

**Citizen Relationship Management
Implementation in
Malaysian Local Governments**

**A thesis submitted for the degree of
Doctor of Philosophy**

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Abstract

From the perspective of a system developer, this study presents an in-depth analysis of the CiRM implementation process in Malaysian local government. The study was motivated by the lack of studies examining the CiRM implementation process initiatives in the local government sector. Furthermore, the performance of the Malaysian Government in this initiative has been subjected to various criticisms, i.e., not properly servicing its public. This raises the question as to what has happened during the period of the CiRM implementation process in Malaysia. As there has been a demand for local governments to invest more in CiRM projects, the need for existing and potential system developers in the Malaysian government to have an implementation framework that could guide their effort in implementing the system has become more vital.

This study combines the case study research and grounded theory approaches. Twenty in-depth face-to-face interviews were conducted with system developers from ten local governments (i.e., five interviews from four pilot-cases and fifteen interviews from six primary-cases). The analyses of these data were divided in three main phases. The first phase involved a within and cross-case analyses of the pilot cases. The second and third phases involved a within and cross-case of the primary cases. These analyses enabled a set of determinants on CiRM implementation in the Malaysia local governments to be developed. The determinants were established by fitting their characteristics to the life-cycle of the CiRM system implementation process.

Some of the determinants were found to be common to the existing literature while others were found to be enhancing the existing knowledge in CiRM implementation process. These determinants were then developed to shape a theoretical framework for the CiRM implementation process in the local Malaysian governments. This framework not only describes the main determinants in the implementation process, but also the forces and activities that lie within it.

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Abbreviations

The following abbreviations are used throughout the thesis:

AJMC	Ampang Jaya Municipal Council
BPMC	Batu Pahat Municipal Council
CRM	Customer Relationship Management
CiRM	Citizen Relationship Management
DSS	Decision Support System
ERP	Enterprise Resource Planning
e-Government	Electronic government
GTA	Grounded theory approach
HCC	Hampshire County Council
IS	Information system
JBTMC	Johor Bahru Tengah Municipal Council
KUMC	Kulai Municipal Council
MHLG	Ministry of Housing and Local Government
MUMC	Muar Municipal Council
PGMC	Pasir Gudang Municipal Council
SDC	Sevenoaks District Council
SEMC	Selangor Municipal Council
SJMC	Subang Jaya Municipal Council

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¹ During my first year of my Ph. D studies

Recognition and Publication Arising from the Studies

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Dedication

To

Dr. Halimah,
Aleesa Zahra,
Ahmad Zafran,
my mother,
and

in loving memory of my father and my still-birth son.

Chapter 1

Introduction

This study investigates how a considerably new technology, the Citizen Relationship Management (CiRM) System, was implemented by Malaysian local governments. From the system developer's perspective, the aim of this study is to understand the CiRM implementation process in the Malaysian local governments.

This chapter provides an overview of the thesis. The first part explains the background of the study. This leads to research question and the objectives of the research (as discussed in the second and the third parts of the chapter, respectively). The fourth part presents the significance of conducting the study. The fifth part outlines the structure of the thesis. Finally, the sixth part summarises the chapter's main points.

1.1 Background of the Study

Many governments have implemented e-Government initiatives.² For instance, the UK government strived to become a world leader in the electronic age of e-Government by year 2005 (King and Cotterill, 2007). To achieve this target, a complete implementation of online products and services is pertinent at all tiers in the UK government. In other examples, the Australian government has coordinated all online services into a single electronic platform and delivery that have underpinned all other delivery means by 2010, while the Danish government offered easier access to public authorities by using three main channels (telephone, in person and Internet) to support one another and to encourage the public to use the least expensive channel (Robert, 2007). The e-

² E-Government is defined as "utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens" (UN and ASPA, 2002, p. 1).

Government initiatives are not only implemented at the national level, but also at the state and local government levels.

The initialisation of this system, which focused specifically on how governments interact and manage their relationship with their citizens, can be referred to as Citizen Relationship Management (Kannabiran, Xavier and Anantharaj, 2004; Larsen and Milakovich, 2005; Schellong, 2005; Schellong and Langenberg, 2007; Chen, 2010; Reddick, 2010; 2011). The government's initiative to focus on Citizen Relationship Management (CiRM) comes at a time when the public are demanding for the public services to be equally accessible as those offered by the private sector (Richter, Cornford and McLoughlin, 2004). The employment of CiRM systems by local governments has increased the operational day-to-day and strategic long-term effectiveness of governments, particularly in relation to the intimacy of their relationship with the public (King and Cotterill, 2007; United Nations, 2008).

The implementation of a CiRM system can bring technology, people and business processes together (Teo, Davados and Pan, 2006) with many types of applications that can be referred to as systems (Reddick, 2010). For instance, the call centre of the London Borough of Haringey in the UK, using CiRM, has created a multi-channel system that allows the council's staff to maintain a seamless, uninterrupted dialogue with the public (Batista and Kawalek, 2004). When a member of the public has an enquiry about a particular service, they can either visit the local service centre in person or communicate with the call centre by telephone, e-mail, fax or post. In another example, the 311 telephone number using CiRM has opened up a new channel for the public of Miami-Dade County in the US to communicate with their government (Schellong and Langenberg, 2007). Before CiRM systems, the public in both cases had to guess which number they should call to reach the intended department for a specific request. Besides these Internet based systems, non-Internet based CiRM systems, such as mobile government, interactive voice response and public information kiosks have also been implemented by local governments in delivering public services (e.g., Ni and Ho, 2005; Kavanagh, 2007; Reddick, 2010). In short, some initial studies in the field (e.g., Beynon-Davies and Martin, 2004; Teo et al., 2006; King, 2007; Richter and Cornford, 2007; Schellong and Langenberg, 2007; Reddick, 2009; 2011) have indicated that CiRM implementation has delivered some impressive benefits.

Meanwhile, in Malaysia, as one of the strategies to become a developed nation (through Vision 2020), the government has also implemented a CiRM system at the local government level to accelerate their public with “Information Age” (Sani, 2005; Hashim, Mohd-Roslin, and Jamaludin, 2007; Siddique, 2008; Kaliannan, Abdullah, and Raman, 2009).³ The initiative enables some traditional services (e.g., taxes, compounds, complaints) to be delivered both through the Internet and non-Internet (e.g., kiosks, in-person, and telephone) based CiRM solutions. Submission of forms (e.g., complaints) and payment of fees, fines, taxes and permit applications are some of the services that are available to the public through the Internet (Kaliannan et al., 2009).

While the services provided through the Internet is the government’s proactive way to enhance their CiRM deliveries, the services offered through kiosks or in-person are still the exemplary practices to inspire the use of CiRM systems. As the majority of Malaysians still do not have full Internet access, the non-Internet based CiRM solutions are presently an approach to ensure the public remain in close contact with their local governments.⁴ In this regard, the Malaysian public is provided with a choice of multiple delivery channels that can be accessed anywhere at their convenience, which Reddick (2010) refers to as a common feature used in CiRM systems. Systematic implementation of CiRM by the Malaysian local government is expected to reduce the gap of interaction between the local governments and the citizens.

In addition, it is reported that the Malaysian government is below the average ranking for CiRM measures (e.g., customer service maturity, satisfaction, etc.) compared to other developed countries in delivering citizen-centric services (Robert, 2007; United Nations, 2008). The performance of the Malaysian government, especially the local government has been subjected to various criticisms based on the increasing number of complaints from the public regarding the poor services provided (Abdullah and Kaliannan, 2008; Hashim, 2010). The negative criticisms can be seen through a number of newspaper articles (see Table 1.1). For instance, there was a statement made by the Deputy Minister of the Prime Minister’s Department regarding the issue of how local governments should deal with the complaints made by the public.

³ The local governments in Malaysia play a crucial role in providing services that are specific to public needs (Hashim, 2010).

⁴ The low dial-up connection (17%) and Internet usage (38%) in Malaysia suggests that a majority of Malaysians still do not have Internet access to tap into the e-Government services (Kaliannan et al., 2009).

Date	Highlighted issues	Quote from	Newspaper
5 October 2007	The Housing and Local Government has come up with a rating system to grade local authorities in their effort to deliver public services. Among the main criteria are community involvement, customer service and ICT programmes.	Housing and Local Government Minister	The Star
29 Dec 2010	Some local governments fail to provide an efficient electronic complaint system and must work towards better system deliveries.	Selangor's local government committee chairman	The Star
24 June 2010	The government system deliveries were still unsatisfactory as evidenced by the amount of public comments.	Housing and Local Government Minister	The Star
3 Jan 2011	The Minister of Housing and Local Government wants local authorities nationwide to improve their deliveries for the benefit of the public.	Housing and Local Government Minister	The Star

Table 1.1: Related newspaper articles on public services delivery in Malaysian local governments

There was a pressing need for this CiRM matter as many local governments failed to resolve those complaints filed by the public, which have led to a loss of faith in the federal government (New Straits Times, p.2, 27 April, 2010). This finding is in line with Siddique (2008) who argued that the implementation of e-Government at the local government level in Malaysia has not been able to deliver many of the promised benefits. This begs the question as to what has happened to CiRM implementation in the Malaysian local governments.

Although the Malaysian government has suffered from the implementation success stories, many developed countries including the UK have identified successful strategies and have overcome obstacles in the CiRM implementation programme. The UK government has seen CiRM system as a facilitator to promote the intimacy between the government and the citizens (Batista and Kawalek, 2004; Ritcher, Conford and McLoughlin, 2004). There also appears to be strong evidence in the UK for implementing advanced CiRM system that merges with the contact centre (Batista and Kawalek, 2004; Beynon-Davies and Martin, 2004; King, 2007). The UK government has also identified some strategies to pioneer the CiRM concept (ODPM, 2004) by funding a number of CiRM programmes (i.e., the CiRM Pathfinder Programme and CiRM National Programme) at the local government level (King, 2007). The primary drive towards this direction was to improve its services. In view of this drive, CiRM systems are believed to have the potential to radically change local governments and

tender some benefits that were previously not foreseen in developing countries (Kannabiran et al., 2004), particularly in Malaysia.

