From Manual to Mechanical: Do ATMs Convey Convenience? An Insight into How Automated Teller Service Fares

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Abstract

The use of ATM is increasing rapidly in the country. This article is the outcome of an attempt to trace how ATM service plays out in Bangladesh. Based on a primary survey, the study shows that customers generally are satisfied with the automated teller service. The most serious problem coming up in the survey is network unavailability, trailed by operation failure and card stuck problem; other problems are minor. Customers are dissatisfied regarding security at booth surrounding and inadequate number of terminals around the locality—amounting to little less than nuisance to them. It is heartening that the nuisances are sporadic and not the usual order of the industry. These issues warrant immediate resolution to have delighted customers.

Keywords

ATM, customer satisfaction, problems

First Things First

An Automated Teller Machine (ATM) is an electronic means of dispensing cash. Unlike credit and debit cards and many other modes of payment making as wire transfers, Automated Clearing House (ACH) and Electronic Bill Presentment and Payment (EBPP), ATMs do not represent a payments type per se; rather they offer a convenient alternative to more traditional dispensers, such as bank tellers, automobile drive-through facilities and supermarket checkout lines (Weiner 1999).

The development of ATM services, claims Norman Penny, can be attributed to three factors. First, financial institutions initiated to improve their competitive positions by attracting customer accounts and increase their revenues by increasing loans, creating higher balances and enhancing their financial services packages. Second, ATMs were designed to perform many of the same tasks like a human teller at a lower cost. Finally, some financial institutions made ATM decisions based on marketing considerations. Before building a new branch, for instance, one financial institution used its ATM to test whether the location would support a branch office (Pidgeon 2000 in Islam et al 2005).

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A financial innovation is something new that reduces costs, minimises risks or provides an improved product/service/instrument that better satisfies financial system participants demands. Financial innovation can be grouped as new products (eg subprime mortgages) or services (eg Internet banking); new production processes (eg credit scoring); or new organizational forms (eg Internet-only banks) (Frame and White 2009). Recent service innovations primarily relate to enhanced account access and new methods of payment—each of which better meets consumer demands for convenience and ease. Automated teller machines (ATMs) which were introduced in the early 1970s and diffused rapidly through the 1980s, significantly enhanced retail bank account access and value by providing customers with around-the-clock access to funds.

Jewell (2001) describes that technological change is the most potent source of change in the environment of business organizations. It can be seen as the process of 'creative destruction' in which new products, processes and therefore working practices replace old ones.

A distinction is made between the mass automation regime and the smart automation regime. Mass automation dealt with mechanization of back office procedures in the 1960s and was a period of incremental innovation, whereas smart automation dealt with the diffusion of network technologies like ATM and was characterized by radical process innovations (Singh and et el 2002).

From the economic vantage point, one reason that typically factors into the adoption of any new technology is cost. It may require an investment in equipment and staff that merchants are unwilling to bear until they are convinced that customers will be interested. Customers, in turn, may not be interested until enough merchants are participating. Reaching this critical mass of users is a hurdle that any almost new mechanism has to overcome. A second factor may be uncertainty over security, standards and compatibility issues associated with new technologies (Weiner 1999).

Potential problems are likely to be associated with inadequate safeguards in the use of technology. Consolidation and increased nonbank ownership of fund transfer networks-especially networks for ATMs, debt cards and credit cards-may expose banks to new operational risks. It may involve outsourcing certain functions, including moving work offshore, involves political, business-continuity, and security risks. Inadequate IT staffing may make some banks vulnerable to attacks on the software they use, with customers exposed to inconvenience and weakens banks reputations and competitive positions (Hanc 2004). Sienkiewicz (2007) discusses the potential for prepaid cards to be used in money laundering schemes. The author notes instances with offshore card issuance and the ability to access cash at ATMs as being the most vulnerable to illicit activity (Frame and White 2009).

Banks began to look at e-banking as a means to replace some of their traditional branch functions for two reasons. Firstly, branches were very expensive to set up and maintain due to the large overheads associated with them. Secondly, e-banking products/services like ATM and electronic funds transfer were a source of differentiation for banks that utilized them. Being in a fiercely competitive industry, the ability of banks to differentiate themselves on the basis of price is limited (Singh and et el 2002).

