Out of Africa: A Story of Information and Communication Technology Implementation in Swaziland

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ABSTRACT

Much prior research on Information and Communication Technology (ICT) implementation has been conducted in western countries that have different social and organizational cultures from countries in Africa. In this study, we examined the implementation of a centralized financial management system (CFMS) in the Kingdom of Swaziland, a country in Southern Africa. The Swazi government decided to implement a CFMS to address the over-indebtedness of its government employees. We studied the role of socio-economic and political dynamics during the implementation of CFMS. We found that the Swazi economy benefited immensely from CFMS. However, a certain type of financial organizations (i.e., cooperatives) declined to use CFMS a few months after the implementation resulting in significant financial loss for other financial institutions that were still using CFMS. Based on our findings, we suggest that proactive government decision making, and stakeholder support and commitment are key to the post-implementation success of centralized ICT initiatives in developing countries.

Keywords

Africa, Swaziland, financial management system, debt, payroll deduction

INTRODUCTION

Information and communication technologies (ICTs) impact individuals, organizations, societies and nations in various ways. The rising use of ICTs in public sector organizations has significant impact on the government policies, financial systems, and organizational decision making especially in the developing nations (Polikanov and Abramova, 2003). In recent years, many nations in Africa are experiencing a rapid adoption of ICTs geared towards improving the citizen-government communication and computerization of traditional public sector organizations (Polikanov and Abramova, 2003). In addition, ICTs have gained recognition from African policy makers as a tool for expedited economic growth and development (Gillwald and Stork, 2007). African leaders recognize the potential of ICTs and there have been debates about effective ICT implementation strategies in order to maximize the benefits for different stakeholders (Gillwald and Stork, 2007). The recent ICT initiatives by international agencies, such as European Commission for Africa, New Partnership for Africa's Development, and International Monetary Fund are examples of rising interests in ICT related developments in Africa (International Monetary Fund, 2011; Gillwald and Stork, 2007).

A crucial aspect of ICTs for public sector organizations are technologies geared towards improving the public sector financial management. Centralized Financial Management Systems (CFMSs) represent a genre of specialized information systems (IS) that track financial events (Rodin-Brown, 2008; Williams and Williams, 2009). Such systems provide an integrated way of managing financial operations to support management decision making. In the public administration domain, CFMSs enable computerization of public financial management processes, from credit management, loan management and budgeting to accounting (Williams and Williams, 2009). CFMSs offer an advantage to public sector banks, insurance, and other financial institutions by providing an integrated view of financial data. Adoption of an appropriate approach for reforming public sector financial management is a crucial issue that many African nations face (Heidenhof, Grandvoinnet, Kianpour, and Rezaian, 2002). Prior studies focusing on the public sector financial management in Africa have suggested that the public finance in these countries is weak and incapable of monitoring public expenditures, credit facilities, use of public funds, and investments efficiently (Heidenhof et al, 2002).

Many African nations share similar economic, political, and cultural environment. While adoption of advanced ICTs is inevitable for the rapid progress of these nations, there are multitudes of factors related to the cultural and social structure of these nations that can potentially pose as a challenge to ICT adoption. The adoption process of new ICTs, the challenges posed and the post-implementation dynamics in these nations differ from the traditional processes and impacts that have been previously studied in the information systems (IS) literature conducted primarily in the Western world. A study of the peculiarities of the social and cultural structure of these nations and the impact on pre-implementation processes, adoption, and post-implementation reactions will have important implications on future ICT projects in these nations.

In this paper, we present a case study of a CFMS implementation in Swaziland. The study provides insights on the post-implementation dynamics and impacts of this system on key stakeholders (e.g., organizations and individuals). The rest of the paper is organized as follows. We first present an overview of the socio-economic climate of Kingdom of Swaziland. We then present the case study of implementation of an external IT consultant led Central Deduction Administration System (CDAS) followed by a discussion of the implications of CDAS on the economic and social environment of Swaziland as well as the individual and organizational level reactions to the impacts. Finally, we provide an analysis of the case from various perspectives and discuss the implications for research and practice.

