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Cash Management System and Suggestions for Policy Formulation for e-Cash Management System in Sri Lanka

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Abstract
The public sector in Sri Lanka moves transitionally, whilst a silent revolution has taken place in the world's entire payment system aiming to improve e-cash management system. Thus, the purpose of this study was to examine the effect of computerized cash transfer system on cash management, specifically the study is sought to determine the privacy and security of cash transferred, assess time saved as well as productivity achieved by implementing computerized cash transfer system, explore the strategies to be put in place to improve computerized cash transfer system towards e-cash management system and establish relationship in government cash management practices. It examined and analyzed the entire study area and tried to ascertain policy implications. Primary data was collected by interviews and observations. In addition, the secondary data obtained from the documents which are available on information of e-cash management systems were used. Interviews were conducted with top level managers in public spending agencies and mangers of state-owned commercial banks in Sri Lanka. The data were analyzed and policy implications were explained. The results indicated that e-cash management system has the need of strengthening the system security and privacy. It is observed that a significant relationship exists between e-cash management fund transfer system and cash management system. Further, it is revealed that e-cash management system has led to effective and efficient cash management even though it is being faced with challenges. It was observed that policy formulation has been attempted to bridge the gap between desired level of policy and existing level of policy of the government spending agencies. In addition, it is needed further strengthened and with direct involvement and political willingness.

Keywords: e-Government Policy, Policy Formulation, e-Cash Management, Public Sector

INTRODUCTION

The Information and Communication Technology Agency of Sri Lanka (2011) sates that one of the key elements of the government's strategy for digitalization of the economy is introducing and promoting digital infrastructure for government's work, ensuring multiple benefits not only to government organizations but also for the general public and other stakeholders. Indeed, it has increased reliability through proving accurate information tracked by using digitalization which saved money and reduced handling hard cash by means of electronic cash transfers. Thus, one can easily transfer cash from one bank account to another without exchange of physical cash. Furthermore, the system does not only reduce hard cash but also discontinues paper money and eliminates most crimes. Generally, cash is the most common form of payment. Specially, government through the spending agencies used to collect hard cash at strategic points before banking the same and withdrawing bulk cash to pay off its cash obligations as well as drawing chques for big payments. However, all these had the major disadvantages of being insecure, bulkiness to handle and costliness to produce. Although there are risks associated with handling hard cash and paper chques, but computerized cash transfer system can transfer cash from one bank account directly to another without paper money exchanging hands. As computerized cash transfer system is a cluster of technologies that offers execution of financial transaction by electronic message without the necessity of paper instrument of exchange.

Technological advances have made it possible to conduct financial transactions in a faster, safer, and more efficient manner, both by speeding traditional payment methods and by facilitating the introduction of new methods. In this context, technology innovation has played a central role in the evolution of the financial services industry over the past years.

Further, the World Bank (2010) states that advances in information processing and communications technologies, in particular, have fundamentally changed

the nature of financial services by influencing the manner in which these services are created, delivered, valued, received, and used.

National payment system is a silent revolution but it has not yet met the intended results as it was envisaged while many changes were occurring in the world's entire payment systems. In addition, the Central Bank of Sri Lanka (2015) insists that awareness of the numerous benefits of an efficient payment system is crucial in effective implementation of the monetary policy operations and financial stability in the country**.** Notably, the Central bank of SriLanka policy is envisioned to encourage the public to shift to the non-cash payment instruments through the use of computer applications and communication technology within the financial sector in Sri Lanka.

Digital Infrastructure in the Public Sector, Sri Lanka

The Ministry of Finance and Planning and the Ministry of Telecommunication and Digital Infrastructure play a key role in the endeavors while several policy and legal instruments are ready to serve this purpose. Among them are the government policy, electronic transactions Act No. 19 of 2006 and state finance circulars of Ministry of Finance, especially No's 447 of 2010-11-20,453 of 2011-12-09 and 02/2013 of 2013-01-31 that facilitate the mandate. Circular No 447 insists that application of electronic media for government payments. It empowers, the previous circular which is available and governing the public sector payments.

