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ISSUES AND CHALLENGES OF E-CASH PAYMENT SYSTEM IN INDIA

[1]SALAUDDEEN SHAIK, [2]MANNEM SAMANTH KUMAR, [3]B.G.VENKATA PHANI MADHAV

[1] Assistant Professor, [2] Assistant Professor, [3] Assistant Professor
[1]Department of Management,
[1]ZENEX DEGREE COLLEGE, SPSR NELLORE, INDIA

***Abstract*:** During the decade of 1990's, the developing notoriety of electronic banking utilized non-cash or credit only dealings and repayments normal among the occupants of probably the most mechanically progressed countries of the world. Computerized instalment techniques turned out to be deep rooted in nations across the world by the 2010's. There is an increment movement in innovative work directed to further develop current instalment framework in lined up with the advancement of Internet. New system and advancement should be made to usher online business to the middle stage. One such advancement is the E-cash. The presentation of E-money will carry large changes to how organizations being directed. E-money will supplant the regular strategy for doing exchange, cash become immaterial thing and it traversed the world in more generally open organization that could presented it to all kind of dangers. In this manner, the comprehension of the idea, execution issues and properties of E-cash become imperative before full approval and execution of the innovation can happen. Credit only economy centres around the decrease of quantum of money working in the framework. It likewise moves the economy to computerized economy. Because of demonetization, the quantity of computerized exchanges expanded from 87 crores in August 2016 to 138 crores in August 2017 an increment of 58%. Computerized stages like PAYTM confronted a twofold upsurge. This paper begins by taking a gander at the instalment framework verifiable foundation, follows by conversation on E-cash general idea. At last, this paper will close on the issues and difficulties in regards to e-cash.

Keywords: Cashless economy, e-cash, Digital Payments

I. EVOLUTION (JOURNEY FROM BARTER SYSTEM TO E-CASH)

The oldest known trading system is barter system where goods were being exchange for the desired goods. The problem with this system was the lacking of standardization on the quantity and goods to be exchange. For example, if one has a cow and wants to trade for rice, how much rice should one received in equivalent to a cow, and if the rice's owner does not want a cow, how the trading should proceed? In solving the problem, coins and paper notes were introduced.

The coins and paper currency have a certain market value attached with them to enable handlers to exchange for any desire goods and services. Using this system, the problem that one has to face was, to carry the coins and paper notes around and must has enough value in the pocket for every trading or transaction to complete.

As evolutions, the next in line is payment via checks. The checks are issued with bank contract as a trusted body to authenticate the legitimacy of the payers and the amount written on it. This scheme facilitate consumer to make transactions of large amount without carrying coins or paper notes along with, which reduced the risk of consumer robbery. But using this method, merchants are exposed to invalid checks where there is no money or account exists in the bank. Soon after the checks, automatic teller machine (ATM) cards came as new development to improve payment system and become the first to allow transaction via electronic. After the success of ATM cards, credit cards were added as a new invention to payment scheme.

The new method requires consumers to loan money from card issuers on every transaction. On each transaction, the issuers will make the payment on behalf of the consumers, the consumer then pay back the amount to the card issuers within the given period or risk being charge with interest. For both ATM and credit cards, anyone who manages to obtain the card, illegally, will be able to utilize it because there is no authentication needed upon the payment except for the signature, which also can be forged.

II. INTRODUCTION TO E-CASH

Since the explosion of the Internet, most of people are being used to the convenience Internet has to offer. Internet has linked people across the world and enables businesses to make their goods and services available across the world without being physically present in front of the consumers. As time passes, Internet has become a part of the routine, which stresses more and more applications being developed and services being made available to make optimum use of the infrastructure. Along with the online business transaction, E-cash is one of the facilities that attract people's attention for doing business transaction electronically. It is a replacement for traditional payment system, which is not practicable for e-commerce.

Although E-cash can obtain secrecy in its implementation, it can also be implemented as traceable for high security reason. E-cash can be implemented in two ways, i.e., on-line and off-line. In on-line method E-cash is stored by the bank or issuer and the consumer needs to request for it when a he or she makes payment. In contrast of online, off-line e-cash is kept by consumer in a device such as smart card or other type of token.

III. DEFINITIONS OF ELECTRONIC MONEY

In understanding the evolution of electronic money, it is useful first to define electronic money and then to examine some of the specific characteristics of e-money in general and e-cash in particular. Fullenkamp and Nsouli argue that one of the 'puzzles' surrounding the evolution of electronic money has emerged because of confusions over terminology and definitions. This point is recognised by the Basel Committee of the Bank for International Settlements (BIS): electronic money is difficult to define because it blends particular technological and economic characteristics. In addition, different e-money schemes will vary according to their technical implementation, the institutional arrangements required to support them, the way in which value is transferred, the recording of transactions and the currency of denomination. This means that several definitions of electronic money have evolved over time.

