DEVELOPING A CUSTOMER-CENTRIC, INCLUSIVE E-GOVERNMENT: LESSONS FROM THE CENTRAL PROVIDENT FUND BOARD OF SINGAPORE

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Abstract

This case study documents the successful e-government implementation experience of the Central Provident Fund Board of Singapore. In tracing the process of e-government implementation in its entirety, this case study should prove to be especially useful to e-government managers and practitioners in helping them understand: (1) The process of implementing e-government and the critical steps that lead to the development of resources and capabilities required for a successful e-government, (2) how e-government transforms the nature of public service delivery and the benefits of implementing e-government, and (3) the internal and external drivers, the process, as well as the consequences of e-government enabled service transformation.

Keywords: E-government implementation, e-government strategy, service transformation, case study
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DEVELOPING A CUSTOMER-CENTRIC, INCLUSIVE E-GOVERNMENT: LESSONS FROM THE CENTRAL PROVIDENT FUND BOARD OF SINGAPORE

Introduction

Rapid advances in Information and Communications Technology (ICT) since the mid 1990s facilitated the creation of the first e-governments; defined as the application of various technologies to provide citizens and organizations with more convenient access to government information and services; and to deliver public services to citizens, business partners, suppliers and those working in the public sector (Turban et al., 2002). Heralded for their momentous potential for enhancing public service delivery, the purported benefits of e-government include reducing transaction costs (Carter & Belanger, 2005; Warkentin et al., 2002), improving the responsiveness of the public agency to needs of the public (Ho, 2002), and facilitating public involvement in support of deliberative democracy (Jaeger, 2005; Scott, 2006). The sheer size of investments in e-government initiatives across the globe attests to their perceived importance: In the United States alone, e-government expenditure is estimated to be US$4.2 billion in 2004, and is estimated to hit US$5.8 billion by 2009 (Pulliam, 2005).

Yet, despite the prevailing optimism surrounding the potential of e-government, a study conducted by the United Nations estimated that 60% of e-government initiatives fail worldwide (UNDESA, 2003). We contend that the high failure rate is due to a collective lack of knowledge on how e-governments can be effectively developed, which in turn, stems from the lack of substantive research on e-government implementation and development in the academia (Devadoss et al., 2003; Heeks & Bailur, 2007). Using the case of the Central Provident Fund (CPF) Board; one of the most successful, customer-centric and inclusive e-governments in
Singapore, the purpose of this case study is to document the e-government implementation experience of an organization that has been particularly successful with its e-government initiatives. By highlighting the issues that are pertinent to e-government implementation and development in the real world, it is hoped that invaluable lessons and best practices can be derived from the teaching case that shed light on how e-government implementation success can be achieved.

**Background**

In Singapore, all working citizens, together with their employers, are required by law to contribute a percentage of their monthly income to the Central Provident Fund (CPF), a social security savings plan established in 1955 for the purpose of providing financial security for the people of Singapore in their retirement. Today, the CPF has evolved into a comprehensive social security savings package that encompasses the retirement, healthcare, home ownership, family protection and asset enhancement needs of Singaporeans. The money in a citizen’s CPF account can be used for housing, insurance, healthcare and investment prior to retirement, and when the citizen retires, he/she would receive a monthly retirement stipend paid out from their own accumulated CPF savings.

The government agency established to administer the CPF is the CPF Board. Positioned as the trustee of the citizens’ CPF savings, its organizational mission is to enable Singaporeans to save effectively for a secure retirement. Its business activities include (1) the collection of CPF contributions, (2) the disbursement of an individual’s CPF savings for various needs, and (3) educating Singaporeans on the importance of making prudent use of their CPF savings and the need to plan for a financially secure retirement. At the end of 2006, it was estimated that the CPF
Board serves 3.1 million members\(^1\), manages US$83 billion of CPF savings and conducts over 31.2 million transactions a year.

*my cpf* is the multi-award winning (refer to Table 1), holistic customer service framework of the CPF Board. The framework leverages on ICT for the purpose of serving and educating its members, empowering them to plan and act effectively for a secure retirement through their different life stages. As a strong testimony to the effectiveness of the *my cpf* framework, a customer satisfaction survey conducted at the end of 2006 found that 99.3% of the members surveyed were satisfied with the public services provided by the CPF Board, while the complaints to compliments received ratio for the year 2007 was an impressive 1:49.

<table>
<thead>
<tr>
<th>Table 1: List of International Awards for <em>my cpf</em></th>
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<tr>
<td><strong>Award</strong></td>
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<tr>
<td>United Nations Public Service Award Finalist</td>
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<td>CAPAM (Commonwealth Association for Public Administration &amp; Management) International Innovations Award &amp; Commendation</td>
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<td>Stockholm Challenge Award – Finalist</td>
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At the heart of the vastly successful *my cpf* framework is the *my cpf* online portal (refer to Figure 1), a website that provides personalized, integrated online services to the members of the CPF Board. The *my cpf* online portal is recognized as one of the top public service websites in Singapore in a number of independent studies conducted by Yahoo Singapore, Hitwise and the Singapore government. This is a considerable achievement given that Singapore is a country that

\(^{1}\) Singapore has a total population of around 4.5 million and more than 68% of all Singaporeans are members of the CPF Board
has consistently been ranked as one of the world’s leading e-government nations (See, e.g. Accenture, 2007) and has attained a high general level of e-government maturity across the entire public sector. As of 2006, 95% of the CPF Board’s transactions were conducted via the my cpf online portal, and according to the customer satisfaction survey conducted in the same year, 92.3% of the members surveyed were satisfied with the quality of the electronic services (e-services) provided.

Figure 1: my cpf Online Portal
While these statistics firmly attest to the effectiveness and success of my cpf today, prior to the introduction of the customer service framework, administration of the CPF was a process that was representative of the classic model of hierarchical bureaucracy, and was both inefficient and time consuming.