BACKGROUND

Overview of Swaziland and the Socio-Economic Climate

Swaziland is a small landlocked country in Southern Africa, surrounded by Mozambique on the east and by South Africa on the other three sides. With a population of approximately 1.4 million people, Swaziland is the largest monarchy in the African continent (Moor, 2011). The currency of Swaziland is the Swazi Lilangini (SZL). Farming, the dominant occupation in the nation, faces a multitude of challenges due to frequent draughts, conventional irrigation facilities, and sub-par agricultural financing (Samuel, 2008). With more than 90 percent of its imports accounted by South Africa, Swaziland depends heavily on South Africa for food supplies, machinery and motor vehicles (Central Intelligence Agency, 2012). Swaziland has been facing many financial difficulties for more than a decade. The real Gross Domestic Product (GDP) has remained close to 3 percent over the last decade and has gone down to 0.3 percent in 2011 (International Monetary Fund, 2012). In addition, approximately 40 percent of the people are unemployed while close to 70 percent of the people live below the poverty line and with less than $1 per day (Central Intelligence Agency, 2012). The existing gloomy economic climate, high unemployment, and the pursuit for a high standard of living has forced the Swazi people to depend on borrowed money for their day-to-day expenses and needs (International Monetary Fund, 2008).

In addition to the economic challenges, the Swazi society faces many health challenges. HIV/AIDS has widely spread in the country. The HIV prevalence rate for the entire population is approximately 26 percent while for the 15-49 age groups it is estimated at 42 percent (African Economic Outlook, 2011). The impact of HIV/AIDS is seen on the health expenses and life expectancy of people. With approximately 18,000 new cases of HIV expected every year, the life expectancy of Swazi people has dropped drastically to 33.2 years, the lowest in the world (Rosenberg, 2010). The high prevalence of HIV/AIDS had led to a sharp increase in the medical expenditure of people (Corporate Research Consultancy, 2011). Although the Swazi people are aware of health insurance policies and their benefits, the prevailing notion among a majority of the people is that insurance policies are only for large organizations and rich people (Corporate Research Consultancy, 2011). Such negative notions have emerged over the years because of the experience of people related to cancelation of their insurance policies due to non-payment of premiums. As a result, a majority of Swazi population that lives below the poverty line or belongs to low income groups do not avail medical insurance policies. Consequently, people have to heavily rely on micro-lenders and shylocks for any urgent need of money (Corporate Research Consultancy, 2011). These moneylenders charge high interest rates and often ask for collaterals before they lend.

The Swaziland financial system

Swaziland has four major commercial banks – Swazi Bank, Standard Bank, First National Bank, and Nedbank. The Central Bank of Swaziland regulates these banks. Over the last two decades, all the commercial banks have witnessed a steep decline in private sector lending, money supply, and bank deposits (Coppock, Forte, Ncube, Ooka, Richards, and Vyas, 2010). The relatively small size of financial industry and the rising costs of banking services have led to the rise of many credit cooperatives, microfinance institutions, and Non-Banking Financial Institutions (NBFIs). These institutions are an easy source for borrowing money for people who do not qualify for bank loans or who do not want to pay for the high cost of banking services (International Monetary Fund, 2008). In 2008, more than 266 cooperatives and NBFIs were operating in Swaziland. By 2008, the total assets of all the cooperatives and NBFIs in Swaziland had exceeded the assets of the commercial bank by a significant 23 percent (International Monetary Fund, 2008).

METHODOLOGY

The case study was conducted during the course of the CDAS implementation—from its inception to post-implementation. In addition, data related to the non-compliant deductions by various financial services organizations was gathered through government records. During the course of CDAS planning, development, and implementation, we collected data using multiple approaches: semi-structured interviews, documents provided by the organizations and key informants, and other publicly available information (e.g., press releases, financial statements, and trade press articles), if any. Top management and employees in each organization were interviewed. Extensive notes were taken during these interviews. Following the guidelines of positivist case study methodology (Yin, 2004), we conducted a thorough case analysis to understand the dynamics of CDAS implementation in Swaziland. The interview notes, documents, and secondary data sources were reviewed by one of the authors who identified relevant information. After this initial review was completed, the other authors went through the relevant documents and information. The authors discussed among themselves to develop a final set of themes that emerged from the analysis.