There are huge potential cost savings if the banks manage to carry out a higher percentage of their transactions over the Internet and other channels such as ATM (Raihan 1998 in Islam et el 2005). It costs a bank about $1 to deliver a manual transaction at a branch; by contrast, an ATM transaction costs 25 cents and an on-line transaction costs a whopping 1 cent (Dixon and Nixon 2000).

Clearing and settling of a cheque is an expensive process, estimated to cost two to three times more than an electronic payment (Hancock and Humphrey 1997). In recognition of this, clearing house associations, the Fed and the banking industry in general have been striving in recent years to electronify various aspects of the cheque collection process (Weiner 1999). Bauer and Hancock (1995) found that over the 1979-1994 period the cost of processing an ACH item fell dramatically owing to scale economies, technological change and lower input prices.

As bank products and services become commoditized, financial institutions can solidify customer relationships by reducing "customers' interaction costs. In other words, the ubiquity of bank branches, ATMs, and electronic banking products and services reduces the costs customers bear to interact with their financial institutions (Robbins 2006).

Research points out that ATMs have two fold advantages. Firstly the customers can walk into the ATM centers at any time to carry on their transactions such as withdrawing money, depositing money, collect a statement of account, place a check book requisition etc. Secondly the number of customers visiting the bank will reduce by an estimated 80% which will in turn result in huge saving in the employee-related costs for the bank. The cost incurred in servicing a customer through the ATM is 1/3rd of the cost incurred if the same customer were to be served personally through the branches of the bank. Reduced use of checks and increased use of electronic payments are likely to exert downward pressure on costs of the banking system as a whole (Hanc 2004, Mcandrews 2003).

In Bangladesh, most of the commercial banks have developed their Core Banking Solutions to facilitate better service. Out of 56 scheduled banks, 52 banks provide full or partial online banking services. Plastic cards (debit/credit cards) are becoming more popular and banks are offering these to attract new customers and retain their customer base. The statistic from the Bangladesh Bank demonstrates an increasing trend in the adoption of electronic banking features during CY11-CY13. Although the number of banks introducing credit cards during CY12-CY13 became stagnant, there was a significant increase in online banking operations in CY13. Moreover, 460 new ATM machines were

set up during CY13 (Bangladesh Bank). According to ATM & Debit News (2007) there were approximately 26.5b debit transactions in the US during 2006. This is up from 6.5b transactions in 1999—a four-fold increase.

The pace of ATM increase in the country has far outpaced that of bank increase. A statistics shows that in 2009 there were 48 banks and 8 ATMs per thousand kilometers in Bangladesh. But the number has increased to 59 banks and 35.5 ATMs per thousand kilometers in 2013 (Dr Atiur Rahman, Prothom Alo, December, 2014).

During early years of e-banking innovations, bank location was a key factor for most households in choosing a bank. In 1995 when opening a checking account, the most important factor for most Americans was a bank's location. Among 31 possible factors, almost one-half of U.S households said location was most important. Number of services and low fees or minimum balance requirements, all other reasons paled in comparison.

Despite increasing use of e-banking technologies, the majority of U.S. households still consider bank location the most important factor in choosing their primary financial institution. In addition, the number of bank branches has increased considerably in recent years. The nature of what bank location means to consumers may have changed as a result of innovations in service delivery. For example, instead of expanding their reach by building brick-and-mortar branches, banks can provide convenient access to bank services by deploying ATMs (Robbins 2006).

Notwithstanding widespread use of some e-banking products, these technologies, argues Robbins (2006), may not be a perfect substitute for personal interaction. Many customers still visit their bank frequently and therefore value convenient bank locations. While many of these customers are conducting financial transactions that could be completed online, even online banking customers come into the bank on a regular basis. A survey in 2006 showed that 30 percent of all respondents were inside a bank at least once or twice a week and an additional 44 percent said they visited their bank several times a month or at least once per month.

Electronic banking may not be a substitute for bank offices because, although many financial transactions can be conducted via online banking, a large population still chooses not to use newer e-banking technologies. Online banking use by retail customers varied widely, between 20 and 50 percent, while commercial customers seemed more likely to use online banking. A survey found that only 43 percent of Internet users also used online banking.

Another barrier to substitutability is the depth of consumer adoption. For example, among online banking customers, most use the service to monitor their accounts (95 percent), while only 56 percent also used it to pay bills. Thus, notes Robbins (2006), rather than acting as a substitute for services offered by bank branches, e-banking products are likely viewed by consumers as complementary to bank locations (Robbins 2006).