Further, circular No 453 was issued in 2011, in order to create an efficient money market through electronic fund transfer system. This system has focused onto a mechanism of electronic high value payments among Public Institutions. In 2013, government further introduced a system of bank pre-paid to improve the efficiency in the Public Institutions.

As the operation of Lanka Pay National payment Network (SLIPS), is governed by the Central bank of Sri Lanka and 47 percent share is directly held by the government and Lanka Pay (Pvt) Ltd(Central Bank, 2015). The Electronic Transactions Act (2006), bears a mandate to ensure financial activities inclusivity as well as assisting and improving the efficiency and effectiveness in the government's financial transactions through the government bank network.

In this context, Government of SriLanka is recently in accord with the Ministry of Finance and Planning, Central Bank and Lanka Pay (Pvt) Ltd. promotes the use of SLIPS or common electronic fund transfer of Central Bank and Lanka Pay via the respective Government banks (or even private banks) to make payments electronically, including payment of employee salaries (Central Bank, 2015). Electronic payment methods are frequently used for e-government policy to facilitate the acceptance of payment via online transactions. As per Electronic Transactions Act No. 19 of 2006 and state finance Circulars of Ministry of Finance, especially No 447,electronic payment systems can be classified by different criteria: A first classification could be made by the amount of money to be transferred (micro payment, and macro payment). A second classification criterion could be the status of unidentified and non- unidentified users; the latter provides payments for users that do not want to be identified. A third classification of e-Payment methods is made by the time of the payment. Other innovative solutions, such as: ATM, Mobile banking, online banking and Tele-banking have not still established themselves in the government spending agencies (Central bank, 2011).

There were systems that proposed ability to generate and exchange electronic pay cards. Payments self-governing of time and place made with the help of a mobile device are called m-Payments (Mobile Payments). In mobile procedures, network carriers and operators have to collaborate with established banks and financial institutions. In the public sector, there are a number of initiatives to provide e-Payments for the general public to secure electronic payments that are made to government spending agencies to pay for public services. Mobile telephone has achieved wide coverage and widespread use, not only gaining relevance in areas of the daily life of people but also in socio-economic activities of all actors in the economy. According to Central bank (2015), Agency for Telecommunication Regulatory commission in Sri Lanka, for mobile penetration exceeds 100 percent, with coverage of over 90 percent throughout its territory. In addition, in Sri Lanka, financial inclusion indicators have estimated that by 2016 at least 50 percent of the population is unbanked or has no alternative means of physical money payment (ICTA, 2016). The foregoing conditions of access to technology and the need for financial inclusion have generated the right conditions for the implementation of an e-cash management system in SriLanka.

As the Ministry of Finance and Planning and the Central Bank are responsible for the development of a public electronic payment method called e-cash management system, from time to time, various concepts are being introduced with their involvement. The main goal of this concepts are to provide a public payment service to support the general public with their transactions,

especially, for people with no access to the private banking system, in togive them the possibility to make transactions and to pay for services electronically via time and place self-governing channels. Transactions are made via unstructured data, which sends data through GSM mobile technologies, encompassing the full range of phones, allowing the general public to execute transactions without the need of Internet connection or smart-phones. Nevertheless, solutions for these types of devices are also provided. In this system, it enables people to use these mobile services, and users need to register in the system using their National identification card, which has to be linked to the mobile number. After the registration process, the user can start to cash in, cash out, receive, and pay for services or to make transactions with other users. Additionally, users are able to access their transaction histories.

Comparison with Other e-Payment Projects in the Private Sector in Sri Lanka

In this section, a non-exhaustive search of e-Payment methods is presented and compared with the e-cash management system that will be developed by the government of SriLanka. In 1988, e-Money System was introduced by a Sri Lanka–based leading mobile network operator in private banks. The principle of e-Money System is similar to that of electronic cash from the government of SriLanka, where the client must have a phone number and needs to register with e- Money System, a password is also provided by the carrier. Due to a special function of user's SIM card, the user is the owner of his account. If the account has cash in it, the client can transfer money to other accounts. According to Central Bank Report (2016), there exist 1000,000 agents with shops to cash in or cash out money. Likewise, in the electronic cash project from the government of SriLanka, the use of smart-phones or Internet access is not required to execute transactions. Despite the fact that both services are not free, but in comparison with traveling and using other providers to pay bills, e-Money System is less expensive.