In broad terms, electronic money can be defined as monetary value stored on an electronic device issued on receipt of funds or accepted as a means of payments. This mirrors the official definitions published by ECB and BIS in focussing on the stored value aspect of electronic money. The ECB following the first official definition issued by the European Monetary Institute, define electronic money in the following terms:

'Electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transactions, but acting as a prepaid bearer instrument.'

Again, the focus in this definition is on the pre-paid aspect of electronic money. The Basel Committee (1998) further divides types of electronic money into the categories of electronic purses (hardware or card based) and digital cash (software, network based). But whether these instruments are 'balance-based' (i.e. account based) or 'token-based' (i.e. involving the expenditure of electronic tokens), the essential characteristic is their pre-paid nature. For this reason, credit cards and debit cards are regarded as access products or electronic payment systems, rather than as electronic money.

IV. OBJECTIVES OF STUDY

I. To study the role of cash in Indian economy.

II. To find out the ways to overcome hurdles in the implementation of a cashless system.

III. To study the impacts of Implementation of e-Cash.

V. METHODOLOGY

The study is descriptive in nature and secondary sources of information like newspapers, internet, and books are used to draw conclusions.

VI. E-CASH WORKING PROCEDURE

There are number of E-cash system being introduced and developed but the basic idea of E-cash is as follow. It involves at least three parties, issuer not necessarily financial institutions, consumers who use the E-cash and merchant who accept E-cash in exchange with goods or services provided by him.

Consumer needs to open an account with a bank and the merchant who wants to participate in E-cash transaction need to have accounts with numerous banks in order to support consumer's transaction who might use any bank account. The banks will handle both consumers' and merchants' accounts. When consumer wants to purchase goods or avail service, he or she will transfer the E-cash from his/her bank account to his/her electronic wallet (on-line system) or E-cash token (off-line system). The E-cash can then be transferred to the merchant in exchange with the goods or services provided by merchant. Hence E-cash payment can be in term of softcopy or token based. Transactions via Internet are normally encoded. After receiving E-cash payment from the consumer, merchant will get confirmation from the bank and the bank will then authenticate the E-cash transaction. Simultaneously the bank will debit consumer's account based on the agreed amount. The merchant will then deliver the products or services and ask the bank to deposit the agreed amount to the merchant's bank account. It is clearer from the figure below

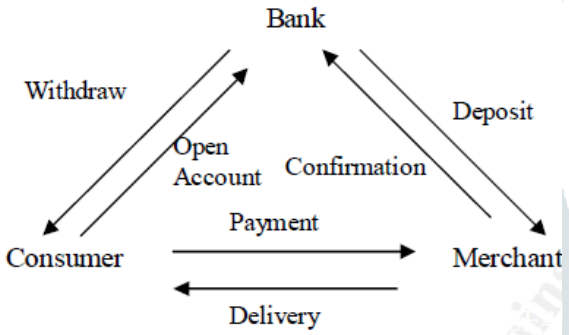

Fig.1 e- Cash Working Procedure

VII. PROPERTIES OF E- CASH

1) ***Security*:** One of the main properties surrounding eCash is security. When the determined amount is being transferred between consumers, merchants, and banks the prevention of any unauthorized individuals like hackers intercepting, or even changing, the content of the messages, such as the dollar amount, should be addressed. This is commonly addressed through encryption and special serial numbers that give the bank the power to verify the authenticity of the transaction. Besides online security, physical security should be taken into account. For example, if a hard drive crashes or a smart card is stolen, the eCash could also be lost. Thanks to advances in technology, e-Cash can be stored on secure cloud databases so that it can be easily recovered.
2) ***Privacy*:** Privacy, in regards to eCash, is the anonymity of the consumers who have made the payment. As with coins and paper notes, the payee should not be able to be linked or be traced during transactions. Privacy is important because consumers' privacy should be protected from being monitored by financial surveillance. Anonymity, however, does present a number of concerns like counterfeiting, money laundering, and blackmailing in extreme circumstances. Keep in mind that the more anonymity that is offered the less security there will be.
3) ***Portability*:** One of the benefits of electronic cash is that it's portable. It can be taken with you no matter where you are in the world. In fact, the portability of eCash could replace traditional wallets since it can be stored on your smartphone on in the cloud.

4) ***Transferability:*** Another advantage of eCash is that it can be transferred from the payee to the payer without being referred to a bank. The ability to transfer between parties should be easy and convenient, just as with traditional paper and coins. Parties should also be able to exchange funds electronically to each other no matter where they are in the world.

5) ***Divisibility:*** When discussing divisibility, eCash denominations should be able to be divided into small amounts. This makes smaller transactions possible between parties. Arguably on the main challenges for divisible systems having the ability to divide the value into smaller amounts that will eventually be equal to the original value.

