraud actions on the ATMs, that will be applied through using the iris recognition biometric technology at the authentication phase at the ATM with the One Time Password (OTP) as a second step authentication to allow the client to access his/her accounts. (Mohamed Abdelsalam Ahmed, Nada Tarek Abbas Haleem, Amira M. Idrees, 2024)

The present paper tries to propose and investigate the dimensions of automated teller machine (ATM) service quality and their relationship with customer satisfaction in the retail banking sector. A structured questionnaire gleaned from the literature was used to collect data from 530 ATM customers of 15 banks in Ghana. Descriptive statistics, confirmatory factor analysis was used to

identify the dimensions of ATM service quality and their relationship with customer satisfaction. It resulted that convenience, reliability, ease of use, privacy and security, responsiveness and fulfilment to be the major dimensions of ATM service quality. Apart from security and privacy, these dimensions are significantly related to customer satisfaction. (Bedman Narteh, March 2014)

The study attempts to conduct an exploratory study that attempts to quantify the impact of 2 critical factors - service performance expectations and usage rate - on the consumer's prolonged satisfaction with an automated teller machine (ATM) is presented. The results of the study revealed that service performance expectations contribute to consumers' prolonged satisfaction with ATMs, whereas usage rate has a negative impact on prolonged satisfaction with ATMs as perceived by consumers. (Moutinho, Luiz)

Objectives of the Study

One of the most important services offered by banks across various geographical boundaries is ATMs. It is one of the largest financial product and service that is made available to customers which is available beyond the banking hours. The regular maintenance of such a service will help the banks to retain more customers.

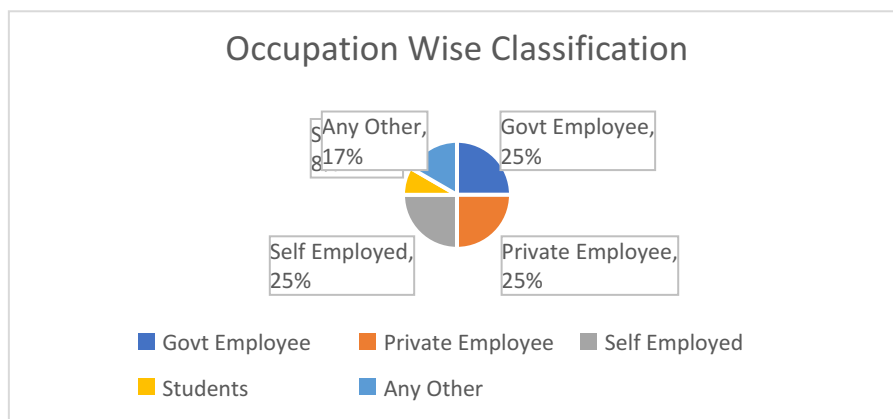
The primary objectives of the study were to understand the factors affecting the performance of ATMs and how these influenced the performance levels. ATM services are influenced by various factors (uptime, downtime and average hits) that might affect the performance level of ATM. These factors lead to the establishment and relocation of ATMs in certain locations. The study also aimed to understand the customer's perception towards the ATM services already offered by various banks. The past reviews studied the various aspects of ATMs like performance of ATMs and performance of ATMs, dimensions of ATM service quality and their relation with customer satisfaction etc. The present attempts understand the views of customer with respect to ATMs in Kerala.

2. Methodology of the Study

The present study is analytical in nature. It focused on the use of both Primary and Secondary data as well. The Primary data was collected through a self-structured questionnaire which spans across the Kerala. The responses were collected from 40 respondents residing in Kerala, across different class of people.

3. Results and Discussions

3.1 Occupation Wise Classification

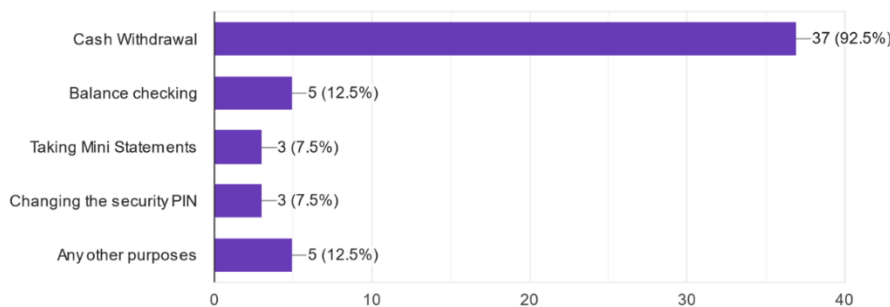


Source: Primary Data

3.2 Purposes to be Served by ATMs for Customers

Q4. What are the purposes for which you visit an ATM?