Bank branching also pays off for banks. Banks with more branches have "higher noninterest income, lower interest and noninterest expenses, and higher returns on equity." Some may argue that these findings probably apply to large banks that have extensive branching networks. However, these findings were available to apply to both large banks as well as community banks with less than $1 billion in total assets. Therefore, even if e-banking innovations reduce customers' need to visit bank branches physically, banks may not want to rely on these innovations alone to provide convenient access to an expanding customer base (Seale 2004).

Dias and et el (2012) point out that the high degree of manual processing is costly and slow, and can lead to inconsistent results and a high error rate. By taking full advantage of IT-enabling operations, banks can often generate an improvement of more than 50 percent in productivity and customer service. Given the relatively strong growth banks experienced before the 2008 recession, most did not change their business processes. However, the banking systim requires much lower back-office costs; and with regulators and consumers pressuring banks for greater transparency, better credit and portfolio risk management and heavily expedited data processing for customer accounts, bank leaders are realizing they must take a different approach (Dias and et el 2012) and that undoubtedly toward more automation.

The adoption of e-banking products was more prevalent among consumers with certain demographic characteristics. It is positively correlated with household income and educational background and negatively correlated with age. Households with higher incomes and deeper educational backgrounds were more likely to use electronic banking products across the board (Robbins 2006). Stavins (2001) uses data from the 1998 Survey of Consumer Finances (SCF) and finds that debit usage is positively related to educational attainment, homeownership status, marital status, business ownership, and being a white collar worker; and is negatively related to age and net worth.

Shastri (2001) digged into the effects and challenges of new technology on banks. He found that technology has brought a sea change in the functioning of banks and use of ATMs has increased with the passage of time. DeYoung, Lang and Nolle (2007) report that Internet adoption improved US community bank profitability-primarily through deposit-related charges. In a related study, Hernando and Nieto (2007) find that online banking was associated with lower costs and higher profitability for a sample of Spanish banks. Both papers conclude that the Internet is a complement to rather than a substitute for- physical bank branches (Frame and White 2009).

In a study carried out in Pakistan, Khan (2010) explained the effect of ATM service quality on customers using five key ATM service quality factors: convenience, efficient operation, security, privacy, reliability and responsiveness. He found a strong positive relationship between ATM service quality and customers' satisfaction level.

Though various articles have been published in various journals in Bangladesh regarding e-banking, computerization, innovation in banking sector etc, no separate study has been undertaken regarding customer satisfaction of ATM service.[1] Moreover, banks that are issuing ATM cards provide brochure in order to make the users understand what the ATM is, how to use the service, the cost of service etc, but they rarely have information regarding the level of customer satisfaction with respect to various aspects of ATM use (Islam and et al 2005).

In a study on satisfaction of debit card users across some private commercial banks, Parvin and Hossain (2010) identified that card users are satisfied on average: most satisfied with availability of taka in the booth, and least satisfied with network service. The study marks off that by improving network service, providing receipt after transactions and solving of problems promptly, banks can make the debit card users fully satisfied. A good deal of factors are considered to calibrate the customer satisfaction including availability of ATM booth, service quality, denomination variety, availability of transaction receipt and availability of money.

Islam and et el (2005) evoked customer satisfaction of ATM service as a case study of HSBC ATM. The study pins down that location, personnel response, quality of currency notes, promptness of card delivery and performance of ATM are positively related to the satisfaction of the customer. However, admittedly by authors, projecting the data used in the study beyond the sample is statistically inappropriate.

Another study by Shamsuddoha and et el (2008) reveals that main services consumed by ATM users are cash withdrawal, balance inquiry, cash deposit, fund transfer and cheque book requisition. Factors underpinning customer satisfaction are 24 hours service, accuracy, and convenient location; however, lack of privacy and safety, and complexity of machine draw flak from customers.[2]

Against this milieu it is worth undertaking an evocation of customer satisfaction with the automated teller service. The major objective of this endeavor is to measure level of customer satisfaction with different aspects of automated teller service. It also has peripheral goals: delineate the problems, if any, faced by ATM users, recommend on the basis of findings.

Limitation

The scope of the study was limited to Sylhet metropolitan area, which puts an undertow to the robustness of findings. Though service of ATMs is not supposed to be much variant across the country, generalization of the study findings for the whole country may prove to be over the board and warrants a bit of caution on the part of the interpreter.