CASE STUDY

The direct payroll deduction process

The Government of Swaziland introduced direct payroll deduction in July, 1998. This provided an easy access to credit facilities for government employees. Traditionally, Swazi banks were not willing to provide unsecured loans, whereas direct deductions from the government payroll provided a risk control mechanism for micro-lenders and cooperatives to provide credit facilities and a secured collection repayment method provided by the government. The service was widely accepted and many government employees benefitted from the credit facilities by building houses, paying school fees for children, or having extra money to improve their standard of living. Since the introduction of the first direct payroll deduction item code in 1998, the number grew exponentially over the last decade to approximately 150 item codes. Each item code represents a category of loan that can be issued to Swazi people for which direct payroll deduction is permitted. This provided government employees with a wide range of credit facilities – which lead to higher probability for poor financial decision making and exposure of government employees to a higher risk of indebtedness.

Excessive payroll deductions

In 1980, the Government of Swaziland passed the Employment Act in order to introduce many legislations related to personal wages and to regulate the part of the salary that an individual can use for loan and interest payments (Government of Swaziland, 1980). Article 56 of the Employment Act clearly specified the limit that any employee may assign to a third party, which was one-third of the basic salary (Government of Swaziland, 1980). Any employee who had more than one-third of basic salary assigned to third parties was considered to be *over-indebted*. In addition, article 56 also specified that salary deductions of more than one-third of an employee's basic salary are *non-compliant* with the Employment Act. Commercial banks and microfinance institutions were trying to comply with these restrictions. However, due to lack of a central registry for payroll system, it was becoming difficult for institutions to monitor the amount of current deductions from an individual's salary, an individual's current employment status, and whether an individual has availed additional loans from a non-banking financial institution (NBFI) that might not have adhered to article 56. This made it difficult for financial institutions to issue loans compliant with article 56.

The Swazi Government was experiencing significant issues around payroll deductions. The Government Payroll System was trying to survive without a Central Registry system for a long time. Without a mechanism for checking deductions in advance, many employees over-committed themselves, and the government was left with claims for deductions that exceeded the maximum amount that could legally be deducted from an employee's salary. Financial institutions and micro-lenders suffered, with claims for payroll deductions often being rejected, and lenders unable to recover loans. This manual system of payroll deductions placed a huge administrative burden on the government, and resulted in numerous disputes with government employees and financial institutions. As there was no "minimum take-home pay" policy enforced, an increasing number of government employees received zero net pay. As a result, the government was facing numerous court cases over excessive deductions, or not adhering to the Employment Act. Over-indebted employees were also becoming demotivated in government service, which could have led to negative implications for the overall government service performance.

Against this backdrop, the government felt a need for a central loan registry that would allow the government's payroll unit and third parties to effectively deal with deductions directly from the system through mutual understanding and enforcement of policies. The central loan registry was needed to address the challenges of the payroll system, such as the inability to check the extent to which an employee is already in debt before the loan is advanced, and ensuring that the total deductions are within the statutory limits set out by the law. Consequently, the system was needed to improve the control over the source of deductions and prevention of possible exploitation. Figure 1 below shows the percentage of over-indebted government employees since 1995. The over-indebtedness of government employees is noticeable even as far back as 1995, when 5 percent of government employees were over-indebted. The situation further deteriorated over time. Over-indebtedness had reached nearly 20% by the time NBFIs started operating in the Kingdom of Swaziland in 1999.

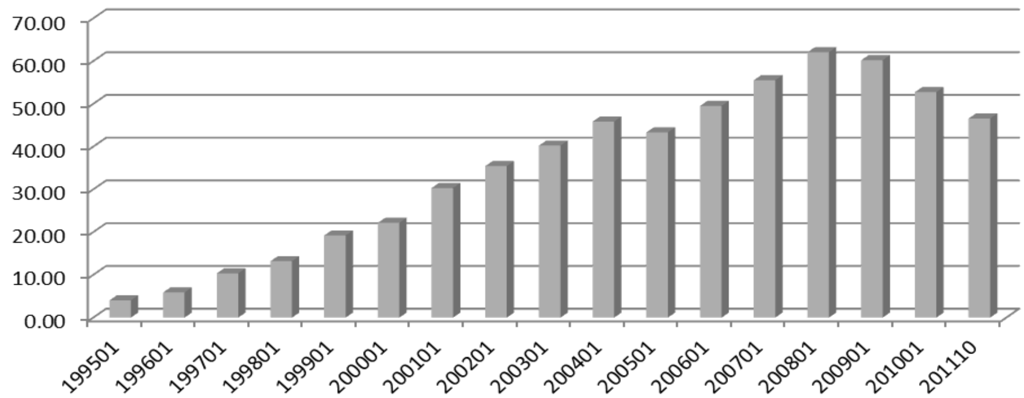

Figure 1: Percentage of total government employees over-indebted from January, 1995 – October, 2011