Public Service Delivery before my cpf

Before the 1990s, the CPF Board did not have an integrated customer service function within the organization. Instead, it had a function-based organizational structure that divided the activities of the organization according to the different CPF schemes and services available. A Customer Service Officer (CSO) who has been with the CPF Board for over 17 years described the state of public service delivery then:

“"We had different departments on different floors (of the building). So if customers have an enquiry on housing, they’ll have to go to the 35th floor. And if they have an enquiry on insurance, they’ll have to go to the 36th floor... If they have business with more than one department, they have to go to different levels””

Structuring public services along functional lines resulted in inefficiency and inconvenience for the customers because to perform a transaction or make a simple enquiry, they had to know the exact service or scheme that their needs pertained to. In addition, customers had to approach the right department that manages the specific service or scheme in order to perform the transaction, which was not an easy task given that the CPF Board provides over a hundred possible transactions from over ten departments. And if the customers wished to perform multiple
transactions or enquiries with different departments of the CPF Board, they had to join the queue at each of the departments separately.

In a bid to improve the efficiency and effectiveness of public service delivery, an integrated Customer Service department was established in June 1995. Integrating the different CPF schemes and services governed by different functional departments within the organization, the integrated Customer Service department was structured according to three business processes: (1) Withdrawals; for CPF members who have reached the age of retirement or are leaving Singapore, (2) Schemes; that encompasses the various CPF schemes for housing, healthcare, investment and insurance, and (3) Employer Services; that provided services for the employers of CPF members. Yet, although the myriad of schemes and services offered by the CPF Board were distilled into the three business processes and housed within five “one stop service centers” that were scattered across Singapore, customers still had to join different queues if their needs involved more than a single business process.

In a parallel development, the CPF Board established their first website in 1996. It began as an informational website that provided information on the various CPF schemes and services available at the CPF Board but within months, electronic versions of the various transaction forms of the CPF Board were made available on the website as well. The Director of Customer Relations at the CPF board described the form and function of the first CPF website:

“When we started to provide things on the Internet platform, we were only ‘e-enabling’ our transactions and services... So if we have a form for a transaction on paper, we will convert that transaction into an electronic format... Our website was organized into more than 10 ‘handbooks’ representing the various schemes that we have... But at the
end of the day, we have changed the service platform but we did not change the service experience because the customer still has to remember which department he is dealing with and go to the right platform to complete his transaction.”

Structuring the website along functional lines made it difficult to navigate and use. Yet, the website was fairly well-received by the members of the CPF Board. The website processed about 200,000 transactions within the first year of its inception when the Internet penetration rate in Singapore was only 9% and by 2002, the website was handling over 2 million transactions a year. However, although the establishment of an integrated customer service department and a website that supported electronic transactions had improved the quality of the CPF Board’s services by some extent, the convergence of two significant events created a pressing need for a more efficient and effective mode of public service delivery.

Drivers of my cpf

The first event was the appointment of the CPF Board to a new national role by the Singapore government. At the height of the Asian Financial Crisis and the global economic downturn, the Singapore government announced the New Singapore Shares scheme on August 2001 aimed at helping the lower income group tide over the adverse economic conditions. All eligible Singaporeans were given between US$147 and US$1,250 worth of ‘New Singapore Shares’ which they can either redeem for cash, or retain in return for a guaranteed 3% dividend per annum. As the CPF Board was the public agency that served the broadest base of Singaporeans in the public sector, the organization was appointed to implement the scheme. Since 2001, four other economic policies were announced by the Singapore government and similarly administered by the CPF Board: The Economic Restructuring Shares scheme between 2003 and

During the initial phase of administering the new economic policies, as the important dates for each of the schemes approached (e.g. the first day in which the shares can be redeemed for cash), hundreds and thousands of Singaporeans would swamp the CPF service centers, forming long snaking queues (refer to Figure 2) that resulted in public dissatisfaction. The Senior Assistant Director of Service Planning and Research at the CPF Board described how the new national role of the CPF Board fueled the conviction of the organization to further improve on the efficiency and effectiveness of its customer service:

“The NSS... is meant to be a good thing right? But you see very old ladies or gentlemen who are struggling to come to our offices just so that they can tick a form that says ‘Yes, we want to sign up for this scheme.’... And we feel that it is a very sad sight for an otherwise happy occasion... so is there something that we can do?”

The second event was an internal review conducted as part of the organization’s drive for continuous improvement. A market study conducted as part of the review indicated that by the end of 2001, the CPF Board had become one of the leading service organizations in the Singapore public sector. Yet, as service standards across many industries were similarly increasing, the study found that the customers of the CPF Board was growing increasingly sophisticated and were starting to demand for an even higher level of service quality. The Senior Assistant Director of Service Planning and Research elaborated:
“At that time when we centralized our call center, established our one stop service centers, a lot of (organizations in) the public sector weren’t there yet. Because we’ve already reached that stage and people know us for giving very good, very courteous, quality, one stop services, the question was where next to go…. We realized that, increasingly, as the population became more sophisticated and people were no longer happy with just this kind of service. So we asked ourselves... how do we take the next step?”

With the realization that the organization-centric, function-based mode of public service delivery adopted on both the CPF Board’s website and one stop service centers was inadequate for taking on the new national role of administering the Singapore government’s economic policies and meeting the growing expectations of their customers, the management of the CPF Board was
stirred into action. A committee was formally established by the management of the CPF Board to look into ways of improving the effectiveness and efficiency of the public services provided by the organization in 2002. The recommendations of the committee led to the conception of the my cpf customer service framework.

The Need for E-Government

The primary focus of the initial my cpf framework was to serve customers from a customer-centric perspective through concept of “Service by Life Events”, which essentially integrated the vast array of services and information provided by the CPF board into bundles of services that is relevant to the various stages of life a customer may be in. The Senior Assistant Director of Service Planning and Research at the CPF Board elaborated on the rationale behind the “Service by Life Events” concept:

“*We realized that in our customer’s mind, they come to us not based on our schemes, but it’s more like ‘I’m getting married... so I need to go to the CPF and do something.’. A person getting married may need to buy a house or change their nomination (of the beneficiary who will receive their CPF Savings in the event of death before the age of retirement)... so if we serve them with all these related needs (at one time), it will prevent them from having to come to us repeatedly. And at the same time it saves us (time and effort), as we don’t have to keep advising them on different issues (each time they come)...”*

Trial implementation of the “Service by Life Events” concept was carried out in the service centers in mid 2002 as the process-based structure of the service centers made way for “one stop
service counters”; single counters that catered to all the needs of an individual customer regardless of the business processes, schemes or transactions involved. By embracing “Service by Life Events”, the prior organizational-centric, function-based mode of public service delivery was replaced by a customer-centric, events-based model that is more effective in meeting the customers’ needs. Yet, servicing customers by life events created a problem for the CPF Board. The Director of Customer Relations elaborated on the new problem faced by the organization:

“The initiative came at a very high cost. Our transaction costs go up because the interaction time is longer... it’s easy to provide good customer service if you have endless resources... but it doesn’t work that way in the public sector because excellent customer service will not get us any business returns...”