1 Not at least to the level of coverage and rigor ensured in this study.

2 The opinion survey was carried out on 160 respondents across 10 multinational and domestic private commercial banks.

Methodology

The study promises to invoke insight into satisfaction of ATM users. It makes an excursion into how automated teller services played out in Bangladesh. The population of the study comprises all ATM users. The study is carried out in Sylhet metropolitan area over 7 consecutive days. 51 card users participated in the opinion survey, and this article is the outcome of that survey. Card users are chosen in a convenience method.

The initial survey revealed that on some accounts customer satisfaction varies dramatically from one bank to another, and users of some ATMs face more problems than other ATM users. Moreover, the number of ATMs installed varies considerably from bank to bank—the figure going from as few as 1 for several banks to as high as 17 in the same metropolitan area.

Table-1 : contains the number topsy-turvy of ATMs across banks.

Banks	Total ATMs	Percent	Users	Percent
UCBL	7	10%	5	10%
Brac	7	10%	5	10%
City	5	7%	4	8%
Mercantile	5	7%	4	8%
DBBL	17	24%	12	24%
AB	8	11%	5	10%
IBBL	5	7%	4	8%
Prime	5	7%	4	8%
Trust	1	1%	1	2%
Pubali	11	15%	7	14%
Total	71	100%	51	100%

Taking the number of ATMs a bank has as indicative of the market share of the bank, the same proportion is kept in the sample of users surveyed so that the sample reflects the population (Table 1).

The survey is conducted at ATM terminals. Whenever a user came at the booth, s/he is approached with a questionnaire and asked to fill it up. No prior contact was made with the respondent; neither the participant was provided any incentive for partaking in the survey—it was solely on voluntary basis.

A structured questionnaire is used for the purpose. It consisted of multiple choice questions, dichotomous questions and multiple response questions. Different aspects of ATM use are put on satisfaction yard stick, such as speed and accuracy, withdrawal limit and number of transactions limit; satisfaction regarding privacy and security of the booth, location and number of ATMs, available services and charges, wait time etc is corralled in the survey.

For the purpose of satisfaction calibration, a five point Likert scale is used, where 5 indicated strong satisfaction and 1, at the other end of the continuum, indicated strong dissatisfaction; 2, 3, 4 indicated levels in between. To mark off the problems faced by customers in ATM use multiple response questions is used. Care has been taken to make the problem list comprehensive. Problems surfaced in the survey are power outage, network failure, card stuck, unavailability of desired denominations, computer crime, torn or fake notes etc.

General knowledge is that customers usually do not tend to report a problem since they presume that such reporting does not do any good. To understand what percent of problem goes unreported and if the reporting customer is satisfied with the way the report is handled by the bank, is also elicited in the survey. Such demographics of participants as age, sex, occupation and educational qualification are also corralled to factorize those in customer satisfaction. Length of ATM card usage, possession of multiple cards, and the frequency of card use also came up in the survey.

Two things put an undertow to the sample size forcing it to be restricted to 51. First is locking the proportion of card users in the sample to the same proportion of ATMs a particular bank has in the locality. It was that several users of one ATM may be available for interview but the number of ATMs of that bank in the population required fewer than that to be interviewed. On the other hand, chance was also that there are several of ATMs of a particular bank but enough number of users cannot be found to take interview. Moreover, tempus fugit was there to bedevil from behind. Last, but in no way the least, is the outrageous reluctance on card users' part to spare their valuable time to partake the survey.

SPSS 16.0 is used to analyze data. One sample t Test and Kruskal Wallis test are used in analysis.

Result and Discussion

1 Respondents Profile

Mainly males are card users predominantly within the age range 20-30 years

Table-2 : Age * Sex Crosstabulation

Count				
		Sex		
		male	female	Total
Age	below 20 years	2	0	2
	20-30 years	36	2	38
	31-40 years	5	3	8
	above 40 years	2	1	3
Total :		45	6	51

Most card users do jobs at service organizations and half of the users have educational qualification below graduate level (Fig 1 & 2).