Despite the interest shown by many governments (of developed and developing countries) in implementing the CiRM system, not many studies have been completed to investigate the CiRM implementation process. Previous studies on CiRM have not addressed how local governments actually implemented the CiRM system but were in other areas, such as in establishing the public-centric approach (e.g., Teo et al., 2006; Schellong and Langenberg, 2007; Ong and Wang, 2009; Reddick, 2009; 2010; 2011), integrating CiRM with its back-office systems (e.g., Larsen and Milakovich, 2005; Schellong, 2005; Reddick, 2010; 2011) or developing the system's application (e.g., Pollard, Young and Gregg, 2006; Teoh et al., 2006; Kavanagh, 2007). This calls for more studies to understand the CiRM system initiatives (Irani, Love and Montazemi, 2006; Yildiz, 2007; Tsai, Choi and Perry, 2009). In addition, as the Malaysian government continues to allocate huge investments for its designated CiRM project at the local level (PMOM, 2006), the need to understand the issues underlying CiRM implementation becomes more vital.

While implementing the CiRM system, Malaysian local governments have assigned a number of stakeholders to be involved in the projects. Key stakeholders, such as decision makers (e.g., Chief Executive Officers who take the decision to invest in IS), senior managers (e.g., project champions or project managers who lead the implementation) and end-users have been persuaded to be part of these initiatives (e.g., Beynon-Davies and Martin, 2004; Wong, Fearon and Philip, 2007; Ong and Wang, 2009; Reddick, 2010; 2011).

Their involvement brings with them their knowledge and expertise, which facilitates their roles with one another (Kamal, Weerakkody and Irani, 2011). However, these studies neglected the system developers' effort towards a successful outcome. The system developers' experience were focusing mainly on systemising the technical tasks largely, with little guidance on how to deal with organisational issues that hinder the success of the implementation process (Kamal et al., 2011).

In order for the CiRM system to live-up to its full potential in the Malaysian local governments, it is necessary for system developers to have an understanding of how to develop a successful implementation of the system. The implementation requires strong commitment and preparation from them to ensure the success of the initiative. Like most e-Government projects, system developers need to deal with numerous challenges (organisational and technical) related to implementation (Ong and Wang, 2009). This makes the management of the CiRM implementation process a demanding task for the system developers involved. This study argues that the involvement of system developers and the potential for CiRM system implementation to emphasise the need to focus upon those individuals who have experienced the implementation process in its entirety. Thus, the system developer's perspective is needed to determine the determinants that emerged during the CiRM implementation process. Once this understanding is achieved, it will help other CiRM system developers to lead the implementation more effectively.

1.2 Research Question

This study aims to closely examine the process of CiRM implementation in Malaysian local governments from the system developer's perspective. It seeks to encapsulate the process of implementing the CiRM system, which lead to the main research question:

“How do local governments in Malaysia implement their CiRM system?”

This question concerns the understanding of the local governments experience in implementing the CiRM system. The question shall help us to understand what must be done to achieve success and avoid failure. System developers who wish to realise the benefits of a CiRM have to consider what is involved in implementing the system. This includes the identification a set of determinants that influence the process of CiRM implementation. Consequently, a theoretical framework of CiRM implementation process that is unique to the Malaysian local governments will be developed. The framework shall be able to provide the system developers in understanding and managing the implementation process (maximizing the benefits from the investment made by their local governments).

1.3 Objectives of the Research

The main objective of this study is to understand how the CiRM system is actually being implemented by system developers in the Malaysian local governments. This understanding can be achieved through the following two sub-objectives:

- 1) To encapsulate the main implementation determinants (associated with their respective stages) throughout the CiRM implementation process.
- 2) To develop a theoretical framework for the CiRM implementation in Malaysian local governments.

Both case study research and a Straussian grounded theory approach (GTA) were employed to deal with the exploratory nature of this study. In-depth face-to-face interviews with the system developers who have been involved with CiRM implementation were the main source of data (see Appendix II). Five pilot interviews with system developers at four local governments were conducted prior to the collection of the primary data. Six local governments in Malaysia were then approached for the purpose of the primary data collection, which entailed fifteen in-depth interviews. The data went through two levels of analysis, within and cross-case analyses. The results from both analyses allowed the development of a theoretical framework for the CiRM implementation process.

1.4 Significance of the Study

Given the inconclusive findings of previous studies on local governments' CiRM implementation, this study attempts to encapsulate the CiRM implementation process.⁵ The CiRM implementation process not only explains the characteristics of various determinants that contribute to the success of the implementation, but also explain the tasks and forces that lie within the implementation process. This is in line with Irani et al. (2007), Yildiz (2007) and Tsai et al. (2009) who suggested that more studies are needed to examine the implementation process closely (i.e., that shapes the management of e-Government projects).

⁵ Although the literature on CiRM implementation studies in general does exist, only a few of them have confined their investigation toward the process of implementation, particularly within the field of local government.

The characteristic of relevant determinants will be closely scrutinised through at least three rounds of iterations (i.e., analysing pilot studies, analysing primary cases and analysing cross-case studies) to determine the vital themes pertinent to the implementation of the CiRM system. A normative theory of CiRM implementation process will be proposed based upon the emerging concepts and categories of the system developers (i.e., who worked for the CiRM projects in Malaysian local governments).

In addition, these emerging determinants have enabled the study to propose a framework of CiRM implementation process. The framework is based upon the determinants that appear to be similar across the local governments in Malaysia. It could further guide the existing and potential CiRM system developers in the country on their implementation initiatives. These guidelines highlight the common determinants that typical system developers will face throughout the life cycle of their system implementation initiative.

In short, the study of CiRM implementation process can help to offer a valuable understanding for system developers (i.e., practitioners) in implementing the CiRM systems successfully.

1.5 The Structure of the Thesis

This thesis is organised into seven chapters, as shown in Figure 1.1. All of the chapters are interrelated to one another; chapters 1, 2 and 3 introduce the topic of the research, discuss the related literature and planning in conducting the research. Chapters 4 and 5 describe the fieldwork conducted in the research and Chapters 6 and 7 provide the analysis and conclusion of the research.

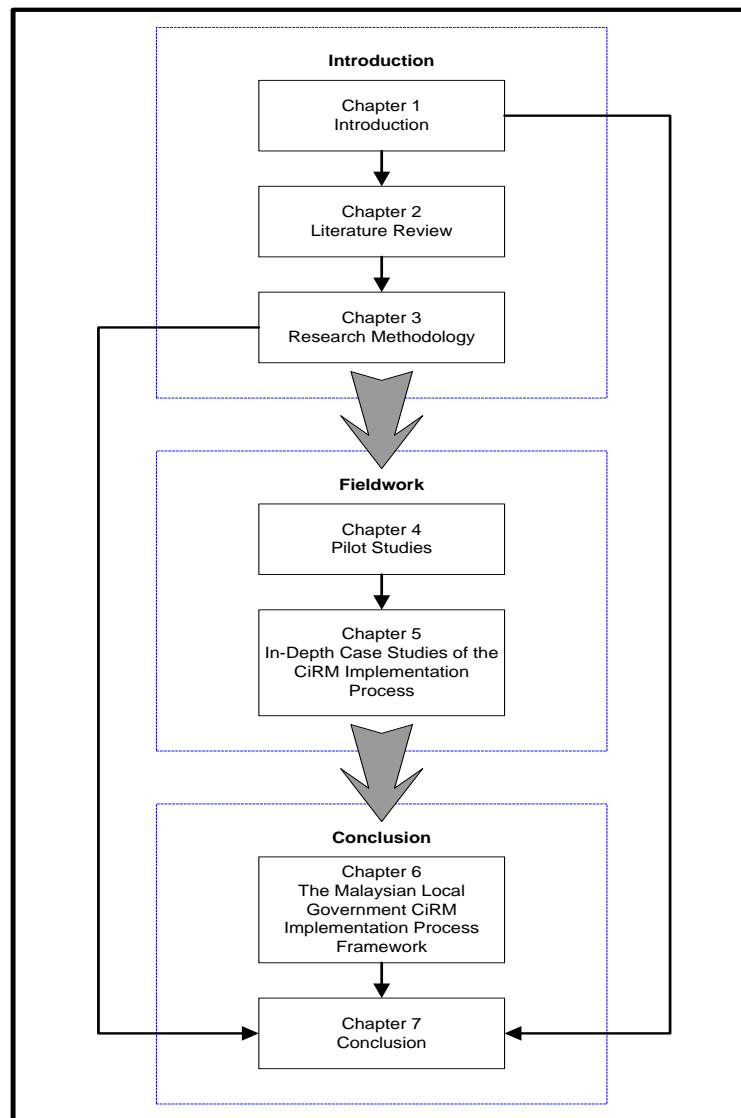


Figure 1.1: The structure of the thesis

Chapter 1 introduces the background and the motivation for the study. In this chapter, the study's central and research question are discussed and the objectives of the research are outlined. The chapter also provides an insight into its main contributions.

Chapter 2 reviews the present state of the literature and proposes a conceptual framework that will be used in setting the boundary of the study. It identifies the lack of studies on the CiRM implementation and the lack of studies on its implementation process. It also identifies the local government as the level that has received most of the attention in Malaysia in implementing CiRM initiatives, thus, representing the foundation area for understanding the CiRM implementation process. The chapter then offers a definition of implementation and the justification of the process approach for

the studies. This calls for the integration of the implementation process with organisational change.

Chapter 3 describes the research method employed in conducting the study. The chapter starts by discussing the philosophical basis for the study, which leads to the selection of the phenomenologist view of the world as the research paradigm. The chapter continues by explaining the reasons for the combination of the case study research and the Straussian grounded theory approach as the study's research design. Following that, the study's research process is explained.