Automated Teller Machine Service

An automated teller machine (ATM) is an electronic banking outlet, which allows customers to complete basic routine transactions without the aid of a branch representative or teller. Anyone with a routine credit card or debit card can access most ATMs.

Computerized machine that permits bank customers are to gain access to their accounts with a magnetically encoded plastic card and a code number. It enables the customers to perform several banking operations without the help of a teller, such as to withdraw cash, make deposits, pay bills, obtain bank statements and effect cash transfers. Also a device called automated Banking machine, automatic till machine, or remote service unit constitute an integral part of the device in usage. Advantages and Disadvantages of ATM Machines and Bank/Debit Cards are shown in Table 1.

Table 1: Advantages and Disadvantages of the Automated Teller Machine Service

Advantages	Disadvantages
▪ It can be withdrawn cash at any time, day or night. The banks don't need to be open.	▪ ATM may be off-line (system down).
▪ ATM card is protected by a PIN, keeping money safe.	▪ Risk of robbery when the customer leaves the ATM machine.
▪ Do not need to fill out withdrawal and deposit slips as required at the bank.	▪ The ATM can break down or run out of cash.
▪ ATMs are faster than going to the bank no long lines.	▪ Fees charged to use ATMs of other banks can become expensive.
▪ It allows to withdraw cash at ATMs foreign countries	

Source – Survey Data 2015

Online Banking

It is a system that allows individuals to perform banking activities at home, via the internet. Some online banks are traditional banks which also offer online banking, while others are online only and have no physical presence. In this system, online banking through traditional banks enable customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan and credit card applications. In addition, account information can be accessed anytime, day or night, and can be done from anywhere. Table 2 below shows the advantages and disadvantages of online accounts.

Table 2: Advantages and Disadvantages of the Online Banking

Advantages	Disadvantages
▪ Online account is simple to open and easy to operate	▪ Security While banks typically offer secure web pages to conduct their business transactions, this does not guarantee complete safety.
▪ It is quite convenient as user can easily pay their bills and can transfer funds between accounts,	▪ Site Disruption A technical glitch could cause website to go offline for a period of time, possibly resulting in problems for user and user's business.
▪ It is available all the time per week that has 24x7hours per week. Customers can perform their tasks from anywhere and at any time.	▪ Site Navigation If the customer is new to online banking, it may take some time to get used to it, taking valuable time out of their work days.
▪ It is fast and efficient. Funds get transferred from one account to the other very fast. Customers can also manage several accounts easily through internet banking.	▪ User Apprehension Some business owners may not feel comfortable with the idea of placing vital financial information into an online account, or may be apprehensive about using the Internet.
▪ Through Internet banking, customers can keep an eye on their transactions and account balance all the time. This facility also keeps the account safe. ▪ It also acts as a great facilitator medium for the banks to endorse their products and services. The services include loans, investment options, and many others	▪ Accessibility If the business is located in a rural or remote area, Internet options could be limited.

Source – Survey Data 2015

Tele-Banking

Tele-banking is a service provided by a bank or other financial institution that enables customers to perform a range of financial transactions over the telephone, without the need to visit a bank branch or automated teller machine. Further, Tele-banking times are usually longer than branch opening times, and some financial institutions offer the service on a 24-hour basis. Most financial institutions have restrictions on which accounts may be accessed through telephone banking, as well as a limit on the amount that can be transacted.The types of financial transactions which a customer may transact through telephone banking include obtaining account balances and list of latest transactions, electronic bill payments, and fund transfers between a customer's or another's accounts. Advantages and disadvantages of Tele- banking are shown in Table 3.