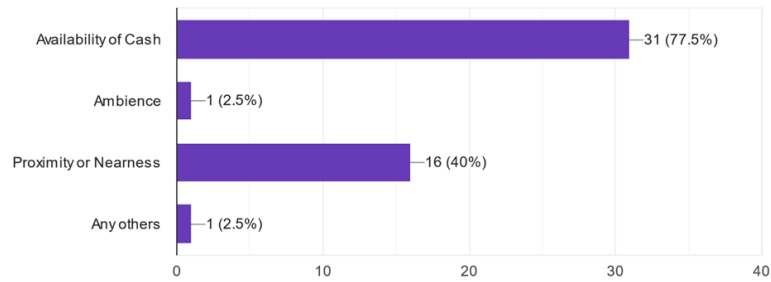
40 responses



Source: Primary Data

3.3 Factors Considered by Customers

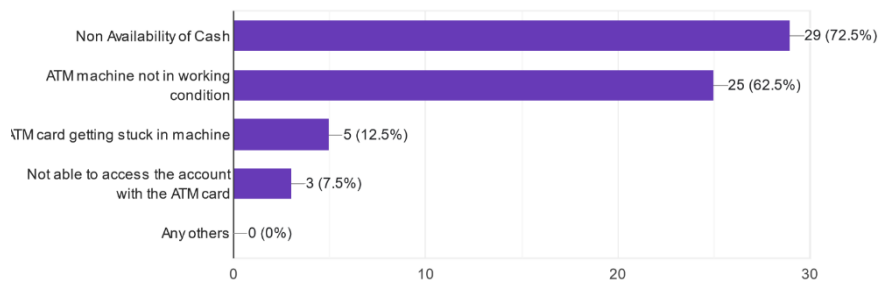
Q5. What are the defining characteristics of the neighbourhood that affect the number of transactions of ATMs?
40 responses



Source: Primary Data

3.4 Issues Faced by Customers While Using ATMs

Q6. Have you faced any difficulty while using the ATMs?
40 responses

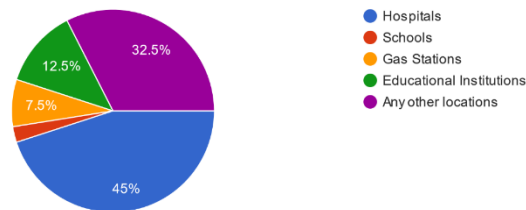


Source: Primary Data

3.5 Most Preferred Locations of ATMs By Customers

3.6

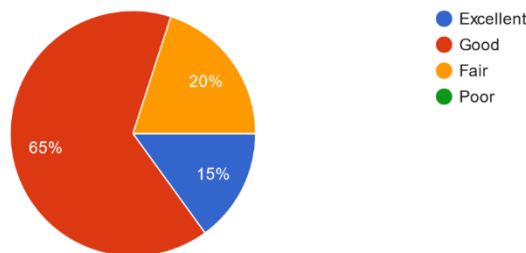
Q7. Which is the most preferred location you use the ATM maximum?
40 responses



Source: Primary Data

3.7 Overall Rating for ATMs By Customers

10. How do you rate the overall performance of ATMs of your own bank?
40 responses



Source: Primary Data

3.8 Major Findings

Following are the findings related with the analysis and interpretation of the primary data which was collected through questionnaire:

- 45 per cent of the respondents are of the age group of 18-25.
- 37.5 per cent of the respondents are students. 32.5 per cent of the respondents are private employees.
- 42.5 per cent usually use the ATM frequently. 37.5 per cent of them don't use it frequently.
- The respondents prefer to travel less for ATM i.e around 2-5kms.
- 50 per cent of the respondents are of the opinion that uptown (cities) are better performing than downtown(rural) ATMs due to 'Proper Maintenance'.
- 92.5 per cent of the respondents visit the ATM for Cash Withdrawal.
- 77.5 per cent consider the 'availability of cash' as most important feature of ATMs.
- 72.5 per cent of respondents have faced the difficulty of 'Non availability of cash' as a major issue. Also 62.5 per cent of them respondent that 'ATM machine not in working condition' as other issue faced.
- 65 per cent of the respondents are of the opinion 'Good' regarding the overall performance of ATMs.

3.9 Suggestions

Following are the suggestions gathered by conducting analysis and interpretation, which can be implemented in the ATM service network in order to make it more effective and helpful for the customers:

- It's advisable to regularly maintain the condition of ATM machines.
- The physical condition of ATM like doors, appointing the security personnel etc. must be done.
- The ATM must have enough cash availability and regular checkup must be done.
- The number of transactions per debit card must be increased and fee charged must be reduced.
- There must be enough cash availability during holidays and first one week of every month.
- Proper security measures must be taken in order to reduce ATM theft and crimes.
- New and upcoming trends in technology like Cardless ATM transaction like 'Yono Cash' in SBI must be promoted.
- Better quality of currency must be put into the ATMs.