To find a solution that mitigates the spiraling costs of serving customers by life events at the service counters, the management of the CPF Board performed comprehensive analyses of their existing business processes, the external environment, and their customers. From the analyses, the management gained three critical insights. First, from their experience with providing electronic transactions through the CPF Board’s website, the management realized that if a significant portion of the transactions carried out at the traditional service counters could be brought onto the electronic platform, considerable savings can be achieved. To illustrate, an internal review found that the cost of a single counter transaction was estimated at US$18.34. In comparison, the cost of a single e-transaction was estimated at only US$0.55.

Second, the management of the CPF Board realized that the population in general was becoming more Internet savvy. The Internet Penetration Rate of Singapore had risen to 65% in 2003, and a large proportion of the population was already familiar with using and conducting electronic
transactions over the Internet. Consequently, this made the provision of public services via the electronic channel more viable as the public was likely to be more receptive towards the initiative. Third, the management of the CPF board realized that if they could move the majority of its transactions onto the electronic platform, it would allow the CPF Board to focus its resources at their service centers on the segments of their customers; such as the elderly, the illiterate and the poor, who needed it the most.

The three insights gained by the management of the CPF Board converged on a single solution: The development of an effective, customer-centric e-government that would facilitate the migration of the majority of the customers who were using the traditional counter services onto the electronic platform. Consequently, the decision was made to perform a complete makeover of its existing website and reposition the my cpf framework as a predominantly online initiative with a strong emphasis on electronic public service delivery. This monumental decision marked the beginning of the CPF Board’s e-government journey.

**E-Government Development Phase 1: Early 2003- Early 2004**

In the initial phase of e-government development, the focus of the CPF Board was on structuring the information provided on their website from a customer-centric perspective. The existing website was difficult to navigate and use as the information and services provided on the website were structured along functional lines. The Director of Customer Relations illustrated the limitations of the organization-centric structure of the e-services on the existing website with an example:
“There was this (electronic) form called ‘RPS/4’. It stands for Residential Property Scheme Form 4. The form is used to change the monthly installment amount for a member’s housing needs... But even if they saw the form on our website, based on the name of the form, how would the customers know what the form was for?”

As the customers’ perspective of the information and services they require stems from the life events that they are currently experiencing, the decision was made in early 2003 to replicate the “Service by Life Events” concept on the electronic channel. The first step taken by the CPF Board in December 2003 was the establishment of five major life events that typically created the highest volume of enquiries. The five life events were: Starting work, getting married, having children, buying a house, and making an investment. Through a major revamp of the content on the existing website, all the information pertaining to the CPF schemes and services that were relevant to the five life events were categorized accordingly. The Director of Customer Relations at the CPF Board explained:

“‘We started small... Our thinking was ‘Let’s start off with the major life events and see the customers’ reaction’... and I think the reaction was very positive...’”

Guided by the objective to migrate the customers who were using the traditional counter services onto the electronic platform, besides restructuring the information on the website, the CPF Board also adopted measures to introduce the revamped website to their members. At the end of 2003, “e-lobbies”; designated areas with self-service terminals that could be used to access the CPF website, were established at all CPF service centers across Singapore. In addition, a handful of CSOs at each service center were designated as “e-ambassadors” according to a daily roster. The e-ambassadors were stationed at the e-lobbies and their responsibilities include introducing
members to the revamped website, helping members conduct electronic transactions whenever possible, and educating members by highlighting the convenience and cost savings of using the electronic channel. Yet, the expanded role of the CSOs created a problem, particularly among older CSOs. A CSO described the problem and the measures adopted by the CPF Board to overcome the problem:

“When the e-ambassador (initiative) first started, we were actually quite apprehensive. Especially among older CSOs... they were like ‘Computers? I don’t know how to use them.’... But they (the management) trained us on what is available on the website... and we are encouraged to experiment (with the website) on our own... Soon we realized that it (the new website) is a very good thing... no more hardcopies, no more brochures to give out... and everything is updated immediately... We no longer have to check the expiry dates of the forms and brochures...”

The initial phase of e-government development began in early 2003 and lasted for a little over a year. At the end of the phase, the restructuring of information according to the five major life events defined by the CPF Board was completed, and an electronic transaction for the withdrawal of CPF funds was included on the website. To facilitate electronic transactions, “Singapore Personal Access” (SingPass); a confidential password of between 8-24 alphanumeric characters that provided a mechanism for individual customers to identify themselves, was established in March 2003. Once again, as the CPF Board was the public organization that served the broadest base of citizens in Singapore, the SingPass was adopted by the Singapore Government as a common national password that enabled citizens to transact with different government agencies across the Singapore public sector.
The initiative to replicate the “service by life events” concept on the website proved to be very successful and by the end of 2003, the number of transactions handled on the website had increased exponentially to 8 million a year while the average service cost per CPF member stood at approximately USD$16.30. In addition, although a customer satisfaction survey conducted in 2003 revealed that only 62.2% of customers were satisfied with the e-services available on the website, the CPF Board received numerous positive reviews of the revamped website from their members. For instance, a member of the CPF Board described his experience with the revamped website:

“I was amazed when I logged into the CPF Website today. The changes done to the website reflects exactly what I wanted to see the moment I login to CPF. (I) appreciate the effort invested in improving the website…”

E-Government Development Phase 2: Early 2004 – Mid-2005

Encouraged by the initial success from the concerted organizational effort at developing a holistic e-government framework, the CPF Board established two objectives in the next phase of e-government development. First, the CPF Board sought to rebrand the CPF website to emphasize the new customer orientation of the online platform. To achieve the first objective, an extensive rebranding exercise was conducted that led to the conception of the my cpf website in March 2004. The Director of Customer Relations described the rationale and nature of this rebranding exercise:

“Every time the customers come to our counter, they will ask ‘where is my CPF?’... We realized that this is an emotional term that we can use to connect with our customers.”
So we rebranded our website ‘my cpf!’ With a simple change in words, you switch to a customer perspective... From then on, all our services are rebranded from a customer perspective... instead of calling it (an e-service) ‘CPF Online Statement’, we call it ‘My Statement’, ‘My Requests’, ‘My Messages’... It empowers the customers and makes them feel that the CPF Board is customizing everything for them.”