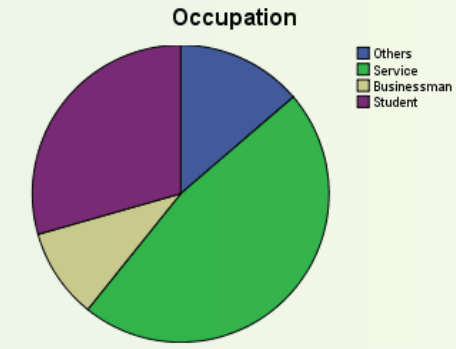

Figure 1

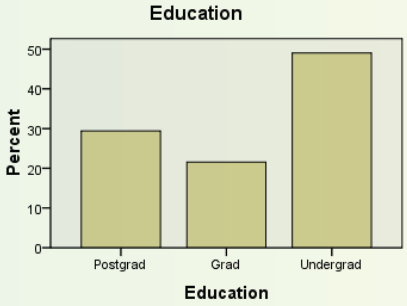

Figure 2

Length of being ATM card user has no effect on the possession of multiple cards by the user as can be seen in Table 3. Customers on an average use the card five times per month

Table-3 :

Time of ATM use * Multiple card Crosstabulation				
Count				
		Multiple card		
		No	yes	Total
Time of ATM use	less than 1 year	3	1	4
	1-3 years	26	9	35
	4-5 years	5	4	9
	more than 5 years	1	2	3
Total		35	16	51

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.046[a]	3	.385
Likelihood Ratio	2.863	3	.413
Linear-by-Linear Association	2.535	1	.111
No. of Valid Cases	51		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .94.

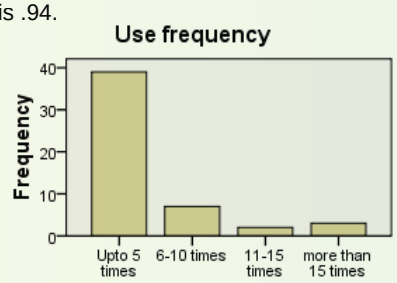

Figure : 3

2. Users Satisfaction

Table-4 : Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Speed of ATM	51	2	5	4.33	.589
Accuracy of ATM	51	2	5	4.18	.684
Transaction number	51	2	5	3.80	.775
Withdrawal limit	51	2	5	3.37	1.076
Privacy of booth	51	2	5	3.88	.791
Security of booth	50	2	5	3.18	1.137
Location of ATM	51	2	5	3.69	.905
Number of ATMs	50	2	5	2.84	1.037
Service charge	51	1	5	3.45	1.189
Services available	50	1	5	3.60	1.030
Ease of operation	51	3	5	4.41	.536
Availability of money	51	2	5	3.57	1.025
Waiting time	51	1	5	3.90	.900
Valid N (listwise)	48				

One Sample t Test divides ATM factors into those customers feel satisfied with and those they are not with (Table 5). The test is run with the test value setting at 3.5. The assumption here is that if the mean value is above 3.5 for a factor, customers are satisfied with it. On the other hand, if the mean value is smaller than 3.5, it indicates customers' dissatisfaction with the variable. To see if satisfaction means vary across banks the nonparametric Kruskal Wallis test is run (Table 6).

Table-5 :

One-Sample Test

	Test Value = 3.5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Speed of ATM	10.108	50	.000	.833	.67	1.00
Accuracy of ATM	7.060	50	.000	.676	.48	.87
Transaction number	2.800	50	.007	.304	.09	.52
Withdrawal limit	-.846	50	.402	-.127	-.43	.18
Privacy of booth	3.451	50	.001	.382	.16	.60
Security of booth	**-1.990**	**49**	**.052**	**-.320**	**-.64**	**.00**
Location of ATM	1.469	50	.148	.186	-.07	.44
Number of ATMs	**-4.499**	**49**	**.000**	**-.660**	**-.95**	**-.37**
Service charge	-.295	50	.770	-.049	-.38	.29
Services available	.686	49	.496	.100	-.19	.39
Ease of operation	12.153	50	.000	.912	.76	1.06
Availability of money	.478	50	.635	.069	-.22	.36
Waiting time	3.189	50	.002	.402	.15	.66

Test Statistics[a,b]

	Chi-Square	df	Asymp. Sig.
Speed of ATM	6.218	9	.718
Accuracy of ATM	12.328	9	.195
Transaction number	7.482	9	.587
Withdrawal limit	6.672	9	.671
Privacy of booth	4.180	9	.899
Security of booth	**17.252**	**9**	**.045**
Location of ATM	11.177	9	.264
Number of ATMs	**18.209**	**9**	**.033**
Service charge	18.938	9	.026
Services available	8.348	9	.500
Ease of operation	7.505	9	.585
Availability of money	3.595	9	.936
Waiting time	10.830	9	.288

a. Kruskal Wallis Test

b. Grouping Variable: Bank

The t-Test demonstrates that customers are satisfied with the speed, accuracy and privacy of the ATM. They find the number of transactions per day satisfactory. They feel the operation of the terminal easy and user friendly and the wait time to execute their transaction reasonable; ATMs provide a wide range of services, are located at convenient place and do not run out of money when they should not.