Chapter 4 describes the preparatory activity conducted prior to the major case studies. The chapter explains the process of generating initial determinants of the implementation process and how these determinants are connected to the CiRM implementation life cycle. In line with this, it describes the pilot case studies conducted at four local governments (i.e., two cases for each country in the UK and Malaysia).⁶ The determinants identified in the UK were useful in providing a foundation for the development of CiRM implementation determinants in the Malaysian context. Additionally, for greater clarification and to strengthen the knowledge acquired throughout the process of reviewing the literature (i.e., CiRM implementation studies), two pilot case studies were conducted in Malaysian local governments. The chapter also provides details of how the framework was refined using three time iterations, which leads to the discussion of the lessons learned from the pilot studies.

Chapter 5 describes the six case studies conducted in the Malaysian local governments. Each case describes the emerging categories of CiRM implementation from the perspective of system developers, which includes the common implementation determinants and how they fit together in the life cycle. The case studies consist of CiRM implementation in the Johor Bahru Tengah Municipal Council, Ampang Jaya Municipal Council, Sepang Municipal Council, Subang Jaya Municipal Council, Kulai Municipal Council and Batu Pahat Municipal Council.

Chapter 6 describes the process of developing the emerging grounded theory of the CiRM implementation process in Malaysian local governments. The chapter starts by

⁶ The two pilot cases in the UK explored the practical foundation of the issues of CiRM implementation.

comparing the CiRM implementation process of the six local governments'. Their CiRM implementation determinants throughout the life cycle were compared side-by-side to ascertain similarities and differences. Identifying and justifying the similarities and differences led to the development of the theoretical framework of CiRM implementation that is unique to the Malaysian local government context.

Chapter 7, the final chapter of this thesis, concludes the study and discusses the findings of the study. This chapter also presents the implications and contributions of the study as well as its limitations. Additionally, the opportunity for future research is also suggested.

1.6 Summary

This chapter has presented an overview of the thesis. The present literature on CiRM lack focus in explaining its implementation process. Additionally, there are insufficient studies that examine the system developers experience (i.e., its challenges) when implementing the CiRM system. Due to this early stage of general understanding concerning these issues, a combination of case study research and GTA seem appropriate. The Malaysian local government sector was chosen as the research setting. Both pilot and primary case studies were developed to enhance the empirical rigour of this study. The principle of grounded theory data analysis was followed, which, ultimately, resulted in an emergent theory called the CiRM implementation process. The current study and its resultant theory have some implications for both the implementation theory and practice from the perspective of system developer. The journey starts with Chapter 2, which deals with the literature review of CiRM implementation studies and the IS implementation process.

Chapter 2

Literature Review

This chapter reviews the literature on Citizen Relationship Management (CiRM) implementation research. The general purpose of the review is to identify the gap within the existing CiRM implementation body of knowledge and to propose the research theoretical framework of the study. While the research gap is significant to achieve the outlined objectives, the theoretical framework is believed to be useful as guidance for the next step in conducting this study (e.g., approaching local governments in the UK and Malaysia for the pilot studies). Within this context, this chapter is divided into four key parts.

The first and second parts present the state of Customer Relationship Management (CRM) and CiRM implementation research, respectively. As CiRM is a division of CRM, the CRM review is significant to understand what has been conducted in areas that are relevant to the phenomenon of the CiRM implementation process. Both discussions led the study to identify some critical implementation issues, which needs consideration while developing the study's theoretical framework, as presented in the third part of the chapter. The discussion includes the approach taken to describe the process of CiRM implementation, the various IS implementation models considered, the proposed framework of studying CiRM implementation in the local government and the criticism of the proposed framework. Finally, the fourth part summarises the chapter's main points.

2.1 A Review of the Literature on Customer Relationship Management Implementation

There has been a significant amount of research concerning the implementation of CRM in the private sector (e.g., O’Leary, Rao, and Perry, 2004; Ngai, 2005; Payne and Frow, 2005; Karakostas, Kardaras and Papathanassiou, 2005; Roh, Ahn and Han, 2005; Bohling, Bowman, LaValle, Mittal, Narayandas, Ramani and Varadarajan, 2006; Kim and Pan, 2006; Spekman and Carraway, 2006; Eggert, Ulaga and Schultz, 2006; Anderson, Jolly and Fairhurst, 2007; Minami and Dawson, 2008; Richards and Jones, 2008; Becker, Greve and Albers, 2009; Xiaohui and Yong, 2009). These studies are led by those organisations in retailing, services (e.g., financial, hotel, insurance, online marketing) and manufacturing. This group of literature can be further clustered into two main themes: 1) adoption methods and 2) system’s benefits and applications.

The first group discusses the most appropriate method of adopting CRM. As a CRM system embodies the concept of relationship management, which aims to improve customer relationships (based upon the collection and analysis of customer information across all interaction channels), the approach in a CRM system is to combine strategy, process and technology to manage relationships with customers (Ngai, 2005; Kim and Pan, 2006; Xiaohui and Yong, 2009).⁷ In line with this, the concept of a holistic approach has been well accepted by the literature (i.e., to integrate between the market orientation and the combination of IS when referring to CRM systems, e.g., Hart, Hogg and Banerjee, 2004; Richards and Jones, 2008; Becker et al., 2009). In other studies, Payne and Frow (2005), and Osarenkhoe and Bennani (2007) developed some models of CRM strategy that includes the cross-functional nature of the organisation that facilitate the implementation of the system while Anderson et al. (2007) suggested that there should be a linkage of goals and objectives into actionable strategies for retailers to implement the CRM system.

The second group presents the benefits of applying the CRM system, claiming that a closer relationship with customers can produce some impressive benefits. This group recognises that customer relationship is the key to increase the business value in organisations. For instance, Janssen and Wagenaar (2002) suggested that CRM systems

⁷ The use of IS play a key role in the development of CRM systems because the combination is capable of automating some or all CRM processes (Ngai, 2005).

should strengthen customer loyalty and satisfaction, and create a new opportunity for up- and cross-selling. O’Leary et al. (2004) found that firms using Internet gained more accurate customer data collection, improved interactions and relationships with customers, and reduced cost while Eggert et al. (2006) claimed that CiRM systems can improve and support product development, increase supply-chain efficiencies via personal contact and enhance supplier know-how. In another study, Spekman and Carrway (2006) reported that CRM benefits include enhancing decision making and improving the supply chain and planning.

Although the implementation of CRM system holds tremendous promise, many organisations are struggling with their CRM efforts (Zablah, Bellenger and Johnston, 2004). Research has shown that about 60 to 80% of CRM projects were implemented unsuccessfully (Kale, 2004). A 2003 Gartner study shows that 70% of CRM projects end with no gain to the company’s bottom line improvement. Additionally, in 2006, McKinsey Quarterly cited a Forrester Research report indicating that only 10% of the senior managers they surveyed strongly agreed that expected business results were achieved from implementing a CRM system (Bard, Harrington, Kinkin and Ragsdale, 2005). As a result, a considerable amount of studies have characterised CRM implementation issues that lead to the system success or vice versa (e.g., Alt and Puschmann, 2004; Chen and Chen, 2004; Payne and Frow, 2004; Zablah et al., 2004; Karakostas et al., 2005; Meyer and Kolbe, 2005; Roh et al., 2005; Bohling et al., 2006; Chalmeta, 2006; Kim and Pan, 2006; DaSilva and Rahimi, 2007; Mendoza, Marius, Perez and Griman, 2007; Nguyen, Sherif and Newby, 2007; Wilson and Danial, 2007; King and Burgess, 2008; Ko, Kim, Kim, and Woo, 2008; Xiaohui and Yong, 2009; Coltman, Devinney, Midgley, 2011). Although these studies have identified various factors that are influencing CRM implementation efforts, the factors can be broadly classified under the issues of technological, organisational and user related factors. This is consistent with the significance of three generic issues which received highly discussions in the IS implementation (e.g., Linton, 2002; Marble; 2003; Sabherwal, Jeyaraj and Chowa, 2006). Both the technological and organisational factors have been discussed extensively in the CRM literature. This indicates that both types of factors are equally crucial areas that deserve more attention from researchers.

The technological factors category on CRM implementation discussed the solution scheme and expertise to accomplish the specific technical steps. For instance, creating a connection between the existing IS and the new system is one of the issues that need to be considered when implementing CRM (Karakostas et al., 2005; DaSilva and Rahimi, 2007; Mendoza et al., 2007; Coltman et al., 2011). If there is poor data quality in the existing systems or in the CRM database, it may lower the effectiveness of a newly implemented CRM system. A good CRM architecture, which combines data mining techniques (e.g., association rules, clustering and classification techniques), can help to identify the latest pattern of quality customer data (e.g., Anderson et al., 2007; Mendoza et al., 2007; Minami and Dawson, 2007).

Additionally, the CRM architecture should not only handle the existing channel of customer interaction, but provide for the future channels of the CRM system as well. A number of studies have examined the significance of integrating multi-channel approach (e.g., combining kiosks, facsimile, call centre, the Internet, mobile telephony, and text messaging facilities) when implementing CRM system (e.g., Payne and Frow, 2004; Nguyen et al., 2007; Wilson and Danial, 2007). In another study, Xiaohui and Yong (2009) urged practitioners to establish a project team member from the cross-functional departmental level in building the structure of the CRM system. The literature also recommended that organisations can acquire expertise (e.g., consultant, vendor) to learn from their previous experiences while building the structure of the system. For instance, Hart et al. (2004), Roh et al. (2005), Nguyen et al. (2007), and Xiaohui and Yong (2009) highlighted that sufficient help from CRM vendors (e.g., system training and system support) is important factor for the success of implementation.