Implementation of the Central Deduction Administration System (CDAS)

After a successful tendering process, ITorg[1] – an ICT consulting firm, was awarded the project of implementing CDAS in July 2009. CDAS was deployed in October 2009. The primary objectives of CDAS were to provide a tool to enforce the 1980 Employment Act. ITOrg agreed to analyze, design, develop, implement and maintain CDAS. CDAS was initiated to assist over-indebted employees by preventing non-compliant deductions. The system gave financial institutions and micro-lenders 24-hour live access to a credit-checking facility, so that financial institutions can see how much of a staff member's salary is still available for deductions. The system incorporated a range of checks and controls that prevent them from making deductions that exceed government limits

CDAS was an integrated, turn-key solution, in which all transactions were fully managed by ITOrg. A major strength of CDAS was its integration with existing government IT systems. As a result, the government was no longer required to make individual payments to numerous financial institutions. The individual payments were centrally managed by CDAS through its integration with other government IT systems. CDAS dramatically reduced the burden of payroll administration and at no cost to the government (it is funded by a small levy on the deductions as they are passed onto financial institutions).

CDAS also incorporated strong security measures including a secure server, strong password control and encryption of all data. The system even has the ability to incorporate photographs of government employee so that the employees are protected from fraudulent use of their names.

For government employees, CDAS provided the following facilities:

- A government employee can apply for debt review, whereby they request that their financial position be evaluated to determine whether they are over-indebted and qualify for loans.
- If the employee is over-indebted, CDAS will not allow new deductions until the situation improves. Thus, the government employee does not have access to additional credit.
- CDAS also assists over-indebted employees in restructuring their debt, of which the creditors are informed. The government employee becomes debt-free in few years, depending on the extent of the initial debt problem.

[1] Fictitious name

Post-implementation impacts and issues

Initially 10 micro-lenders were allowed to use CDAS by the treasury and these were consolidated under CDAS. In January 2010, after the initial success of CDAS, the treasury gave instructions to all third parties**,** including cooperatives, insurance companies and medical schemes, that they should be consolidated under CDAS. However, after a few days, the decision was postponed and only insurance companies, medical schemes and Swazi Bank were told to comply and be consolidated under CDAS. Cooperatives were allowed to continue as before without having to comply with the 1980 Employment Act and without being charged a fee.

All insurance companies and medical schemes were consolidated under CDAS. However, in June 2010, one of the biggest insurance companies went to the media and forced the government to allow them to continue non-compliant deductions. The government agreed and this insurance company was removed from CDAS. This created a serious case of double standards. One of the medical insurance companies followed suit and were also taken back by the government. It comes as no surprise that all remaining insurance companies and medical schemes currently still using CDAS also want to be taken back by the government to level the playing field in these industry sectors.

The initial impact of CDAS was significant and was visible soon after it went live. Figure 1 shows that in January 2008, the number of over-indebted government employees reached a peak of over 60 percent government employees. The situation improved after micro-lenders adopted the CDAS system. The same improvement is clear in Figure 1, which shows the exponential growth in non-compliant deductions before the introduction of CDAS. The implementation of CDAS brought down over indebted government employees by 15.51 percent. In October 2011, approximately 46 percent of government employees were still over indebted. At the time of introduction of CDAS, the total over indebted deduction amount was about SZL 29 million – which has been reduced to SZL 20 million in spite of an increase in number of employees and their salaries.

The main purpose of CDAS was to enforce the Employment Act and stop non-compliant deductions. Since its inception, CDAS did not allow for any non-compliant deductions for the financial organizations that had adopted CDAS. However, still a large number of non-compliant deductions were being added on a monthly basis by cooperatives not using CDAS.