At 10% level of significance, however, customers are less than satisfied with the security of the ATM booth and the number of ATMs in one locality; users feel insecure at the terminal, and find the number of ATM booths inadequate. These two problems, nonetheless, are exception for one or two ATMs and in no way the general trend; the Kruskal Wallis Test shows that at 5% level of significance the condition of security at booths and the number of ATMs are not same across banks. On the other hand, though customers seem to be less comfortable with the withdrawal limit per transaction and surcharge for ATM use, but they are not statistically significant (Table 5).

3. Problems and Feedback

What beset customers most concerning the use of ATM is the faulty and disruptive network; operation failure and having the card stuck in the machine trails in short order (Figure 4). Other problems faced by customers fade away against those.

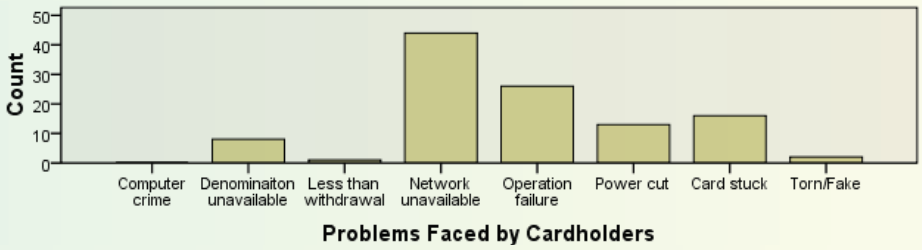

Figure 4

The corresponding Pareto chart shows addressing network and operation failure problems will solve 80 percent of the total problem (Figure 5).

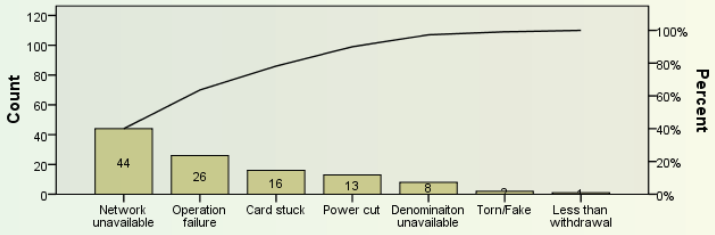

Figure 5

51 out of 51 participants in the survey faced one or several of the problems; however, only 37% reported it to the management. Most customers who reported the problem (70 percent), nonetheless, are satisfied with the way banks handle the problem (Figure 6). Thus the problem handling procedure of banks is also satisfactory.

Figure 6

Recommendation

- Customers feel insecure at the booth. The lighting of the terminal should be increased, and installing surveillance system should add to the security condition. Consoles can be made well-partitioned prohibitive to protruding eyes. Customers in one way or the other must defray the cost of beefed-up security.
- Many customers report inadequacy of number of ATM terminals in an area. Piggybacking on other operators can solve the issue at not more than little expense. Increasing the number of ATMs might be another option—though expensive. Customers, however, would not mind shouldering that cost for smooth access.
- Technical nuisances like disruptive network, failure of operation and getting the card stuck inside the ATM slot are minor but potent enough to renege on customers once the problems become unremitting. Therefore, they should not avoid the eye of the firms.
- Far more than half of the population who faced one or more problems during their use of the ATM did not even bring it to the notice of bank management; only 37% reported! Might be customers find the procedure byzantine or become dis-incentivized to tread the labyrinth. Therefore banks should encourage customers to report, and find out if customers face any difficulty in reporting.

Conclusion

Overall, ATM users are satisfied with the automated teller service. Though customers have ire with security adequacy at the terminal and qualms with the number of ATM booths nearby, comfort is even these nuisances are the exception, not the rule of the service! All in all, customers expressed their satisfaction. Unavailability of network though put infringement, trailed by operation failure and card stuck, customers are satisfied even with the sincerity and earnestness banks resolve the problem once the customer brings it to their notice. What to rub in is complacence, nevertheless, cannot get the better of the bank management. Banks should struggle to solve the customer grievances.

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