The second objective of the CPF Board was to develop a comprehensive suite of e-services that were personalized and tailored to the needs of individual CPF members. Facilitated by SingPass, which provided a mechanism for identifying each CPF member individually, four e-services; named “My Statements”, “My Messages”, “My Requests”, and “My Activities”, were launched in between August and October 2004. Collectively known as the “my cpf Online Services”, the newly launched e-services were designed to be complementary with each other, and the informational pages (rebranded as “my cpf Life Events”) developed in the earlier phase. In tandem, my cpf Online Services and my cpf Life Events formed a tightly integrated package of information and services that members of the CPF Board can access on a anytime, anywhere basis. Table 2 provides a description of the four e-services and how they effected service transformation at the CPF Board.

The rebranding initiative and the development of a complementary suite of personalized services resulted in a phenomenal twofold increase in the number of transactions conducted online. By the end of 2004, the my cpf website was handling 16 million transactions a year. Yet, the rapid migration of the CPF members onto the electronic platform revealed a growing digital divide. In particular, the use of the SingPass proved to be problematic, especially among older citizens. A member of the Innovation Committee at the CPF Board elaborated:
| **My Statement** *(Implemented August 2004)* | **Before My Statement:** CPF Members had 24 different CPF statements for the various CPF schemes. To retrieve the statements, they had to request for the different statements to be mailed or navigate through layers of information on the website to retrieve the desired statement. **With My Statement:** All the statements are integrated in a single, easy-to-read page, with an easy-to-use interface that enables customers to drill down to the required level of detail for each of the different CPF statements. |
| **My Requests** *(Implemented September 2004)* | **Before My Request:** The CPF Board had more than ten different schemes and offered over a hundred different transactions. Consequently, locating the right application form in order to enact the correct transaction with the CPF Board required effort and knowledge on the part of the customers. **With My Request:** The hundreds of transactions from the various CPF schemes are organized according to a comprehensive step-by-step guide. Navigating a series of easy-to-understand options, customers are able to drill down through layers of information to the desired online form that enables them to transact electronically with the CPF Board. |
| **My Activities** *(Implemented September 2004)* | **Before My Activities:** After submitting a form to the CPF Board, customers are not updated with the status of their transactions. As a result, some customers may forget about the transactions or services they had requested for. **With My Activities:** My Activities tracks the status of the transactions conducted and informs the customers of the latest status of all their electronic or paper-based transactions with the CPF Board. At a glance, customers would be able to tell immediately if their transaction has been received, is being processed, is rejected or approved. |
| **My Messages** *(Implemented October 2004)* | **Before My Messages:** The CPF Board took a passive approach to public service delivery. Requests for information and services had to be initiated by the consumer before a transaction could be completed. Efforts aimed at educating CPF members to actively plan for their retirement are limited on the electronic channel as they have to be initiated by the customers. **With My Messages:** Based on information on the customer and their transaction history, My Messages provides customers with personalized messages encompassing all the schemes and services that are relevant to the life stages they are in. This promotes better retirement planning for the members of the CPF Board as they can now make informed decisions relating to their retirement. |

‘During a routine walkabout, one of our directors noted that many of our older members were having difficulty remembering their SingPass... Some of them would go
to the counters to reset their SingPass, but by the time they make their way to a (self-service) terminal, they would have forgotten the new SingPass that they were given just moments ago! So he (the director) sent us an email saying ‘You know this SingPass, you don't expect older people to use it. Have you thought of other solutions?’”

At that point in time, a team from the IT department happened to be studying biometric technology and evaluating its applicability to the services of the CPF Board. The email from the top management that highlighted the problems with the use of SingPass thus struck a chord with the team, and a proposal for a biometric solution to the problem was pitched and eventually approved and implemented in March 2004. The solution took the form of a biometric e-counter, a self-service terminal that allowed a user to log into his CPF account using his thumbprint. The leader of the team tasked with implementing the biometric e-counters detailed the problems encountered in implementing the biometric e-counter and described how the problems were overcome:

“‘We initially thought of linking our biometric system with the national database. But the ICA\(^2\) said that the national database cannot be used for ‘mere enquiries’... There were many security concerns... But we realized that we can match thumbprints on the fly using our NRICs\(^3\)... The security risks are minimal... and if the NRIC is defective, there is no match. And that won’t matter because it is just an alternative. They can still go to the counter to use SingPass, or we’ll advise them to replace their NRIC’”

\(^2\) Immigration & Checkpoints Authority: The public agency responsible for immigration and citizen registration in Singapore

\(^3\) National Registration Identity Cards: The official identity document of Singapore Citizens that is imprinted with the thumbprint of the citizen
The second phase of e-government development began in early 2004 and was completed by mid-2005. At the end of the phase, the organizational website was rebranded from a customer’s perspective as the *my cpf* website. In addition, the CPF Board developed a suite of personalized e-services that was complementary to the *my cpf* Life Events informational pages developed in the earlier phase. By the end of 2004, the estimated average service cost per CPF member had decreased to USD$15.70, and the number of physical service counters operated by the CPF Board was reduced by almost 20% as a result of the large-scale migration of customers onto the electronic platform. In addition, according to a customer satisfaction survey conducted in 2004, the percentage of members who were satisfied with the quality of the e-services had risen to 74.3%. The overwhelming success of the first two phases of e-government development attests to the immense potential of e-government for improving the efficiency and effectiveness of the public services of the CPF Board. Yet, despite the success, the management of the CPF Board realized that e-government remained inadequate in meeting the needs of certain customer segments. In the third phase of e-government development, the objective of the CPF Board was on extending the reach of their e-services, so as to cater to the segments of customers whose needs have not been adequately met thus far.