FINDINGS

Comparison of CDAS versus non-CDAS deductions

The introduction of CDAS made a huge impact on the micro-lending industry by preventing non-compliant deductions. The result was a huge drop in monthly collections from government employees by micro-lenders. Figures 2 and 3 show a comparison of total deductions by micro lenders (CDAS users) and cooperatives (CDAS non-users) respectively. As seen in Figure 3, the deductions by micro lenders were going up exponentially till early 2009 when these micro lenders adopted CDAS. The deductions went down from approximately SZL 38 million in January, 2009 to SZL 25 million in October, 2011. However, as seen in Figure 4, the non-compliant deductions by cooperatives, that had declined to adopt CDAS, have been increasing exponentially since January, 2001. The deductions by cooperatives were at SZL 25 million in January, 2009 when the deductions by micro lenders were at the peak. However, after opting out of CDAS, the non-compliant deductions by the cooperatives grew rapidly to SZL 38 million in October, 2011. From the comparison, it is evident that while the adoption of CDAS by micro lenders was proving to be beneficial for the Swazi economy, the positive impact was neutralized by cooperatives experiencing increases in non-compliant deductions.

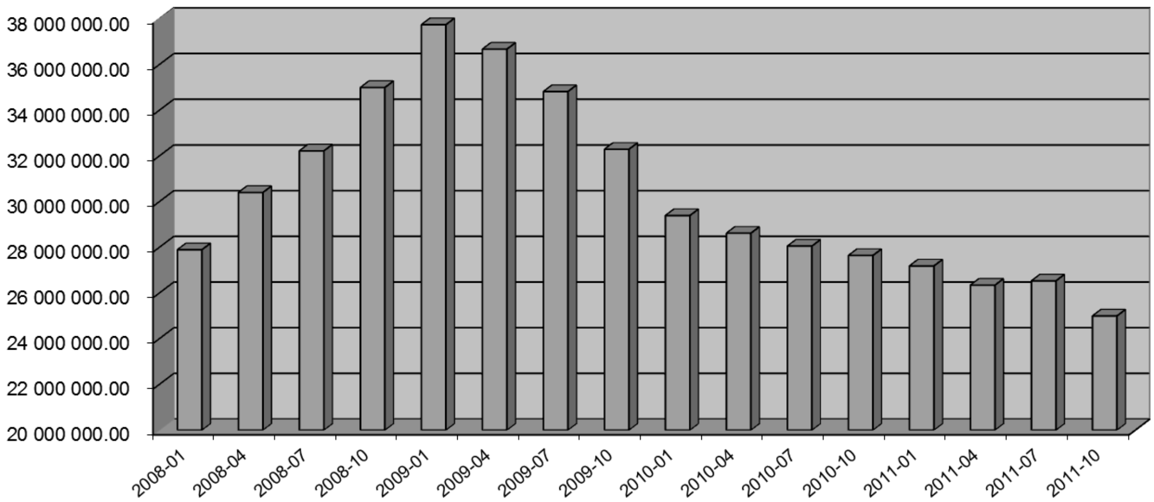

Figure 2: Total deductions by micro lenders (CDAS users)