Meanwhile, the organisational factors address the appropriate way to facilitate the CRM implementation for the delivery of the intended benefits. As with other IS systems (e.g., DSS, ERP), the organisational factors category, provides consistent findings of top management sponsorship and the presence of a champion in driving the CRM implementation.⁸ For instance, Zablah et al. (2004), Mendoza et al., (2007), and Ngyuen et al. (2007) argued that senior management support and commitment to CRM are positively related to the success of the implementation effort while Ko et al. (2008)

⁸ Full commitment from senior managers and system champion is often needed throughout the implementation of the system (e.g., funding approval).

found that the younger the top management support's age, the higher the likelihood of CRM initiative as they are more willing to try technological innovation. In another study, Kim and Pan (2006) claimed that when CRM implementation is led by a capable project champion, it can influence senior management to be fully supportive of the project. Meanwhile, several studies conclude that the adoption and implementation of CRM into an organisation requires a focus on change management (e.g., Alt and Puschmann, 2004; Zablah et al., 2004; Kim and Pan, 2006; Mendoza et al., 2007; Shum, Bove and Auh, 2008). These studies argued that CRM projects can bring some changes to the behaviour of organisational members, particularly from employees who are affected by the implementation. Nonetheless, resistance to change can be controlled by inviting them to participate in certain activities during the implementation process (e.g., building prototype applications, training) (Shum et al., 2008).

However, little literature on CRM implementation was found concerning the user related factors. This includes the importance of end-users involvement and staff training during the CRM implementation. For instance, Hart et al. (2004), and Xiaohui and Yong (2009) argued that end-users must actively participate in the CRM project implementation, such as in identifying business requirements, developing prototype applications and system testing. Their involvement must be sustained throughout the system development life cycle to enhance the system acceptance, thus contributing to its implementation success. Shum et al. (2008) echoed this view by suggesting that the effective communication with staff since at the early stage of implementation can reduce their level of resistance. In this regard, Harej and Horvat (2004) advised that organisations have to consider staff training to use the system because their motivation will strongly influence CRM implementation. Consequently, when members of their staff have the required skills and experience necessary to use the CiRM system, this will improve the performance of the organisations (Coltman et al., 2011).

While CRM has been researched and applied in private organisations for years, it has only recently gained attention as an important component for government projects.⁹ There are several studies that make the case for the unique differences on the CRM

⁹ Beaumaster (2002) argued that governments have experienced approximately ten years of lag time between the adoption of new technologies and their acceptance and routinisation across the organisations. Being a non profit-oriented entity, it is not surprising that governments have been laggards in implementing new technological solutions such as CiRM system.

implementation between the private and public sectors (e.g., Cottam, Kawalek and Shaw, 2004; Pan, Tan and Lim, 2006; Pollard et al., 2006), making it essential to study CRM in government.¹⁰ Consequently, a number of studies were found to transfer the concept of CRM to the government (i.e., e-Government initiative). Some briefly address CRM when referring to aspects of one-stop government (Teo et al., 2006; Richter and Cornford, 2007) or a multi-channel environment (Batista and Kawalek, 2004; Myron, 2004; Richter, Cornford and McLoughlin, 2004; Pan et al., 2006; Pollard et al., 2006; King, 2007; King and Cotterill, 2007). Others introduce somewhat altered terms like Citizen Relationship Management (CiRM) (Kannabiran et al., 2004; Larsen and Milakovich, 2005; Schellong, 2005; Schellong and Langenberg, 2007; Chen, 2010; Reddick, 2010; 2011). Although these studies use different terms, they emphasise the same intention – to achieve a relationship between the public and the government. For the purpose of this study, the term CiRM will be used.

At this stage, the research has been able to identify several issues in CRM implementation studies, but not on CiRM implementation in government, particularly on its implementation process. Although the issues underlying successful CiRM implementation are believed to be similar to those factors that might have influenced the success of CRM implementation in the private sector, one cannot simply accept this belief prior to conducting an empirical study. Furthermore, many of the approaches described in CRM implementation studies have dealt with various factors associated with different measures of implementation success and have tended to focus on a single aspect of the implementation process (e.g., management support, system champion, implementation strategy). Local governments, for instance, shall gain more success and reap the benefits of successful CiRM implementation if their system developers did not take for granted the crucial factors found in CRM implementation success (King and Cotterill, 2007). Indeed, they should avoid the perils that have been proven so problematic in the private sector (King and Burgess, 2007). Therefore, to understand what has been done in the areas of the CiRM implementation process, the following section will discuss the present state of CiRM implementation research in government.

¹⁰ In government organisations, which can be considered less technology savvy than private sector organizations, the deployment of a CiRM system can be a significant challenge.

2.2 The Present State of Citizen Relationship Management Implementation Research

CiRM implementation research has only been studied within the past 10 years. The CiRM implementation phenomenon, which is capable of creating and establishing well-managed relationships with the public more effectively, began to grow in the early 2000s.¹¹ As it is still within the early stage, the literature review on the area has shown similar patterns as the literature on CRM implementation in the private sector. The majority of these studies focused on three issues – the adoption, the system’s applications, and the benefits of the implementation.

The adoption category issue has the highest amount of literature on CiRM implementation studies (e.g., Batista and Kawalek, 2004; Myron, 2004; Larsen, and Milakovich, 2005; Michel, 2005; Schellong, 2005; Pan et al., 2006; Pollard et al., 2006; Teo et al., 2006; Schellong and Langenberg, 2007; Ong and Wang, 2009; Velsen, Geest, Hedde, and Derks, 2009; Reddick, 2009; 2010; 2011; Reyes, Garcia and Mansi, 2011). Some gradually establish the public-centric approach by modelling the interactions or relationships between the government and the citizens. Most of these studies have been conducted by using exemplary practices in developed countries. For instance, Michel (2005) proposed four types of model of CiRM relationships in the French Government – e-Administration (government for the public), e-Government (government of the public), e-Governance (government by the public) and “the learning city” (government according to the public). Drawing on the success of a government agency in Singapore, Teo et al. (2006) suggested an integrated strategy to CiRM relationships that binds the business, technology and public perspectives, called the holistic approach. In another study, Tan and Pan (2003) developed a CiRM model for an understanding of how a Singapore government-public relationship can manage to efficiently achieve an effective business process.

Although the natures of the CiRM models discussed above are slightly different, the researchers agreed to the significance of IS utilisation in enabling a close relationship between their governments and the public for the delivery of high quality of service. Therefore, CiRM can be treated as an IS enabled strategy with a focus on citizens; the

¹¹ It started to come together with e-Government initiatives (Batista and Kawalek, 2004; Schellong, 2005; King and Cotterill, 2007).

CiRM system is an application that enables the strategy to be implemented. Through a CiRM system, government organisations not only have an opportunity to access and manipulate public data to gain an accurate picture of their behaviour and demands, but they also have a strong tool to create a power linkage to the public (Reddick 2010; 2011; Reyes et al., 2011).

The literature on the adoption of CiRM also briefly addresses the needs of integrating the CiRM system with back-office systems through channel led interaction.¹² For instance, Larsen and Milakovich (2005) recommended that all possible services that are needed by citizens should be provided in integrated solutions, such as websites, call-centres, or one-stop shops. Shine (2002) also advised that CiRM systems must be integrated at the beginning of the project implementation, not a simply “add-on” technology that can be incorporated later. In addition, governments cannot rely solely on one channel; instead they must provide information to the public through multiple service channels (Larsen and Milakovich, 2005; Schellong, 2005; Reddick, 2010; 2011). Therefore, the CiRM system of the US and European governments (such as France and Netherlands), has been developed by combining all public data into one place through the use of multi-channels in order to provide a single view and a consistent level of service. In another study, Reyes et al. (2011) suggested focusing on the integration at the back-office first before moving to its front applications. Nevertheless, the integration is supposed to represent a successful combination of technologies that provide the basis for governments to engage intimately with their public (Batista and Kawalek, 2004).

Another development in CiRM implementation studies has focused on the system’s application. For instance, Schellong (2005), Pollard et al. (2006) and Teo et al. (2006) divided CiRM systems into three types– operational, collaborative and analytical. While the operational CiRM includes all applications that are aimed to accomplish work tasks in serving public delivery services (such as customer service system and static website), the collaborative CiRM system comprises applications that support the public through a single service path directly to the government agency (such as a call centre and integrated CiRM portal). The analytical CiRM contains an application that is capable of

¹² CiRM system and its components include the applications (tools, technologies and techniques) that facilitate front-office and the back-office systems.

establishing information on public data, its behaviour and value by using modelling and predicting methods (such as data warehouse and data mining tools).

Nonetheless, it was found that the most common forms of CiRM reported in the literature can be seen through web-based government portals (which may encompass a combination of the three types of CiRM system). This includes CiRM systems with or without an integrated call centre. For instance, Schellong and Langenberg (2007) presented an emergency system that was integrated with the call centre, called the “311 CiRM system”, which was intended to build a successful relationship between the US government and its public during emergency and non-emergency situations. In another study, Tan and Pan (2003) discussed the success of e-filing CiRM systems in transforming the managerial operation at the Inland Revenue Authority of Singapore while Teo et al. (2006) addressed the effectiveness of CiRM at the Singapore’s Housing and Development Board in delivering public services. These two cases are exemplary practices of CiRM that are related to the non-integrated call centre system.

There are also non-Internet based CiRM solutions that were reported in the literature, such as public information kiosks (e.g., Ni and Ho, 2005; Kavanagh, 2007; Reddick, 2010). For instance, Ni and Ho (2005) reported that the city council of New York has initiated a kiosk project called City Access as part of its e-Government initiative to help the public find information and services provided by city agencies, including information about obtaining building permits, paying parking tickets, obtaining dog licences, and applying for copies of birth certificates. Ni and Ho (2005) also claimed that the city of Denver has also implemented a kiosk project of more than 75 multispace pay-and-display pay stations in the city’s shopping district to enable the drivers moving their cars from one street space to another within the designated area without forfeiting their remaining time. Therefore, it can be argued that there are many different types of technology used in CiRM system’s applications.