**E-Government Development Phase 3: Mid-2005 to Early 2007**

A particularly challenging aspect of e-government implementation at the CPF Board lies in the breadth of its customer base. Its members can range from 18 to 90 years old, and span a wide range of education and income levels, with each demographic group having their unique needs and requirements. The Chief Information Officer of the CPF Board described the various customer segments that the CPF Board has to cater to:
“We have a very broad spectrum of customers. At one end we have the teenagers; most probably very IT (Information Technology) savvy having learnt all about IT in school... They are into social networking, Web 2.0 (technologies) and all that... Then we have the other end... those who are not IT savvy... those with lower education levels... our older members; aged 55 and above, those who cannot afford computers... We have to reach out to all of them. We cannot, just because we are providing e-services, ignore the other (non-IT Savvy) groups”

Unlike a private organization that can focus on the needs of its most profitable customers, the CPF Board has a public mandate to serve all customer segments. Thus, while closing all its traditional service counters and mandating the use of its e-government would achieve the goal of reducing the costs of customer service and drive all of its existing customers onto the electronic platform; this was not an option as there were segments of customers that would be excluded from receiving the services. Therefore, in the third phase of e-government development, the challenge to the management of the CPF Board was to make e-government inclusive so as to cater to the needs of a diverse array of customer segments.

Based on a comprehensive analysis of their existing customer base, the CPF Board identified five major customer segments. The customer segments are labelled: (1) Young and IT Savvy, (2) Teenagers and Kids, (3) Non-IT Savvy, (4) Senior Citizens, and (5) On the move and Busy. Table 3 provides a brief summary of the characteristics that define the five customer segments.

By defining the five customer segments, the CPF Board was able to conduct a thorough analysis of their existing services to identify the service gaps in the current mode of public service delivery. Through the identification of the service gaps, the management of the CPF Board then
developed a holistic customer service philosophy that was referred to as “Different Strokes for Different Folks”, which provided an overarching framework to guide the development of new applications, functions, and service delivery mechanisms in the third phase of e-government development. Figure 3 provides an illustration of how the service gaps in the existing mode of public service delivery were identified and how new initiatives were developed to fill these gaps. Table 4 provides a brief description of the new initiatives implemented in the third phase of e-government development.

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<th>Customer Segment</th>
<th>Characteristics</th>
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<tr>
<td>Young and IT Savvy</td>
<td>Age below 55</td>
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<tr>
<td></td>
<td>Familiar with using the Internet and conducting transactions online.</td>
</tr>
<tr>
<td>Teenagers and Kids</td>
<td>Age below 20</td>
</tr>
<tr>
<td></td>
<td>Extremely IT Savvy</td>
</tr>
<tr>
<td></td>
<td>Limited attention span</td>
</tr>
<tr>
<td></td>
<td>Familiar with social networking tools and playing games online</td>
</tr>
<tr>
<td>Non-IT Savvy</td>
<td>Age below 55</td>
</tr>
<tr>
<td></td>
<td>Unfamiliar with using the Internet and conducting transactions online.</td>
</tr>
<tr>
<td>Senior Citizens</td>
<td>Age above 55 and have already retired.</td>
</tr>
<tr>
<td></td>
<td>Unfamiliar with using the Internet and conducting transactions online.</td>
</tr>
<tr>
<td></td>
<td>Face difficulty in learning how to use the Internet</td>
</tr>
<tr>
<td>On the Move and Busy</td>
<td>Typically busy professionals or employees of Small and Medium Enterprises (SMEs)</td>
</tr>
<tr>
<td></td>
<td>IT Savvy but have limited access to computers.</td>
</tr>
</tbody>
</table>
The third phase of e-government development began in July 2005 and was completed by early 2007. Through the new initiatives implemented as part of the phase, the CPF Board now had services and service delivery mechanisms that catered to the needs of its 5 major customer segments. By the end of 2006, the average service cost per CPF member had decreased to approximately USD$13.54 and as reported earlier, a customer satisfaction survey found that the percentage of customers who were satisfied with the quality of the CPF Board’s e-services had risen to 92.3%. These statistics attest to the sustained improvements in terms of the efficiency and effectiveness of its public services. In addition, the volume of electronic transactions handled by the CPF Board continues to grow. At the end of the third phase of e-government
development, it was estimated that the CPF Board handled more than 32 million electronic transactions a year.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Targeted Customer Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationwide Kiosks (Implemented Sep 2005)</td>
<td>Senior citizens, Non-IT savvy, Young &amp; IT savvy</td>
<td>By facilitating CPF transactions via the AXS commercial kiosk network, this initiative allows CPF members with no access to the Internet to perform electronic transactions with the CPF Board 24/7. As of June 2007, there are more than 463 AXS Stations strategically located all over Singapore.</td>
</tr>
<tr>
<td>Retirement Planning Tools and Calculators (Implemented Jul 2005)</td>
<td>Non-IT Savvy, Young &amp; IT Savvy</td>
<td>Web-based applications that calculate the amount of monthly CPF contributions, housing instalments, the amount necessary for retirement. The purpose of the planning tools and calculators is to educate visitors to the CPF website on the importance of retirement planning.</td>
</tr>
<tr>
<td>e-Helpdesk (Implemented Sep 2005)</td>
<td>Non-IT savvy</td>
<td>e-Helpdesk is a downloadable application that enables the CPF CSO to see the same screen on the computer as the customers and take control of their screen if the need arises. The main purpose of this initiative is to educate non-IT savvy users on the use of the my cpf Portal and help in the navigation of the portal.</td>
</tr>
<tr>
<td>Interactive Games (Implemented Jul 2005)</td>
<td>Teens &amp; Kids</td>
<td>Interactive, Flash-based games were designed to educate young Singaporeans on the importance of planning early for their retirement. For example, the “Voyage of Life” game was a monopoly-styled board game that lets players go through significant life events such as working, making investments, buying insurance, and buying a home. By playing the game, key retirement planning concepts are instilled in the players, who become aware of the implications of their decisions that affect financial security.</td>
</tr>
<tr>
<td>mPAL (Implemented Oct 2005)</td>
<td>On the Move &amp; Busy</td>
<td>mPAL is a suite of Java-based applications harnessing mobile technologies. It is targeted at busy professionals or employees of Small and Medium Enterprises (SMEs) with limited access to the Internet and the Computer. With mPal, CPF’s e-services can be accessed via mobile phones anytime, anywhere.</td>
</tr>
<tr>
<td>iCare CRMS (Implemented Jan 2006)</td>
<td>All customer segments</td>
<td>Previously, all the records of the CPF members were stored in various systems maintained by different departments, with minimal integration between the different systems. If a customer had enquiries that crossed more than one scheme or service, the CPF CSO would have to toggle between systems to retrieve the relevant information. The iCARE is a central repository of customer information across the CPF Board’s various contact points that provides the CPF Board with the ability to profile their customers and provide personalized service to individual CPF members.</td>
</tr>
<tr>
<td>e-Appointment (Implemented Jul 2005)</td>
<td>On the Move &amp; Busy</td>
<td>e-Appointment is an application that enables busy professionals to schedule an appointment with the CSOs of the CPF Board via an SMS. SMS reminders of the appointment are sent prior to the appointment date. The CPF Board pledges to attend to the CPF members within 10 minutes of the appointment time.</td>
</tr>
</tbody>
</table>
E-Government Development Phase 4: Early 2007 - Present