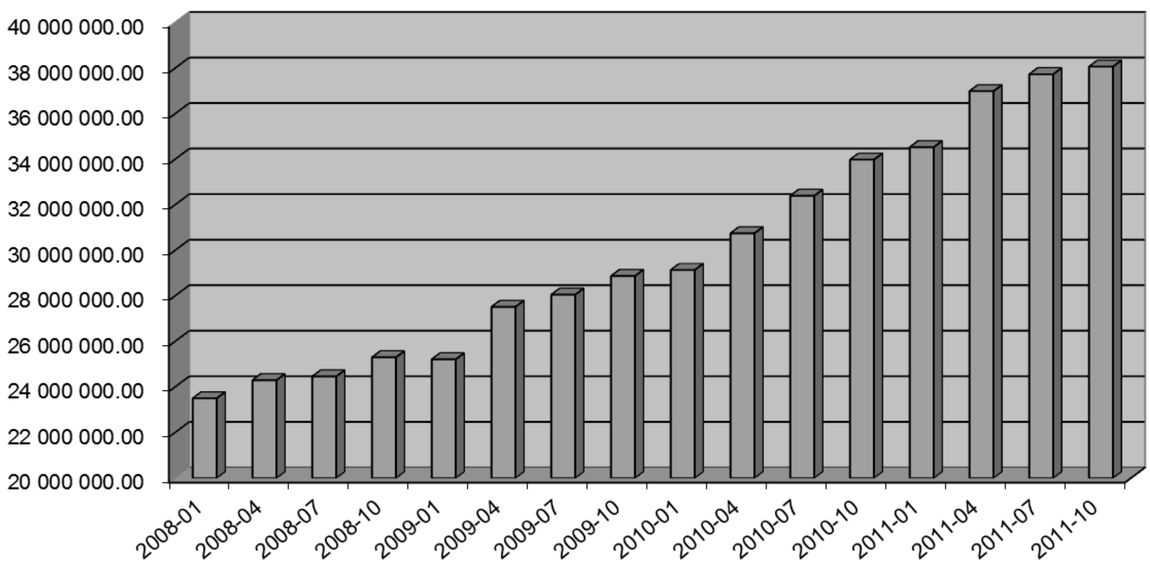

Figure 3: Total deductions by cooperatives (CDAS non-users)

Figures 4 and 5 show another representation of the comparative deductions by multiple organizations in Swaziland in January, 2009 and October, 2011 respectively. Following the implementation of CDAS the share of micro-lenders in payroll deductions reduced from 46 percent to 27 percent. However, the deductions by cooperatives rose from 31 percent to 41 percent during the same period. In addition, the bank loan deductions soared from a mere 1 percent to 7 percent during the same period. This indicates that while the CDAS was successful in reducing non-compliant deductions for micro-lenders, people were still borrowing money from other financial institutions that had not adopted CDAS yet. The cooperatives added an estimated SZL 16.03 million non-compliant new deductions on the government payroll during the period from January, 2010 to October, 2011. This increase in the non-compliant deductions has started having a negative impact on normalizing the government payroll and enforcing compliance across the industry.

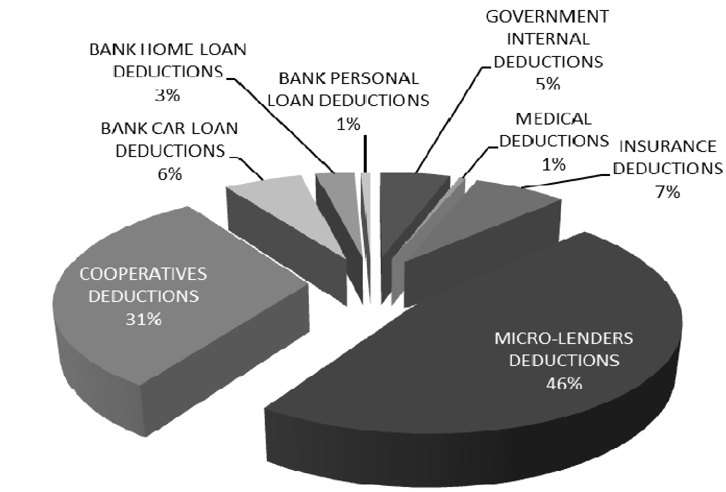

Figure 4: Comparative deductions in January, 2009

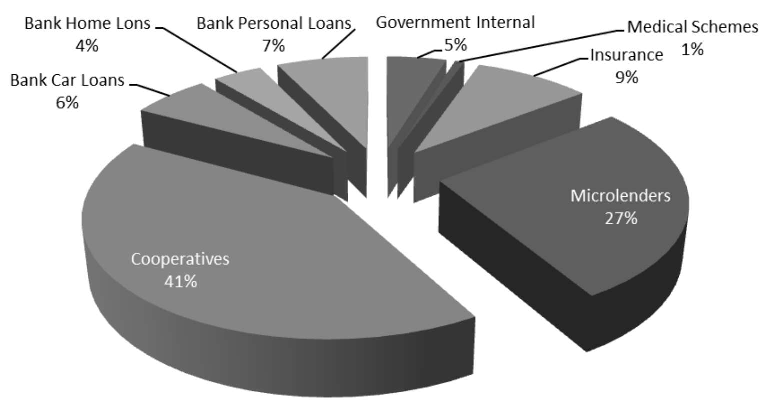

Figure 5: Comparative deductions in October, 2011

Salary advances

Due to increased cost of living and expectation of better standard of living, there is a growing tendency among Swazi people to borrow money from different sources. Treasury has been allowing government employees to get salary advances to meet their needs and luxuries. Figure 6 shows the growing tendency of salary advances during the period from January, 2009 to October, 2010. In most of the cases, these salary advances were non-compliant with the Employment Act.