There are also many cited implementation studies on the issue of benefits from the CiRM deployment. CiRM supports governments to achieve numerous benefits in terms of:

- 1) Improving citizen orientation (Larsen and Milakovich, 2005; Teo et al., 2006; Richter and Cornford, 2007; Schellong and Langenberg, 2007; Chu, Yeh and Chuang; 2008; Reddick, 2009; 2010), e.g., public experience when contacting government can be increased through holistic approach
- 2) Providing information sharing (Kannabiran et al., 2004; Themistocleous and Irani, 2005; Pollard et al., 2006; Richter and Cornford, 2007; Reddick, 2009; 2011), e.g., increases the government and public's knowledge by providing access to reliable and detailed information
- 3) Reducing cost of service delivery (Kannabiran et al., 2004; Larsen and Milakovich; Themistocleous and Irani, 2005; Teo et al., 2006; Reddick, 2009), e.g., a single view of CiRM system will reduce overhead costs as public are more interested in using self-service facilities
- 4) Producing more accountability for the government and its operation (Pollard et al., 2006; Schellong and Langenberg, 2007; Reddick, 2009; 2011), e.g., the multi-channels offered by the government will promote a more open and transparent government
- 5) Improving customer service (Kannabiran et al., 2004; Pollard et al., 2006; Teo et al., 2006; Richter and Cornford, 2007; Chu et al., 2008; Reddick, 2009; 2011), e.g., CiRM system will allow government agencies to better understand public needs, preferences and expectations
- 6) Improving operational efficiency (Teo et al., 2006; Chu et al., 2008), e.g., the integrated multi-channels operation contribute greatly towards reducing the overall workload of customer service staff

The literature on CiRM implementation in government also studies the system's implementation at different levels of government – national, state and local council. These government levels have implemented a CiRM system because it allows different departments to better coordinate interactions with citizens (Janssen and Wagenaar, 2002). For instance, the implementation of a CiRM system at the local government level in the North American (e.g., US and Canada), European (e.g., the UK, France and Holland) and Asian Pacific (e.g., Australia, and Taiwan) countries have made great progress in improving public delivery services (Larsen and Milakovich, 2005; Michel, 2005; Pollard et al., 2006; Schellong and Langenberg, 2007; Chu et al., 2008; Reddick, 2010, 2011). Many local governments in these countries have implemented CiRM

systems to support their day-to-day government-to-citizen activities (United Nations, 2008). Moon and Norris (2005), and Reddick (2009) argued that large local governments are more likely to implement CiRM systems because they are under greater pressure to find alternative ways of providing public service delivery at reduced cost. The CiRM implementation initiative is becoming increasingly important due to the public demand for improvement in the services offered by governments (Schellong 2005; King, 2007).

Although there has been significant progress in developed countries, many developing countries have been left behind with a long way to catch up. Malaysia, for instance, is below the average ranking for CiRM measures, especially when compared to developed countries such as the UK (United Nations, 2008). Abdullah and Kalianan (2008), and Hashim (2010) reported that local governments in Malaysia have been soundly criticised for poor services. As the initial judgement of CiRM implementation in the Malaysian government is not encouraging, the following section will discuss the present state of CiRM implementation in Malaysia. The review will also incorporate the exemplary practice of CiRM implementation in the UK as the UK government has already undergone what Malaysia is going through at present. Aldrich, Bertot and McClure (2002) suggested that a better understanding of the success of e-Government initiatives (including CiRM system) could inform others when they deploy such a programme. The rationale for selecting the UK government is based upon the following two reasons:

- 1) The implementation of a CiRM system at the local level for both countries has been directed by the clear vision of the central government.
- 2) The government service structure in Malaysia and the UK are similar in many aspects as the Malaysian public administrative structure was modelled upon that of the UK (post-independence since 1957). The formative (defining the standards of new approaches and practice), mimetic (copying) and coercive (conditionality attached to aid and other support mechanisms) forces from the British government were nonetheless embraced by the Malaysian public sector (Abdullah and Kaliannan, 2008).

2.2.1 CiRM Implementation Studies in the UK and Malaysia

The literature on CiRM implementation studies, in general, has found similar issues between in the UK and Malaysia. First, the introduction of CiRM initiatives in these two countries has offered some impressive benefits. The implementation of a CiRM system in the UK local government is expected to transform services to citizen-led services; make joining-up of service within councils, between councils and with other partners easier; provide a holistic view of customers and a single citizen account (through the integration of systems across department); and change the public service experience (by making services more responsive, accessible, convenient and cost effective) (ODPM, 2004; King, 2007; King and Cotteril, 2007).¹³ While for Malaysia, the CiRM system has the potential to improve the quality of local management in improving public services delivery (Sani, 2005; Hashim 2010).¹⁴ The CiRM system in both countries can be considered as one of the crucial logistical requirements that should be implemented to ensure the success of the nation e-Government initiative.¹⁵ The CiRM system, therefore, is seen as a way to engage more intimately between the government and the citizens (Ritcher et al., 2004; Sani 2005).

Second, there are a few studies on the technological infrastructure issue concerning the CiRM implementation framework. For example, Richter et al. (2004), and Richter and Cornford (2007) proposed a component of CiRM system that includes the integration of access channel (combines citizen interactions through traditional face-to-face, telephone, Web, e-mail, kiosk technology, etc.) with back-office applications (all the existing operational systems) in the UK. Themistocleous and Irani (2005), and Kamal et al. (2011) also argued that the implementation of a CiRM system requires some legacy systems to be replaced and integrated. They provided recommendations on how to piece together both the CiRM and the legacy systems through the approach of enterprise application integration. While the CiRM has many mechanisms for integrated solutions in place in the UK, there is still the issue of the adequacy of the integration of the

¹³ The benefits were expected to be achieved through two CiRM programmes, CiRM pathfinder (2001–2002) and CiRM National Programme (2003–2004), which were introduced by the Office of the Deputy Prime Minister (ODPM, 2004).

¹⁴ Two programmes have been launched by the Malaysian government so far – e-Local Government (or *e-Pihak Berkuasa Tempatan*) and e-Services, to explore the potential of the CiRM system at the local government level. Although the initiatives have not been named directly with CiRM, they provide help for local governments to engage more intimately with the public.

¹⁵ The national e-Government initiative for the UK is Information Age Government (at maturity stage) while for Malaysia it is the Multimedia Super Corridor Electronic Government (at service availability stage) (Crook, Simmonds and Rohleder, 2003).

system by Malaysian local governments. Kaliannan et al. (2009) reported that although there is strong interest in developing a common platform and approach to CiRM systems, there are serious problems in integrating the diverse databases into a centralised approach. Diverse systems, platforms and standards has been a continuous source of frustration to the efforts of integrating local governments' applications (Wong et al., 2007; Kaliannan et al., 2009) in order to fully utilise the benefit of the CiRM system in the country. The absence of a robust and sufficiently high bandwidth network has also seriously impeded the delivery of the local government services (Abu Bakar, 2011).

Third, some literature has also been established towards founding the CiRM stages model with limited studies in the Malaysian context. Although the models differ in the numbers and names of stages, most of them have similar characteristics for each stage. For instance, in the UK, several studies have employed a model of CiRM implementation strategy, which was proposed by the UK's Office of the Deputy Prime Ministry (e.g., King, 2007; King and Cotterill, 2007).¹⁶ Of the twelve local governments that were seen as leaders in the CiRM programme, King (2007) reported that these authorities remained at different stages. While some focused on the "deep integration" of a few services (Type 1 and 2) and on the "shallow integration" of many services (Type 3), none had achieved the "deep integration" of many services (Type 4). There was no evidence of the use of CiRM to generate insight into citizens' use of services or future service needs (Type 5). Cottam et al. (2004), and King and Cotterill (2007) claimed that this four-stage model shared the public and local government data towards a better service design and citizen participation in the implementation of the CiRM system. However, in Malaysia, only one study was found that related to the CiRM stages. Through the use of the Web Presence Measurement Model, Abu Bakar (2011) claimed that the implementation of the CiRM system at the local government level is fairly good for those in the wealthiest States (e.g., Selangor and Johor) while those in poor States (e.g., Sabah and Kelantan) are deficient in several aspects, such as the absence of online payment, e-Procurement and online application in their websites. This indicates that Malaysian local governments with money to spend can develop their

¹⁶ The framework guided local governments which intended to implement a CiRM system by classifying the development of the system into five types, as follows: 1) multi-channel access to contact management; 2) simple processes e-enabled (e.g., electronic forms); 3) unified view of the customer; 4) personalisation, which uses public data to anticipate service needs and tailor service delivery; and 5) complex workflows supporting innovative policies.

CiRM system to a sophisticated level of maturity while those less fortunate could barely provide the minimum system.

The fourth issue is the system's application. The literature on CiRM implementation in the UK showed that CiRM was being used primarily in telephone contact centres and one-stop shops (Richter et al., 2004; King, 2007; King and Cotterill, 2007; Richter and Cornford, 2007; Jain and Kesar, 2008). This includes a simple CiRM system with no integration with its back office operations (a single Contact Centre or a website) supported by standardised forms and documentation, as well as a complex CiRM system with an integrated customer database, content management tools and document management system that have been integrated and redesigned with back office systems.¹⁷ The UK government set a target that, by 2005, all local governments must be able to deliver all government services online. However, by that year, King and Cotterill (2007) reported that only about 60 percent of local governments had implemented CiRM, 35 percent were in the process of implementing the system while the rest had still not started. King (2007) argued that British local governments were unlikely to achieve the radical target envisaged by central government.