Facilitated by an effective e-government, the CPF Board has nurtured a culture and organizational mindset for service excellence. Seeking the next step shift improvement in service quality and efficiency, the present objective of the CPF Board is to extend the breadth and depth of e-government by improving the reach and richness of its e-services. A Senior Executive at the CPF Board elaborates:

“It (service improvement) is like an S-curve. When you are doing so well, whatever you do next is incremental. After a while, you’ve got to ask yourself: ‘What do I need to do to break the status quo and go into the next S-Curve?’... For the less IT illiterate and the elderly, I think more can be done to reach out to them... we are also continuously looking for new ways of leveraging technology”

To this end, the present phase of e-government development centers on three key strategies. The first strategy is to proactively reach out to the segments of the population that have traditionally been excluded from the services of the CPF Board. In particular, the management of the CPF Board is aware that there is a segment of customers that face immense difficulties in receiving public services from the CPF service centers, let alone latching onto the Internet platform to conduct electronic transactions. This customer segment includes four main demographic groups: (1) Citizens with lower income who cannot afford computers or Internet access, (2) Citizens who are illiterate or lack education and consequently, have no knowledge of the CPF schemes and services available and do not know where to seek help, (3) Citizens with disabilities who face immense difficulties in traveling to the CPF service centers, and (4) senior citizens lacking proper care and social support.
To reach out to this segment of customers, the CPF Board launched the mobile-Ambassador (m-Ambassador) service in April 2007. The m-Ambassador Service utilizes wireless technologies to enable CPF CSOs to serve customers using Ultra Mobile Personal Computers (UMPCs). Through a letter of authorization, a member can authorize a CSO to access his/her CPF account and conduct online transactions on his/her behalf via the UMPCs, effectively gaining access to the entire suite of *my cpf* Online Services. To date, the CPF Board has partnered various grassroots organizations in organizing road shows and visits to the homes of the elderly and the disabled, delivering the public services of the CPF Board to the point of need, reaching out to the segments of the population that arguably need the services of the CPF CSOs the most.

The second strategy is to further enhance the richness of their e-services. Specifically, the management of the CPF Board realized that despite the increased efficiency and effectiveness that resulted from providing services over the Internet, there were some limitations to the existing form of online transactions. The Manager of the E-Services at the CPF Board described these limitations:

> “Traditionally, (electronic) forms come with pre-determined fields which you must complete. There's a field for you to fill up everything, which is a good thing... In fact, many of our forms are that way. It helps a lot in our operations... But we don't want to be constrained by the fact that we need a pre-defined form to do everything...”

This critical management insight led to the conception of the “*My e-Concierge*” service in November 2007. My e-Concierge is an online application that consists of a simplified, open-ended form. Designed to be used like the email, My e-Concierge allows the user to key in their requests in an unstructured form, and is intended for use by customers who are unable to locate
the information or e-services relevant to their needs on the my cpf portal. The Manager of the E-Services at the CPF Board described the function and benefits of My e-Concierge:

“"You see a lot of open-ended forms on the banking websites. They don’t even call it a form; they're just open-ended email requests that will be processed anyway... We brought this concept to the public sector, and it makes things really convenient for the customers. This form is especially useful for requests that are uncommon because it's not cost effective for us to create an online form for every service or request that's available at the CPF Board. Short of making the customer come down to our counters, we now have My e-Concierge for them to submit their uncommon requests."”

The third strategy centers on integrating the services of the CPF Board with the services of public and private organizations to bring about one-stop services and greater convenience to the customers. While data sharing agreements between the CPF Board and public organizations such as the Housing and Development Board4 (HDB) have existed since the 1960s, the CPF Board is seeking a greater extent of collaboration and integration with external organizations towards the aim of providing seamless, cross-organizational services to their customers. Yet, the objective of integration brings a fresh set of challenges to the CPF Board. The Deputy Director of Service Planning and Development described these challenges and the steps taken to overcome these challenges:

“"It's about agreeing on the terms and conditions and knowing where are the boundaries. With the private organizations, it's much easier because they are all profit-

4 The Housing and Development Board (HDB) is Singapore’s public housing authority. HDB plans and develops public housing towns with the aim of providing citizens with quality homes and living environments
driven; they look at what is in it for them in terms of profit and if they see value, they will participate with us, and they are quite flexible in terms of accepting the conditions that we lay down. For government bodies, it’s a little bit complex because we have our own rules and regulations. The data that we own individually; we are not allowed to share... But IDA\(^5\) is pushing for it constantly and they help us by identifying the potential services that can be integrated... And if we have some ideas for collaboration, we will go through our colleagues in the Housing Department, who will discuss it with their HDB counterparts...”