4. Conclusion

The aim of this study is to propose an integrated decision support system for ATM management which will aid management team in banking services. As mentioned earlier, there is a scarcity of studies and researches about ATM management. We intend to have two stage solution procedures; first stage is site selection and the second stage is cash management as these two problems are linked together. We believe that cash management policy should be established pre-emptively according to the ATMs location.

This project report focused on the relation between location of ATMs and its performance. The study reveals the need for the growing need of ATM networks especially in downtown (rural) areas, hard geographical terrain etc in order to facilitate the easy and convenient use by the customers.

5. References

1. Solomon, M.R. Surprenant, C., Czepiel, J.A. and Gutman, E.G. (1985), "A Role Theory Perspective on Dyadic Interactions: The Service Encounter", *Journal of Marketing*, Vol. 49, Winter, pp. 99-111.
2. Swan, J.E. and Martin, W.S. (1980), "Testing Comparison Level and Predictive Expectations Models of Satisfaction", *Advances in Consumer Research Proceedings*, Vol. 8, Eleventh Annual Conference, October, pp. 77-81.
3. Thomas, M.J. (1988), "Getting Closer to the Customer", *Marketing Intelligence and Planning*, Vol. 6 No. 1, pp. 28-31.
4. Tse, D.S. and Wilton, P.C. (1988), "Models of Consumer Satisfaction Formation: An Extension" , *Journal of Marketing Research*, Vol. 25, May, pp. 204-12.
5. M. A. Kassem, N. E. Mekky, and R. M. EL-Awady, "An Enhanced ATM Security System Using Multimodal Biometric Strategy," *International Journal of Electrical & Computer Sciences*, vol. 14, no. 04, 2014.
6. S. Phadke, "The Importance of a Biometric Authentication System," *The SIJ Transactions on Computer Science Engineering & its Applications (CSEA)*, vol. 01, no. 04, pp. 18-22, Oct. 2013
7. Saleem, Z. and Rashid, K. (2011), "Relationship between customer satisfaction and mobile banking adoption in Pakistan", *International Journal of Trade, Economics and Finance*, Vol. 2 No. 6, pp. 537-544.
8. Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988), "SERVQUAL: a multiple item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, Vol. 64 No. 5, pp. 21-40.
9. Parasuraman, A., Zeithaml, V.A. and Malholtra, A. (2005), "E-S-QUAL: a multiple-item scale for assessing electronic service quality", *Journal of Service Research*, Vol. 7 No. 3, pp. 213-235.
10. Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. and Pahlila, S. (2004), "Consumer acceptance of online banking: an extension of the technology acceptance model", *Internet Research*, Vol. 14 No. 3, pp. 224-235.
11. Proenca, J.F. and Rodrigues, M.A. (2011), "A comparison of users and non-users of banking self-service technology in Portugal", *Managing Service Quality*, Vol. 21 No. 2, pp. 192-210.

12. Rod, M., Ashill, N., Shao, J. and Carruthers, J. (2009), "An examination of the relationship between service quality dimensions, overall internet banking service quality and customer satisfaction: a New Zealand study", *Marketing Intelligence & Planning*, Vol. 27 No. 1, pp. 103-126.
13. Wong, A. and Zhou, L. (2006), "Determinants and outcomes of relationship quality: a conceptual model and empirical investigation", *Journal of International Consumer Marketing*, Vol. 18 No. 3, pp. 81-96.
14. Wu, J.-H. and Wang, M.-Y. (2007), "Measuring erp success: the key-users' viewpoint of the erp to produce a viable is in the organization", *Computers in Human Behavior*, Vol. 23 No. 3, pp. 1582-1596.
15. Zeithaml, V.A., Parasuraman, A. and Malhotra, A. (2002), "Service quality delivery through websites: a critical review of extant knowledge", *Journal of the Academy of Marketing Science*, Vol. 30 No. 4, pp. 362-375.
16. Zhao, X., Mattila, A.S. and Tao, L.-S.E. (2008), "The role of post-training self-efficacy in customers' use of self- service technologies", *International Journal of Service Industry Management*, Vol. 19 No. 4, pp. 492-505
17. Agnihotri, S., Sivasubramaniam, N. and Simmons, D. (2002), "Leveraging technology to improve field service", *International Journal of Service Industry Management*, Vol. 13 No. 1, pp. 47-68.
18. Al-Eisa, A.S. and Alhemoud, A.M. (2009), "Using a multiple attribute approach for measuring customer satisfaction with retail banking", *International Journal of Bank Marketing*, Vol. 27 No. 4, pp. 294-314.
19. Al-Hawari, M. and Ward, T. (2006), "The effects of automated service quality on Australian banks' service performance and the mediating role of customer satisfaction", *Marketing Intelligence and Planning*, Vol. 24 No. 2, pp. 127-147.
20. Al-Hawari, M., Hartley, N. and Ward, T. (2005), "Measuring bank's automated service quality: a confirmatory factor analysis approach", *Marketing Bulletin*, Vol. 16 No. 1, pp. 1-19.