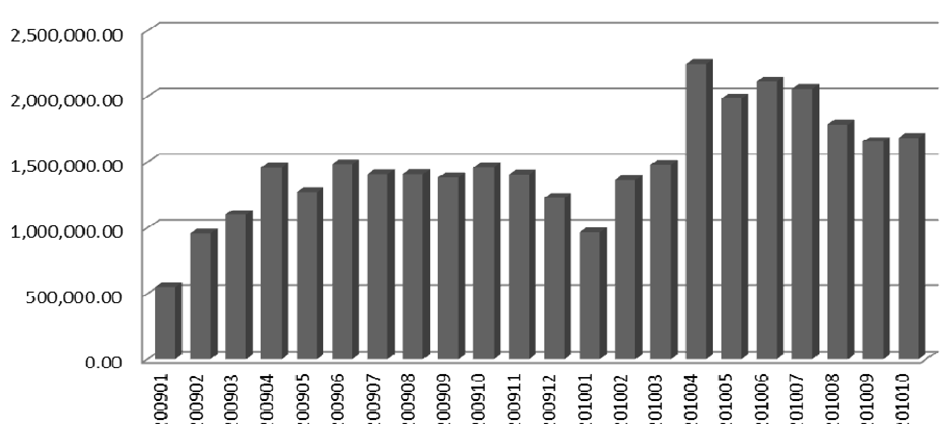

Figure 6: Trend of monthly salary advances from January 2009 – October 2010

Post-implementation compliance issues

Although the CDAS was effective for organizations that adopted it, it was still not able to achieve its goals since non-compliant deductions were still permitted for organizations outside the CDAS. This has led to a situation in which:

- A government employee can apply for new loans through cooperatives, NBFIs, and other non-member institutions even though they do not qualify according to the compliance rules.
- The new loans are allowed irrespective of the one-third rule specified in the Employment Act.
- Salary advances are given as an alternative to the loan facilities, in cases where someone is not affiliated with a cooperative or where loan applications have been rejected.
- The recovery period to stabilize the payroll has now lengthened, as there has not been an improvement yet.

Cooperatives – Nature of ownership and stakeholders

An important aspect of understanding why cooperatives had repeatedly declined adoption of CDAS was their nature of ownership and the stakeholders. A majority of the cooperatives was founded or owned by government employees. These government employees were well aware that they would not be able to borrow money if the cooperatives that they owned adopted CDAS. More importantly, many of these employees were top officials and were involved in high-level government decision-making process. To maximize the interest of the cooperatives and to make sure there was an easy loan granting financial entity, these employees were reluctant to support the diffusion of CDAS. Due to their stature in the government, these employees were able to ensure that no legislation forcing the cooperatives to adopt CDAS was passed.

Non-complying cooperatives and its impact on financial market

As of early 2012, all financial institutions including micro lenders, insurance companies, and banks have adopted CDAS, except cooperatives. The government has made provisions for financial institutions that comply with CDAS to reschedule their loans to ease the installment or repayment. Many financial companies have taken this window to consolidate other debt and lower down the installment by increasing the period of repayment. Through this process, they try to reduce the loss of customers and are also able to recover previously granted loan amounts from customers. While the financial institutions were satisfied about the reduction in the number of non-compliant deductions, they lost a substantial portion of their business to the cooperatives. With the Swazi people being used to a higher standard of living and accustomed to borrowing money for their necessities, they were approaching the cooperatives that were issuing them loans without complying with CDAS. Getting a loan from the cooperatives was easier and quicker for the people as compared to applying for loans at organizations that comply with CDAS and that might reject their loan applications. In the long run, if all institutions are not forced to use the system, it is expected to further reduce for the organizations that comply with CDAS.