Through the three strategies, the present phase of e-government development that began in early 2007 seeks to raise the standard of the CPF Board’s services to an even higher level. While the latest phase has not arrived at fruition, and although new challenges will inevitably arise, the well-honed service system of the CPF Board and the relentless drive towards service excellence stands the organization in good stead in the foreseeable future. In any case, the successful e-government experience of the CPF Board up to this point in time certainly attests to the momentous potential of e-government for enhancing the quality and delivery of public services, and underscores the important role of information and communications technology in the course of public administration.

\(^5\) Infocomm Development Authority of Singapore: A statutory board tasked with overseeing Infocomm technology development, deployment and usage in Singapore.
The Process of E-Government Development at the CPF Board

Defining Four Phases of E-Government Development

By constructing a timeline of the e-government initiatives implemented (refer to Figure 4), a pre-implementation phase and four e-government development phases in the process of e-government development at the CPF Board can be defined based on the different strategic objectives of each phase. The strategic objectives, the key initiatives developed and the organizational impact of the use of Information Technology (IT)/e-government in each phase are summarized in Table 5.

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Strategic Objectives</td>
<td>“E-enablement” of existing schemes and services</td>
<td>Attaining customer centrality through re-organization of information from the customer’s perspective</td>
<td>Personalization and customization of e-services</td>
<td>Developing a suite of services and service delivery mechanisms that catered to its five customer segments</td>
<td>Providing open-ended services and delivering proactive services to digitally excluded customers</td>
</tr>
<tr>
<td>Organizational Impact</td>
<td>• Increased Efficiency: Decreasing average service costs per CPF member</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased Effectiveness: Increasing customer satisfaction, Increasing customer reach</td>
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</table>
Figure 4. Timeline of E-Government Initiatives Implemented by the CPF Board
**Differences from Existing Models of E-Government Development**

By distinguishing between the various phases of e-government development, a comparison between the process of e-government development that unfolded in the case of the CPF Board and the stage models of e-government maturity in the existing literature can be made. In general, although many different stage models of e-government maturity (refer to Table 6) have been developed in the existing literature, five common stages of maturity may be identified across the various models (Siau & Long, 2005).

<table>
<thead>
<tr>
<th>Model</th>
<th>Stages</th>
</tr>
</thead>
</table>
| Layne & Lee (2001) Four-stage Model | • **Catalogue:** Delivers static or basic information  
• **Transaction:** Enables simple online transactions  
• **Vertical Integration:** Integrating government functions at different levels  
• **Horizontal Integration:** Integrating different functions from different agencies |
| Hiller & Belanger's Five-Stage (2001) Model | • **One Way Communication:** Simple information dissemination  
• **Two Way Communication:** Interaction between govt and users  
• **Service & Financial Transactions:** G2C & G2B transactions  
• **Vertical & Horizontal Integration:** Similar to Layne & Lee (2001)  
• **Political Participation:** Promotion of political participation (e.g. online voting) |
| Gartner Group's (2000) Four-stage Model | • **Web Presence:** Provide basic information  
• **Interaction:** Ability to contact agencies  
• **Transaction:** Complete service & financial transactions  
• **Transformation:** Provide integrated, personalized service |
| UNPAN's (2003) Five-stage Model | • **Emerging Presence:** Provide formal but limited static information  
• **Enhanced presence:** Provide dynamic, specialized information  
• **Interactive Presence:** Portal to connect users and Service Providers  
• **Transactional Presence:** Ability to conduct complete and secure transactions  
• **Seamless or fully integrated presence:** one-stop portal to access a variety of services |
| Deloitte's (2001) Six-stage Model | • **Information Publishing:** Provide increased access to information  
• **Official Two-way Transaction:** Interaction between governments and users  
• **Multi-purpose Portals:** Single portal to provide universal service across departments  
• **Portal Personalization:** Customized portals  
• **Clustering of Common Services:** Unified and seamless service across agencies  
• **Full Integration and Enterprise Transaction:** Sophisticated, unified and personalized services for all customers |

Table 6: Various E-Government Maturity Stage Models
The first stage of e-government maturity may be labeled Web Presence where simple and limited information is posted through the websites of public organizations. The second stage may be termed Interaction where basic search engines, email systems and official form downloads are provided to allow basic two way communication between citizens and the public organization. The third stage may be labeled Transaction and involves allowing citizens to conduct complete service and financial transactions online. The fourth stage may be termed Transformation and involves horizontal integration between different public agencies and vertical integration across various levels of government. The final stage may be termed E-democracy, which is viewed as a long term goal for e-government that adheres to the spirit of deliberative democracy. In this stage, tools such as online voting, polling and surveys are provided to improve public involvement and promote political participation (Siau & Long, 2005).

Comparing the process of e-government development at the CPF Board with the stage models of e-government maturity in the existing literature, two key differences may be identified. First, by mapping the stages of e-government maturity (according to the existing stage models in the literature) onto the different phases of e-government development that transpired at the CPF Board (refer to Table 7), it is evident that the stages of e-government development can develop in parallel and does not necessarily follow a prescribed sequence.

For example, because integration with various public organizations such as the Housing and Development Board (HDB) have existed in the form of data sharing agreements since the 1960s, the integration of data and services at the CPF Board preceded e-government development. Consequently the e-government stage of Transformation (Siau & Long, 2005) was attained very
early: Integrated services were already available in the first CPF website established in 1996, prior to the development of a holistic e-government framework at the CPF Board in 2003.

| Table 7: Stages of E-Government Development Attained in Each Phase of E-Government Development |
|---|---|---|---|---|
| **Strategic Objectives** | “E-enablement” of existing schemes and services | Attaining customer centricity through re-organization of information from the customer’s perspective | Personalization and customization of e-services | Developing a suite of services and service delivery mechanisms that catered to its five customer segments | Providing open-ended services and delivering proactive services to digitally excluded customers |

Second, we find that in the case of the CPF Board, the same stages of e-government maturity can take on drastically different forms for the attainment of different strategic objectives. As an illustration, by posting electronic versions of their various transaction forms in the first CPF website launched in 1996, the CPF Board had attained the Transactions stage of maturity (Siau & Long, 2005) prior to the development of their holistic e-government framework in 2003. But in the second phase of e-government development, they developed personalized transactions to cater to the needs of individual CPF members. In the third phase of e-government phase, they developed a holistic suite of transactions to cater to the needs of a broad spectrum of CPF members, and finally, in the fourth phase of e-government development, they created open-ended transactions to enhance the flexibility of their e-services. The differences between the nature of transactions developed in each phase is in contrast with the monolithic definition of the various stages of e-government maturity in the existing stage models, and demonstrate how variation is possible even within a single stage of e-government maturity (Siau & Long, 2005).
The primary implication of these differences is that contrary to what the existing stage models appear to suggest, it is not the mere attainment of each stage, but rather the way in which each stage is enacted that results in true e-government maturity. In other words, because e-government development does not follow a prescribed sequence, and the manifestation of each stage is not homogenous across different contexts, the attainment of a stage can only be considered an extension to the range of e-services, and cannot be regarded as an enhancement or an indication of growing maturity, unless it is accompanied by a corresponding improvement in the efficiency and quality of the services of the public organization.