Unlike in the UK, the implementation of CiRM systems in Malaysia only involved the one-stop shops mechanism (MAMPU, 2003; United Nations, 2008). Nonetheless, in terms of the adoption of the system, a similar situation happened in Malaysia. Although 144 local authorities in the country had offered to implement CiRM systems through vendor involvement, which had already been selected by the Ministry of Housing and Local Government (MHLG), the uptake of the system implementation was underwhelmed (Kaliannan et al., 2009). Issues, such as problems of access, security and privacy are among the factors that caused local governments to be reluctant to implement the system. As a result, successful CiRM implementation has become a great challenge to the British and Malaysian local governments. The initiative can be time consuming and expensive for local governments, can take many years to complete and can cost millions of pounds (Beynon-Davies and Martin, 2004). Hence, CiRM implementation in local government in both countries is still falling short of its true potential.

¹⁷ The primary driver for these initiatives was to improve public services. This improvement ranges from a rapid and focused response to enquiries to proactive contact with the public (ODPM, 2004).

It is revealed that the literature on CiRM implementation in the UK and Malaysian local governments only discusses four issues – the implementation benefits, the adoption, the stages of CiRM maturity model and the application of the CiRM system. Studies on how local governments actually implement a CiRM system have been found to be scarce. Although the literature on CiRM implementation in both countries, the UK and Malaysia does exist, its quantity is limited.

Additionally, it is significant to address some of the crucial issues that have evolved while reviewing the literature. This is because investigating the CiRM implementation process requires an appropriate theoretical framework. So, the framework that this study will propose has a critical impact on the result that it will produce. In this regard, the following section will discuss on these issues in detail.

2.2.2 Some Critical Issues in Reviewing CiRM Implementation Research

There are four crucial issues that need to be clarified before the theoretical framework of the study can be developed:

- 1) The meaning of the CiRM implementation process in the system development life cycle
- 2) The implementation determinants that need to be considered
- 3) The most appropriate approach for studying the CiRM implementation process
- 4) The perspective of stakeholders involved in the CiRM implementation project

The first issue is the meaning of the CiRM implementation process. Traditionally, system implementation is viewed as one of the steps in the development life cycle (e.g., Marble, 2003; Hoffer, George and Valacich, 2011; Kendall and Kendall, 2011). They argued that the implementation begins after the system's applications have been designed and ends once it produces outcomes (e.g., reports). Following this view, however, can lead the study to unconscious activities that are crucial throughout the process of implementation (Marble, 2003). Hence, the study should choose the view that is capable of encapsulating most of the activities in the system development life cycle. A broad definition of CiRM implementation process seems to be more suitable in this study to determine as much as possible the determinants leading to implementation success (see Appendix III).

The second issue is the significant array of determinants that need to be addressed while implementing the system. It can be argued that there are enormous amounts of determinants that lead to CiRM implementation success in the literature. These determinants are subject to where and how the CiRM system has been implemented. This includes the organisational determinants of senior management support (Kannabiran et al., 2004; Schellong, and Langenberg, 2007; Tseng, Yen, Hung and Wang, 2008; Santana, 2009; Reddick, 2010; Kamal et al., 2011), system champion (Beynon-Davies and Martin, 2004; Fleming, 2008; Kamal et al., 2011), implementation planning (Beynon-Davies and Martin, 2004; Fleming, 2008; Tseng et al., 2008; Rose and Grant, 2010), user requirements (Fleming, 2008; Velsen et al., 2009; Rose and Grant, 2010), user resistance to change (Ndou, 2004; Tseng et al., 2008), system training (Richter et al., Fleming, 2008; Tseng et al., 2008) and vendor support (Kannabiran et al., 2004; Larsen and Milakovich, 2005). Similar to the CRM implementation studies, the generalisation of the findings that have been reported is somewhat limited. The determinants identified were not thoroughly discussed in terms of how they fit together and occur within and perhaps across, stages for the whole implementation process. It fails to cope with the “unfolding” overtime within the process of implementation, and, thus, is unable to encapsulate the complexity of the situation. This missing piece provides one of the strongest motivations for this study. Nonetheless, the existing studies are helpful in determining the appropriate route to depict the representation of the implementation process in local governments albeit only in part.

The third issue is the appropriate approach to investigate the CiRM implementation in local governments. As a large number of studies were found on the dependent factors, an understanding of the process of CiRM implementation is still limited and largely remains as a ‘black-box’. Several studies suggested a call for researchers to pay more attention to the process of e-Government implementation initiatives (Tan and Pan, 2003; Irani et al., 2006; Yildiz, 2007; Tsai et al., 2009). They argued that the initiatives can be complicated due to the lack of fundamental structures, human and technical resources, and the vast size and bureaucratic nature of government. As such, CiRM initiatives remain challenging and deserve much more attention. Thus, taking a “process view” is a significant step towards understanding the process of CiRM implementation in local governments.

The fourth issue is the perspective of CiRM implementation projects. While implementing CiRM systems, the system developers in Malaysian local governments do not have the same expertise as those in developed countries or in the private sector to deal with the new technologies (Hashim, Mohd-Roslin, Jamaludin, 2007). By simply inheriting and following the best strategies carried out by their peers (system developers in developed countries or in the private sector), they assume it could bring about faster development in their environment (Krishna and Walsham, 2005). However, it can be argued that the strategy may be counterproductive as, fundamentally, the issues faced by the public sector's information systems are not similar (Pan et al., 2006; Pollard et al., 2006). In other words, the system developers involved in implementing the CiRM system in Malaysian local governments should not assume that the key implementation determinants from the developed countries or private sector will be pertinent for use in their organisations. This is because not only do both private and public sectors have different determinants concerning the successful implementation of the system, but different countries also have their own unique requirements in terms of implementation issues. Therefore, the lack of study on the Malaysian local government organisations from the perspective of system developers may affect the sector's success in implementing the CiRM system.¹⁸

By considering these four issues, it will assist the study to define its boundaries – to encapsulate the phenomenon of the CiRM implementation process in local governments. The following section provides a detailed description of developing the theoretical framework of the study.

2.3 The Proposed Theoretical Framework of CiRM Implementation Research

As CiRM has the capacity to collect data, store, process raw data into information, and disseminate that information to some interested parties (Reddicks, 2011), the technology itself can be considered IS in its own right (Lai and Mahapatra, 1997). As a result, the literature on IS implementation process has inevitably been referred to. The IS implementation literature that has been reviewed includes the decision support systems (DSS) (e.g., Kasanen, Wallenius, and Zions, 2000; Arnott and Pervan, 2005) and innovation diffusion (e.g., Linton, 2002; Lucas, Swanson and Zmud, 2007) studies. The

¹⁸ This is being attributed to the way local government organisations in Malaysia will have to change how they implement the CiRM system.

lessons of other types of CiRM implementation are essential as a starting point to understand the process of CiRM implementation.

2.3.1 Paradigms of IS Implementation Studies for CiRM Implementation Research

There are two broad approaches that are commonly used in the literature for studying the phenomenon of system implementation – the factor approach and the process approach (Kasanen et al., 2000; Lucas and Spitler, 2000; Sambamurthy and Kirsch, 2000). Nonetheless, both approaches are dissimilar in three ways.

First, the factor approach tries to identify the factors or determinants that are potentially relevant to successful implementation while the process approach looks for a collective of events and activities that unfolds over time. In the factor approach, the research focuses upon a variety of users, organisational, and technology forces that are important to IS implementation success (Cooper and Zmud, 1990; Alavi and Joachimsthaler, 1992; Sabherwal et al., 2006). The researchers usually concentrate on a single determinant or a combination of determinants that are associated with the successfulness of the system outcomes. In contrast, process research focuses on the actual process over time of implementing a system (Lucas and Spitler, 2000). The researchers are generally looking for a combination of sequential events and activities that are necessary for success (Sambamurthy and Kirsch, 2000). They tend to encapsulate critical incidents at different stages or time periods of the implementation process. For example, some studies have examined the interaction among stakeholders involved in the IS project by identifying the sequence of events throughout the implementation process (e.g., Munkvold, 1999; Kim, Pan and Pan, 2007; Teoh et al., 2010).

Second, both approaches have a different view of the research design in their studies. Researchers who favour factor studies site the rigour of research designs and the fact that they generally collect data from a large number of users (Lucas and Spitler, 2000). The data are then analysed in order to assess the relative importance of different factors contributing to successful implementation (Kasanen et al., 2000). Statistical techniques like regression analysis and correlation make it possible to generalise the findings to other settings (e.g., Marble, 2003; Lee and Kim, 2007; Kamhawi and Gunasekaran,

2009). In contrast, process research disputes that implementation occurs over time and that the researcher has to examine the process to understand all of its fine distinctions (e.g., Munkvold, 1999; Kim et al., 2007; Teoh et al., 2010). For example, conducting interviews with a number of participants who have lived with the experience is the common method to explain the subjectivity of the implementation phenomenon (e.g., Kim et al., 2007; Chan, Lau and Pan, 2008; Teoh et al., 2010). As a result, much of this empirical research has allowed for a deeper understanding of the multiplicity of factors affecting implementation success (Kasanen et al., 2000).

Third, both approaches have also employed a different model of framework for setting the boundaries of the study. Factor researchers usually propose descriptive models of implementation, including variables other researchers have found to be related to implementation success (Lucas and Spitler, 2000). For example, Lee and Kim (2007) employed the framework developed by Tormatzky and Fleisher (1990) in forming a model for the implementation success of IS, which addressed the use of organisational and technological factors in their study. In contrast, process researchers often employed a model of the consultation process from the organisation change literature as a framework for their studies (Lucas and Spitler, 2000). In many cases, the theory of change utilised by this approach is grounded on the early Lewin's model of change (Elrod and Tippett, 2002; Rajagopal, 2002). Zand and Sorensen (1975) were the early researchers to show the practicality of Lewin's model in the implementation research (i.e., management science and operation research).