Lack of government control

When the plan of implementing CDAS was underway, it faced strong opposition from various constituents of the government. However, over the course of time, those who lobbied in the parliament to stop the system adopted it considering its possible positive implications. The challenge that CDAS still faces is the lack of government control on the cooperatives and government employees. While it is expected that a considerable duration of time would be required for decision makers to understand the impacts of CDAS and embark on it, the government has been indecisive in spite of the possible losses financial institutions might face due to the cooperatives taking away their business. It is vital for the government to take decision regarding the adoption of the system by all stakeholders. While the focus of the government till now has been on the micro lenders that made bad financial decisions in the past, the focus needs to shift to third party deduction code holders such as the cooperatives.

IMPLICATIONS

Organizational level impacts of ICT

The CDAS case provides insights on how a government-initiated ICT impacts individuals and organizations. It is clear from the CDAS case that at an individual level, the system was successful in ceasing further non-compliant deductions for an over-indebted employee. The system also provided for loan restructuring that allowed individuals to pay down the debt in a reasonable timeframe. While the individual level impact of the system was positive and significant, there were many negative implications for the organizations that adopted it. Although CDAS allowed organizations to recover defaulted loans from government employees through restructuring, it also meant that the organizations could not lend more money to that employee until the employee is eligible according to the Employment Act. With a large number of Swazi government employees already over-indebted, the organizations that adopted CDAS could not issue loans to any of the government employees. In addition, the fact that these government employees could borrow money from cooperatives that were not complying with CDAS implied a severe loss of business for the CDAS adopting organizations. As such, while the system had positive implications in terms of handling over-indebtedness, it led to a loss of business for organizations in the long term. It is important that for a centralized system to be implemented at a national level, there should be a common understanding and buy-in from all stakeholders from the beginning of the system's inception. It is also crucial to involve all stakeholders during all stages of the system development and implementation. In case of CDAS, the focus was narrowed down only on micro lenders. During initial system implementation period, the government largely neglected third party stakeholders like cooperatives. This led to a chaotic situation where some organizations were benefiting from the system while other organizations were losing business. A common understanding on the timeline of system adoption by all stakeholders and a follow-up by government agencies to track the progress of adoption could possibly resolve such conflicts.

Implications for Other African Nations

The case of CDAS has several implications for other African nations like Botswana, Namibia, and Lesotho that share a similar economic and cultural environment, and organizational structures. One of the key factors influencing the post-implementation challenges faced by CDAS was the role of government in the decision making related to Swazi financial industry. For more than two years after the implementation of CDAS, the government was still unable to enforce the adoption of CDAS by all financial organizations. As a result, while some financial entities were struggling to manage their customer base following the CDAS implementation, in contrast, organizations that did not adopt CDAS or stopped using it were enjoying financial success. African nations that share similar governance structure can benefit from the lessons learnt from this case study and plan any ICT implementations accordingly. In addition, it is crucial for the governments of these nations to be proactive in making decisions to handle any anomalies or loopholes in previous legislations. Proactively reacting to any negative outcomes of an ICT implementation could help address these issues as well as give organizations a sense of confidence that the ICT would be beneficial for their businesses.

CONCLUSION

While much is known about ICT implementations in western and developed countries, there has been limited research on ICT implementations in other parts of the world, particularly in the African nations. Given the rising importance of African nations in the global economy, it becomes crucial to understand the peculiarities of the social, political, and cultural structure of these nations and the possible implications on traditional ICT implementation approaches. In this paper, we looked at the case of a centralized government-initiated ICT, CDAS, implementation in the Kingdom of Swaziland and its impacts on the socio-economic aspects of the nation. While the system was successfully implemented and adopted by many financial institutions, cooperatives declined to adopt it resulting in unfavorable outcomes. We found that beyond the technical aspects of an ICT implementation, socio-cultural aspects and political decision-making had a crucial role to play in the success of an ICT in Africa. Since many African nations share similar economic, political, and cultural environment, we believe that ICT implementation projects in other African nations can leverage from the lessons learnt from this case study. We expect that our work will offer insights on ICT implementations in different cultural contexts and engender interests in conducting ICT implementation research in different parts of the world.

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