Enabling Service Transformation through E-Government Development

As e-government success is necessarily defined by the benefits derived from e-government development, our knowledge of how e-government implementation success can be achieved hinges on understanding the underlying process through which e-government development enhances the services of a public organization. To this end, a model of this underlying process; which we term e-government enabled service transformation, is constructed based on the empirical evidence from the CPF case study (refer to Figure 5). Through the process model, we gain insights into: (1) the triggers of e-government implementation, (2) the organizational capabilities that are developed or enhanced through e-government implementation, and (3) the mechanisms through which e-government implementation enhance the services of a public organization.
Based on the evidence presented in the teaching case, two categories of triggers of e-government development may be identified: (1) External triggers that originate from the organizational environment and (2) internal triggers that originate from within the organization. Table 8 summarizes the external and internal triggers of e-government development that can be identified from the evidence presented in the teaching case.

<table>
<thead>
<tr>
<th>External Triggers</th>
<th>Internal Triggers</th>
</tr>
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<tbody>
<tr>
<td>- Requirements by a regulatory body (e.g. Infocomm Development Authority of Singapore) or the government</td>
<td>- Organizational Targets</td>
</tr>
<tr>
<td>- Growing customer expectations</td>
<td>- Top management vision</td>
</tr>
<tr>
<td>- Mimetic pressure from the private sector (e.g. Banks) and other public organizations</td>
<td>- Bottom-up innovation</td>
</tr>
</tbody>
</table>

These external and internal triggers provided the impetus for the development of e-government initiatives at the CPF Board across the four developmental phases. The e-government initiatives implemented led to the development, renewal or enhancement of two key organizational capabilities: The service capability; defined as the bundle of assets, routines and competencies of
the organization that are channelled towards the provision of services, and the service delivery capability; defined as the bundle of assets, routines and competencies of the organization that are channelled towards delivering the services to the customers. Table 9 provides a summary of how the two organizational capabilities were enhanced by the e-government initiatives developed across the four developmental phases.

<table>
<thead>
<tr>
<th>Service Capability</th>
<th>Service Delivery Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>my cpf Life Events</td>
<td>E-Lobby</td>
</tr>
<tr>
<td>my cpf Online Services:</td>
<td>Biometric E-Counter</td>
</tr>
<tr>
<td>My Statement</td>
<td>E-Lobby</td>
</tr>
<tr>
<td>My Requests</td>
<td>E-Lobby</td>
</tr>
<tr>
<td>My Activities</td>
<td>E-Lobby</td>
</tr>
<tr>
<td>My Messages</td>
<td>E-Lobby</td>
</tr>
<tr>
<td>Retirement planning tools and calculators</td>
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<td>e-Appointment</td>
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<tr>
<td>M-Ambassador</td>
<td>M-Ambassador</td>
</tr>
</tbody>
</table>

Through the development, renewal or enhancement of the two organizational capabilities, the organization derives the benefits of e-government development. Specifically, the benefits of e-government are realized in the form of increased efficiency; as indicated by decreasing average service costs per customer, and effectiveness; as indicated by growing customer satisfaction ratings. These benefits in turn, influence customer expectations, the e-government targets established by the CPF Board, the strategic vision of the top management and staff innovation in the next iterative phase of e-government development.

**Conclusion: Lessons Learnt**

The e-government journey of the CPF Board provides four important lessons for e-government managers and practitioners in the real world. First, in planning for e-government, managers and
practitioners should not be constrained to the sequential development model as advocated by the e-government stage models in the existing literature. In particular, the case of the CPF Board reveals that the conventional stages of e-government development do not have to unfold sequentially and can be implemented in parallel. And if e-government managers and practitioners can think beyond sequential development and consider how to implement the various stages of e-government development in a way that is mutually reinforcing, the extent of success achieved by the CPF board may similarly be within reach through this form of synergistic e-government development.

Second, in the development of e-government, the lesson for managers and practitioners is to not simply focus on the attainment of the various e-government stages, but on the actual manifestation of the stage and how that facilitates the attainment of the different strategic objectives of the organization. The case of the CPF Board demonstrates how different the actual manifestation of each stage of e-government development can be. Thus, the mere attainment of each stage should not be regarded as an indicator of e-government maturity or success, but rather, a mere extension to the organization’s repertoire of e-services. Instead, the concept of e-government maturity or success should be measured and defined based on the overall efficiency and quality of the services of a public organization.

Third, to derive the benefits of e-government development, e-government managers and practitioners should focus on the development or enhancement of two key organizational capabilities. The first capability is the service capability, which serves as a supply-side “push” factor that increases the efficiency and quality of the services of the public organization. The second capability is the service delivery capability, which serves as a demand-side “pull” factor
that draws more customers into using the enhanced e-services by improving the access to these services. While each of these capabilities may create organizational benefits on their own, e-government managers and practitioners should note that it is through the synergy created by the complementary pull-and-push capabilities of the organization that exponentially increases the returns from e-government development.

Finally, the overriding lesson for e-government managers and practitioners is that the process of service transformation through e-government development is not linear but iterative. E-government success is a moving target as success influences future customer expectations and internal organizational objectives. As such, e-government success should not be perceived as an end, but should instead be used as a driver for future e-government development. As the case of the CPF Board attests, it is only through this cycle of continuous improvement that long-term benefits from e-government development are achieved.

References