Table 3: Advantages and Disadvantages of the Tele-Banking

Advantages	Disadvantages
▪ Tele-banking is safer than Internet banking as opposed to the recent increase in Internet and Identity Fraud.	▪ All banks and building societies are not offering 24 hour Tele-banking Service.
▪ The ability to speak to another human being and discuss with them any issue that may not be mentioned or catered to on the website.	▪ Tele-banking is not active usually over bank holidays such as Christmas Day or New Year's Day.
▪ In addition to that speaking to a call center staff member allows for the provision of information such as any payments that are waiting to go into the account or go out	▪ It is still very much the case that many of us prefer to speak to a human being who will answer our questions, take the time to listen to us and help us in any further way they can, as opposed to a front-end menu system which allows for a set series of functions with no scope for movement.

Source – Survey Data 2015

Mobile Banking

Mobile Banking issued for transferring funds between banks or accounts, deposit or withdraw funds, or pay bills. This term is also used for the broader realm or domain of electronic commerce and it can refer to the use of a mobile device to purchase items, whether physical or electronic. Anytime Banking: Mobile Banking gives user the privilege of anytime and anywhere banking. One can do most of the banking transaction after banking hours from anywhere, irrespective of whether users are traveling in bus or auto. Where this ease is will not be possible if you are connected to a PC or Lap top, especially when traveling. Table 4 below shows advantages and disadvantages of mobile-banking.

Table 4: Advantages and Disadvantages of the Mobile Banking

Advantages	Disadvantages
▪ Mobile Banking is Free The service provided by bank is free of charge. There is no limit for number of times customers can access their account.	▪ Security Problem bile users are especially susceptible to a phishing-like scam called "smishing." It happens when a mobile banking user receives a fake text message asking for bank account details from a hacker posing as a financial institution. Many people have fallen for this trick and had money stolen through this scam.
▪ Various banking services provided include Account Balance Inquiry, Credit/Debit Alerts, Bill Payment Alerts, Transaction History, Fund Transfer Facilities, Minimum Balance Alerts et cetera, itcan be accessed from your mobile.	▪ Compatibility bile banking is not available on every device. Some banks do not provide mobile banking at all.
▪ Customers can transfer money instantly to another account in the same bank using mobile banking	▪ Cost e cost of mobile banking might not appear significant, if customer already has a compatible device, but you still need to pay data and text messaging fees.
▪ Secure Banking: Some banks assure that, by downloading the app directly from the server, the data will not be stored in the customers mobile as well as SIM card. ▪ The app comes with advanced encryption technologies making it safe and secure as Internet Banking.	

Source – Survey Data 2015

According to the information which was collected in this study, the following implication can be drawn.

Implication for Privacy and Security of e-Cash Management System

The study established that issues of privacy and security of e-cash management system is of huge concern to its user. Three principal concerns about e-cash management system privacy arose in the study: the extent to which personal data in e- cash management system are or might be disclosed to third parties by financial institutions, the possibility of Government or private surveillance through e-cash management system and data files and the right of service provider to see, challenge, and correct personal data in e-cash management system that might be used, for other disadvantageous ways. Although these issues were addressed in the Electronic Funds Transfer Act and The Right to Financial Privacy Act, the study revealed that in comparision e-cash management was less than through the check/cheque system; average costs of transfers could also be lower, if a sufficiently large volume was achieved.

Implication of e-Cash Management System for Time Saving Aspect

The study established that computerized cash transfer system offers time saving in many aspects. That the cash transferred is remitted and received within a reasonable time without undue delays that were hitherto experienced when other systems of cash transfer were used. Information on remittance and receipt is sent through telecommunication lines (cyber facilities-cloud system) and is received at the click of a button as opposed to the use of accepted relevant government banks that would occasion many delays. Preparation and retrieval of transaction records through the computer takes minimal time compared to other systems of cash transfer.

e-Cash Management System and Cost Implication

The study established that the total costs of computerized cash transfers are much cheaper compared to other systems of cash transfer. However, there are some social costs suffered for instance, cost suffered in adjusting to the new system. E-cash management system involves large total cost, much of which is associated with the expensive computer hardware necessary to operate these systems: computers, terminals, and communication links. Staffs also have to be equipped with additional skills and employees and suppliers were expected to operate bank accounts for payments of their salaries. Marginal costs of making a transfer through e-cash management system was less than through the check\cheque system; average costs of transfers could also be lower, if a sufficiently large volume was achieved.