Although the factor approach is indeed useful, an in-depth understanding of the complexities associated with implementation demands is needed (Goodman and Griffith, 1991). This is because the factor approach was found to be less suitable for studying how the system is developed, such as in implementing a complex CiRM system. It appears that there are various limitations to factor research including:

- 1) The approach has tended to focus on a large number of determinants that are considered as variables in their studies. However, the use of a large number of determinants is less useful in the real situation of the implementation process (Lucas, 1981). Additionally, the approach has failed to show how the determinants fit together in the implementation process. System developers might find that

identifying the determinants would not be enough without them understanding how the determinants should be fitted together during the implementation process.

- 2) The approach has resulted in a conflict of findings, as shown in some of the studies. For example, Sabherwal et al. (2006) and Alavi and Joachimsthaler (1992) differed in their findings concerning the effect of users and organisations on the success of system implementation. This conflicting finding may confuse the system developers who are searching for a comprehensive guideline to successfully implement a CiRM system in their local government organisations.

As there are some limitations concerning the factor approach, a decision was made to employ the “process approach” to describe the process of CiRM implementation in Malaysian local governments. In doing this, all system developers’ activities that have evolved during the system implementation have to be identified (in accordance with their stages). As the process approach shows how a multiplicity of determinants interacts with one another, the identified activities may be significant in demonstrating how the characteristics of the determinants influence the implementation success or failure. Once the activities have been discovered, they need to be arranged to follow the system development life cycle. Through the arrangement, the entire CiRM implementation process (i.e., from beginning and end of the process) can be developed by sequencing the activities to the narrative story of system developers in implementing a CiRM system.

To frame the structure of the implementation process, the study has chosen an appropriate IS implementation model. The following section will describe in detail some of the models and the rationale for the selection.

2.3.2 IS Implementation Models for CiRM Implementation Research

As implementing a new IS involves an organisational change process (Armenakis and Bedeian, 1999; Cule and Robey, 2004), a number of models have been reviewed to frame the CiRM implementation process.¹⁹ This includes the models of Lewin’s (Zand and Sorensen, 1975), Kolb-Frohman’s (Ginzberg, 1981), Cooper and Zmud’s (Cooper and Zmud, 1990), Kotter’s (Kotter, 1995), and Garvin and Roberto’s (Garvin and

¹⁹ Researchers have studied the implementation of the new IS as the process of change with the general conclusion that implementation can be successful if it follows the model of change (Ginzberg, 1981).

Roberto, 2005). These models recommend a series of stages for organisations to achieve the success of the change in the implementation process.

Using the change model proposed by Kolb and Frohman (1970), Ginzberg (1981) undertook a survey of the attitude of consultants in different organisations and projects. The activities outlined by the model are attached to particular stages, as shown in Table 2.1. During *scouting*, the client and consultant are exploring a potential relationship. From *scouting*, the consultant seeks to find a formal entry point to the organisation by identifying and developing the problems (i.e., need to change). During *diagnosis*, the problems in the organisation are identified. The *planning* stage features the development of an approach to solving the problems identified earlier. The *action* stage applies the plans to the problems. During *evaluation*, the consultant and client assess the success of their efforts while *termination* marks the end of the relationship of both parties in the implementation. The result from Ginzberg's work highlights that success or failure implementation is related to the quality of handling the process. This means that the *termination* stage is the critical stage for the success of the implementation and it also reflects what occurred in the earlier stages.

Stage	Characteristics of Activities
1. Scouting	Assessing needs and abilities; choosing an entry point.
2. Entry	Developing initial statement problems, goals and objectives; developing commitment and trust; establishing 'felt need' of change.
3. Diagnosis	Gathering data to define problem by accessing available resources.
4. Planning	Defining specific operational objectives, examining alternative solutions and their impacts, developing an implementation plan.
5. Action	Implementing the preferred solution responding to changes, unanticipated consequences.
6. Evaluation	Assessing how well objectives met, deciding to evolve or terminate.
7. Termination	Confirming new behaviour patterns; completing transfer of responsibility to users.

Table 2.1: The Kolb-Frohman model of change (adapted from Ginzberg, 1981)

Meanwhile, Kwon and Zmud (1987) proposed a stage model of change that consists of six steps –*initiation, adoption, adaptation, acceptance, routinisation, and infusion*. This model was later refined by Cooper and Zmud (1990), as shown in Table 2.2. The table explains the activities and product outcomes at various stages of the implementation process. It helps the consultant to develop a better understanding for both technical and organisational aspects during the implementation process.

Stage	Characteristics of Activities	Outcome
1. Initiation	Scanning of organisational needs and system solutions. Pressure to change evolves from organisational need.	A match is found between solution and its system.
2. Adoption	Negotiations to get organisational backing for system implementation.	A decision to invest resources.
3. Adaptation	Developing/Package Selection, installing and maintaining the system. Developing new organisational procedures. Training of users.	The system is available for use.
4. Acceptance	Inducing organisational members to use the system.	The system is employed in organisational work.
5. Routinisation	Usage of the system is encouraged as a normal activity.	The system is no longer perceived as something out of the ordinary.
6. Infusion	The intended benefits from the technology are obtained through effective use of the system.	The system is used within the organisation to its fullest potential.

Table 2.2: Cooper and Zmud's model of change (adapted from Cooper and Zmud, 1990)

Kotter's (1995) model, however, offers a specific sequence of steps that change agents (e.g., managers) should follow in an orderly manner for the successful implementation. He asserted that "skipping steps never produces a satisfying result". He further cautioned that mistakes are cumulative because a mistake in a previous stage can have a devastating impact and slow momentum on the success of the subsequent stages. Table 2.3 describes the eight-stages of the Kotter model with its associated activities.

Stage	Characteristics of Activities
1. Urgency	Examining organisational demand for technological change.
2. Coalition	Assembling a group to work together as a team.
3. Vision	Creating a vision to help for direct change effort and developing strategies for achieving that vision.
4. Communicate	Communicating the vision through numerous communication channels.
5. Empower	Eliminating obstacles to change.
6. Short-term wins	Planning for and creating short-term wins by publicising success, such as recognising and rewarding staff who achieve that objective.
7. Consolidation	Consolidating improvements and changing structures, systems, procedures and policies that are not consistent with the vision.
8. Institutionalise	Articulating the connections between the change effort and organisational success.

Table 2.3: The Kotter's model of change (adapted from Kotter, 1995)

Garvin and Roberto (2005) have offered another method for achieving implementation success in an organisation that is through persuasion. They argued that many organisational attempts have failed because their employees are reluctant to change. In

line with this, Garvin and Roberto’s model asserts that for the success of implementation, a change leader must perform a series of deliberate but subtle steps to recast employees’ existing views and create a new context for action. This must be actively managed during the few months of turnaround (when uncertainty is high). To do this, the change leader should follow a four-part communication strategy – *setting the stage, creating the frame, managing the mood, and reinforcing good habits*. Table 2.4 describes the characteristics of the tasks that are relevant to the stages of Garvin and Roberto’s model for successful implementation.

Stage	Characteristics of Activities
1. Setting the stage	Convincing employees that the change is imperative and demonstrating why the new direction is the right one.
2. Creating the frame	Producing the preliminary plan to achieve the change by gathering employee feedback. Once the preliminary plan has been accepted, a final plan should be announced to the employees.
3. Managing the mood	Managing employees’ mood through constant communication.
4. Reinforcing good habits	Reinforcing behavioural guidelines to avoid employees reverting to the old habitual patterns.

Table 2.4: The Garvin and Roberto’s model of change (adapted from Garvin and Roberto, 2005)

The theory of change utilised by these four models has its roots in the early work of Lewin’s model of change, as proposed by Kurt Lewin (1947) and further elaborated by Zand and Sorensen (1975). Lewin’s work is long established and considered to be highly effective (Burnes, 2004a; Burness, 2004b). The findings of a recent study also reported that many recent models of change have followed the Lewin’s model (Elrod and Tippett, 2002). The model has to be a generic recipe for studying the organisational change process (Weick and Quinn, 1999) while its characterisation has been reformulated and recast in many forms (Elrod and Tippett, 2002). Hendry (1996) contended this argument by stating that, “*the whole theory of change is reducible to this one idea of Kurt Lewin’s*”.

Generally, Lewin’s model of change revolves around a basic sequence of three stages – *unfreezing, moving and refreezing*. *Unfreezing* can only take place when there is motivation to change, and such motivation could either be self-induced or influenced by peers (Wastell, Kawalek and Newman, 2003). In *moving*, the organisation learns new behaviour patterns and assimilates the ramifications of change. *Refreezing* refers to the process of making these patterns of behaviour a permanent part of the system. It is

believed that the *refreezing* stage can only begin when the new behaviours are adopted in the organisation. These three steps remain in dynamic social balance changing from one stage to another. Table 2.5 describes the characteristics of activities for the stages of Lewin’s model. Zand and Sorensen (1975) asserted that the high levels of activity conducive to these three stages are associated with greater implementation success, while high levels of activities antithetical to the requirements of the three stages are positively related to project failure.

Stage	Characteristics of Activities
1. Unfreezing	Reducing the forces that maintain the existing behaviour and preparing the new behaviours to be adopted.
2. Moving	Learning the new behaviours and understanding their consequences.
3. Refreezing	Stabilising the new behaviours to be a permanent part of the system.

Table 2.5: The Lewin’s model of change (adapted from Zand and Sorensen, 1975)

As the first four implementation models (i.e., Kolb-Frohman, Cooper and Zmud, Kotter, and Garvin-Roberto’s) are similar in concept to, and parallel with the Lewin’s three-stage model (Zand and Sorensen, 1975), all their stages from the models can be mapped according to the broad stages of Lewin’s. Table 2.6 shows the mapping stages as recommended by some previous studies (e.g., Chan and Swatman, 1998; Armenakis and Bedeian, 1999; Mukherjee and D’Souza, 2003).