Previously, divisibility systems were solved by Eng, and Okamoto's scheme, Okamoto's scheme and Okamoto and Ohta's scheme. More recently, International Association for Cryptologic Research shared a system by Patrick Märtens that is based on bounded accumulators and "a new technique to prove that several revealed values are inside an accumulator."

As a whole, e-Cash payments do not just have to contain the features listed above. To truly replace traditional money transfers, electronic payments have to be more convenient, easier-to-use, and ubiquitous. That means that e-Cash networks must work with each other.

VIII. ADVANTAGES OF E-CASH

1) Lesser pick pocketing because there's no tangible money to steal.
2) Effective with handling, storing, and depositing paper money.
3) Less money laundering because there's always a digital paper trail
4) Easier currency exchange while traveling internationally.
5) Cash Management Costs Money like deposits, lockers and so on.

IX. DISADVANTAGES OF E- CASH

1) Chances of leaking personal information to a possible data breach.
2) Not everyone has a bank account to enjoy cashless money.
3) During data breach if all your money is taken away by fraud then you will have no money to rely on.
4) Universal truth is that virtual money is harder to save than physical cash.
5) The temptation to overspend may increase.

X. ISSUES AND CHALLENGES REGARDING E CASH OR E PAYMENT SYSTEMS

1. ***Lack of Usability*:** Electronic payment system requires large amount of information from users or make transactions more complicated by using complex elaborated websites interfaces. For example, credit card payments through a website are not that easy as this system requires large amount of personal data and contact details in web form.
2. ***Lack of Security:*** Online payment systems for the internet are an easy target used by hackers for stealing money and personal information. The main problem of e-cash is that it is not commonly accepted because it is necessary that the commercial institution accept it as payment method. Another problem is that when we make payment by using e-cash, the client and the businessmen have accounts in the same bank which issue e-cash.
3. ***Lack of Trust:*** Electronic payments have a very huge record of fraud, misuse and low reliability as well as it is new system which don't have established positive reputation. Potential customers often remark this risk as the key reason why they do not make online purchases.
4. ***Lack of Awareness:*** Making online payment is not an easy task and educated people also face problems in making online payments. Therefore, they always prefer traditional way of shopping over online shopping. Sometimes there is a technical problem in server and when customers tried to make online payments due to this they fail to make payments. As a result, they avoid online purchases.
5. ***Lack of Feasibility:*** Online Payments are not Feasible. Mainly the population of rural areas is not digitally literate even they are not able to operate computers. As they are not aware about technological innovations, they do not show interest in online payments. So, the online payment systems are not feasible for rural areas.
6. ***Lack of Efficiency:*** The costs involved in exchanging e-cash are relatively high in comparison with the costs involved in exchanging conventional cash. The current technology used in security protocols involves relatively high transactions costs and is not economical for 'micro-payment' systems'. Innovations such as Net Card can support micro-payments by incorporating a

digital signature into a whole stick of coins that can then be spent individually (with a given merchant). This system allows a reduction in computational complexity for series of low value payments to given merchants but is not particularly helpful for customers who want to spend their coins at a number of different sites.

7. ***Lack of Acceptability****:* No existing e-cash is universally acceptable; most are not even widely acceptable. Existing e-cash systems are forms of 'inside' money (available to a select group of insiders) and this is particularly true for vendor-specific schemes. If an e-cash system is to be successfully adopted, it will have to attract a wide constituency, i.e. to become 'outside' money. It is because current e-cash schemes are not widely accepted that they must piggyback on the non-cash money supply i.e. bank deposits and credit accounts.
8. ***Lack of Anonymity:*** Anonymity is ensured. Conventional cash will be preferred by those involved with criminal activities as long as criminals and tax evaders believe that electronic transactions will always leave some trace. It can be argued that complete anonymity is not desirable from a social welfare point-of-view. In theory, a system of anonymity that is only revoked by some trusted authority when criminal activities take place would mean that criminal activity could be more effectively monitored and punished in a world of e-cash. But, in practice, the whole point is that criminals would not use a system that they believe allows effective monitoring and punishment. Even with such a system, until complete anonymity can be assured electronic cash cannot substitute completely for conventional cash for illicit transactions and there will always be a demand for conventional cash, whether or not agents admit their real reasons for holding it.

XI. CONCLUSION

Electronic payment alludes to the method of payment which does exclude paper money or Cheques. It incorporates Debit card, Credit Card, Smart card and E-wallet and so forth. Web based business has its principal connect with the utilization of online Payment techniques. The progress of electronic Payment framework lay to a great extent on the accessibility of a productive ICT foundation where solid organization network, strong equipment and high capability in ICT are accessible. The dangers in the web-based payment are robbery of payment information, individual information and cheats which have become principal purposes behind dismissal of online payments with respect to clients. Consequently, until the utilization of electronic marks is far and wide we should utilize the innovation accessible for the development to guarantee healthy degree of safety. The fruitful execution of electronic payment framework relies heavily on how the security and protection aspects saw by shoppers as well as dealers.

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