e-Cash Management System and Effective Service Delivery Aspect at the Government Spending Agencies

The study established that e-cash management system offers cash transfer services affecting least in service delivery in many ways or aspects. That the transferred cash are remitted and received within reasonable time without undue delays hitherto on experienced when other systems of cash transfer were used. Information on remittance and receipt is sent through telecommunication lines and is received at the click of a button as opposed to requirement or use of any banks that would occasion many delays.

e-Cash Management System and Productivity at the Government Spending Agencies

The study established that use of e-cash management system is productive in many ways. The system performs a huge volume of transaction per unit time involving transactions of great value within a short period of time that other systems of cash transfer would not do. E-cash management system has also led to reduction in labor input per unit. Top managers often became more resilient and interesting after automation, while clerical jobs often diminished in scope, variety, and autonomy, leading to a decline in the number of employees especially the clerical staff. Service delivery also improved with its introduction. However, the study revealed that computerized funds transfer system is not accessible to all persons or government organizations that would be willing to use it. In part, this contravenes the principle of equity, which advocates that a technology should not show any discrimination or differentiation against a section of the society depriving the very use for which it is designed.

Strategies for improving computerized funds transfer system towards cash management are included as an integral part in-service training of staff and ICT infrastructure should be well planned and laid down before implementation of the system, segregation of duties, implementation of various safeguards, for example: Strong internal and data processing controls on all programs, Written agreements establishing procedures and risks, Dual controls for the authorization of account transaction and non-account transactions, establishment and use of passwords for authorized personnel to initiate transactions, implementation and periodic review of internal controls that address access control, confidentiality of data, integrity of data, and other information security issues as appropriate. Others include employing advanced authentication techniques and proper authorization of the staff.

Policy Implications of e-Cash Management System in Sri Lanka

The first implication is that the usage of IT driven - cash management system by Sri Lankan service recipients is very poor, except for the private sector online services. This situation has been accepted by most professionals. Although the professionals interviewed by the researcher themselves are not pleased with this situation, they appear to be contented with the eminence. Since the majority of Sri Lankans are not technology savvy, the public sector tends to adopt a wait and see attitude. Is this a credible argument from the policy maker's point of view? If so why does the public sector make high investments on IT driven services? There are a number of controllable factors that can be addressed by policy makers, if they wish to look at this problem objectively in a customer–oriented perspective. Accordingly, almost all service quality-related factors could be successfully handled by the IT systems developers of the public sector. Even the technological complexity or sophistication could be eased to a great extent, if the system developers clearly understand the

real customer profile. On the other hand, a rigorous campaign could overcome most factors related to unwarranted negative customer perceptions.

The cultural habits and perceptions also play a major role in customer decision to use IT driven government spending agencies in the Sri Lankan services. The issues with overall maturity of national level IT infrastructure and poor information technology literacy also plays a major role in the simplification of IT driven government spending agencies services. The major underlying issues for the problems associated with reluctance to use by Sri Lankan public sector are yet to be determined. This research highlights the fact that the policy makers in the public sector are not adequately market–oriented. Are we in Sri Lanka too early to introduce the ICT services that rely on advanced technologies, or, the IT system designers and policy makers of Sri Lankan Public sector are not adequately market–oriented?

Some of the areas which are of contemporary importance to address at the national levels, provincial levels, district level and divisional levels, and among them rapid development in the divisional levels, attract people for ICT activities have emerged as important as in the present context although national policy has not been considered. These reasons have led to an urgency to as well as exigency of demand formulation of e-government policy. In order to bridge this gap between the desired policy requirements and existing policies, the policy planning was assessed by studying the relevant policies, acts, circulars bearing on , new ICT uses and attitude change issued by government spending agencies in Sri Lanka.

Policy formulation has been attempted to bridge the gap between desired level of policy and existing level of policy of the government spending agencies in Sri Lanka. In accordance with the policies and the plan of actions that was prepared to implement them has tracted on to transformational or transitional approach of policy implementation. This approach can be further strengthened with direct involvement and political willingness.

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