Stage	IS models of implementation process				
	Lewin (Zand and Sorensen, 1975)	Kolb-Frohman (Ginzberg, 1981)	Cooper and Zmud (Cooper and Zmud, 1990)	Kotter (Kotter, 1995)	Gavin and Roberto (Gavin and Roberto, 2005)
Stage 1	Unfreezing	Scouting Entry Diagnosis	Initiation	Urgency Coalition Vision Communication	Set stage Create frame
Stage 2	Moving	Planning Action Evaluation	Adoption Adaptation	Empower Wins Consolidation	Manage mood
Stage 3	Refreezing	Termination	Acceptance Routinisation Infusion	Institutionalisation	Good habits

Table 2.6: Various frameworks of models of change

The similarity between these five models is that an implementation process is used to plan an organisational change to achieve the desired outcome (i.e., success). In general, the two basic lessons underscored by these models are:

- 1) The change process typically occurs in multiple stages that take a considerable amount of time to unfold
 - 2) Mistakes in any step can slow implementation, as well as negate hard-won progress
- These two lessons are valuable for all those involved in implementing the technological change in an organisation (Armenakis and Bedeian, 1999).

In reviewing the frameworks of the models of change dissimilarities were also found. Lewin's model offers a simpler framework to encapsulate the implementation process into three broad stages – *unfreezing*, *moving* and *refreezing*. It is this simplicity that has appealed to a large number of researchers in the recent investigation of IS phenomenon (e.g., Bozak, 2003; Wastell et al., 2003; Pan, Pan, Newman and Flynn, 2006; Šuc, Prokosch and Ganslandt, 2009). For instance, Bozak (2003), and Šuc et al., (2009) discussed the applicability of Lewin's model in a nursing system. In another study, Wastell et al. (2003), and Pan et al. (2006) employed the same model to investigate the implementation of e-Government projects in some local governments.

In another comparison, although the Kolb-Frohman's, Cooper and Zmud's, Kotter's, and Gavin and Roberto's models of change offer a prescription for managing the change process, they are more relevant for change agents such as consultants who provide recommendations on a change process in an organisation. These models, however, do not support key players, such as system developers, who are actively involved in implementing the system applications and managing issues that arise during the actual change process. As Lewin's model recognizes the change involving actors' attitudes and values (Pan et al., 2006), it can be used as a lens to encapsulate the process of system developers' going through the implementation of a CiRM system. The adoption of Lewin's model of change would assist the study to better understand the phenomenon in implementing a CiRM system. Based from these arguments, it is the Lewin's model that was chosen as a tentative framework of the study.²⁰ The following section describes how this model will be used for guiding this study.

²⁰ Lewin's model of Change provides a "starting point" in developing a normative theory of the phenomenon in question. The framework is also believed to be useful as a guidance for the next research stage, e.g., setting-up the questions for the pilot and primary research stages.

2.3.3 The Proposed Theoretical CiRM Implementation Framework in Local Government

Kurt Lewin, a social psychologist, believed that only by resolving social conflict (i.e., that resist change), could the human condition be improved (Burness, 2004b). He believed the key to resolving social conflict is to facilitate planned change through learning, thereby enabling the group, organisational and society levels to understand and restructure their perceptions of the world around them (Burness, 2004a; Burness, 2004b). To enable these levels to change, new patterns of behaviour need to be adopted in order to transform old habits (Thompson, 2008). This can be achieved by either increasing the driving forces that favour change or decreasing the resisting forces that do not favour change (Lewin, 1947). However, the biggest challenge of the change process is to make it permanent. Therefore, Lewin has introduced the “force-field theory” concept, which ensures these two sets of opposing forces determine how and whether change will take place (Thompson, 2008). When the forces for change are perfectly balanced by resistance, the organisation is in a state of equilibrium. To achieve that state (i.e., a successful change), Lewin suggested the *unfreezing*, *moving* and *refreezing* stages.

These two elements (i.e., force-field theory and three-stage model of change) were employed as they were helpful in setting the boundary of the research enquiries – that is to understand the system developer’s perspective in implementing the CiRM implementation process. Other elements of the Lewin’s Change Model (i.e., action research and group dynamics) were disregarded due to the following reasons:

- 1) A Straussian GTA was employed (instead of action research) as it is perceived to be much more appropriate in encapsulating the entire system developer’s perspective of the CiRM system implementation process phenomenon. In this particular instance, both the case study research and the Straussian GTA were combined to prevent the research from becoming too method bound. In other words, using a variety of approaches have allowed some flexibility, i.e., the strength of almost every measurement is flawed in some ways or another and therefore research design can be properly offset by counterbalancing strengths from one another.

- 2) The group dynamics element of the Lewin's Change Model was not explicitly employed in this study as the three-stage time element of the model was capable enough to encapsulate the group dynamic matters which might have had experienced by the system developers in her or his effort to implement the CiRM system. In fact, the encapsulation of these group dynamic matters (i.e., positive or negative system developer) was evident and discussed in the case studies (see Chapter 5).

In an attempt to identify the main implementation determinants together with their stages, the study has viewed Lewin's Change Model as follows.²¹ In the *unfreezing* stage, the study will identify how the system developer creates responsiveness to the need to implement CiRM and creates an accessible ambience to the system implementation. In the *moving* stage, the implementation of the CiRM system will be thoroughly investigated. In this stage, the study will identify how system developers develop the CiRM and how they learn to accommodate the system. Whilst in the *refreezing* stage, the way in which system developers stabilise and maintain the CiRM system will be identified.

There are two types of forces that are characterised by the system development life cycle in local government organisations – internal and external. They come together to form a set of forces that will have an impact on the CiRM implementation process (see Figure 2.1). The internal force consists of aspects (i.e., organisational and technical) that may shape the implementation of the system whilst the external environment refers to the forces outside of an organisation (e.g., public demand towards better services, central government directions in pushing for online services). These strategies have been used to implement new system applications or technologies in many governments initiatives (e.g., Kim and Pan, 2006; Fleming, 2008; Kim, Kim and Park, 2010).

²¹ The model suggested change as a multistage process and that all stages must be negotiated before a stable change can be said to have taken place (Schein, 1996).

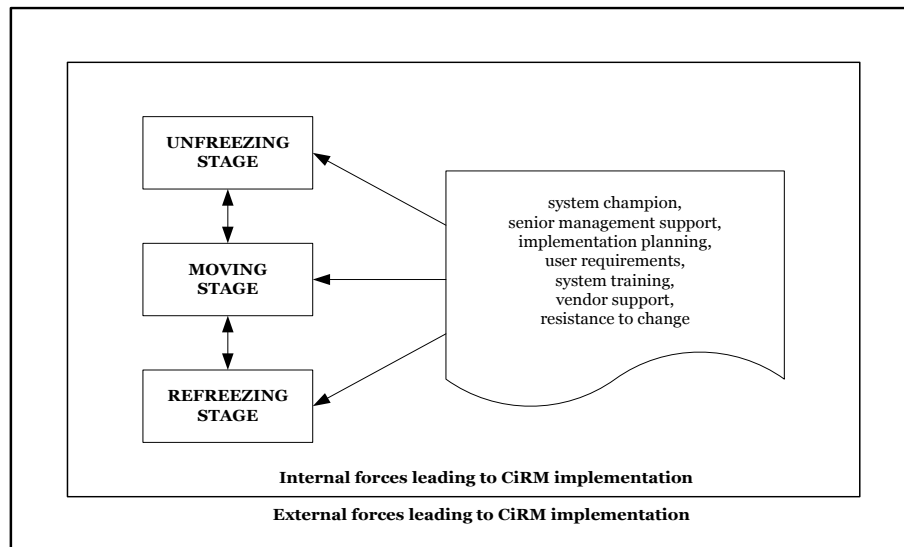


Figure 2.1: Proposed theoretical framework (adapted from Zand and Sorensen, 1975).

Even though the model has received some criticisms (see section 2.2.5), the model is relatively stable to frame the scope of the study. The model is applicable in probing the potential issues (e.g., convincing senior managers of the implementation, urging the end-users to use the system) that have an effect upon system developers implementing the CiRM system. These issues cannot be ignored because CiRM implementation involves the process of change (Beynon-Davies, 2005; Kim et al., 2007; Reddick, 2010; 2011), thus, its implementation requires an understanding of how system developers managed the issue involved effectively. As a result, the common determinants leading to CiRM implementation, which were identified while, reviewing CiRM/e-Government implementation studies (see Section 2.2.2) were proposed to encapsulate the gist of the phenomenon of implementation in question. This includes the determinants of:

(1) Management support

The most recurring success determinant in the CiRM/e-Government implementation studies is management support (e.g., Kannabiran et al., 2004; Moon and Norris, 2005; Schellong, and Langenberg, 2007; Tseng et al., 2008; Santana, 2009; Reddick, 2010; Kamal et al., 2011). Successful implementation of a CiRM system has been found to occur not only when senior management exhibit a commitment to change, but also to the implementation activities that they will endure. Senior management needs to publicly and explicitly identify CiRM projects as a top priority (Beynon-Davies, 2005; Larsen and Milakovich, 2005). Kim and Bretschneider (2004) advocated that among the support from local administrative governments is the mobilising of the project

resources. Since the system implementation will not be realised in the short-term, they argued that senior management have to have a risk-taking propensity to support the project team to design and plan for the implementation without worrying about the consequences. Senior management must be committed to their involvement and be willing to allocate some funding to the CiRM implementation effort. The absence of committed senior management, particularly in funding approval, may lead to unsuccessful implementation efforts (Kim et al., 2007; Reddick, 2010). The more senior management support and commitment CiRM initiatives receive, the higher the likelihood of implementation success.

(2) System champion

Another recurring determinant in the CiRM/e-Government literature is the significance of a system champion. Someone should be placed in charge and he or she should champion the project in the government organisations.²² The literature consistently points to the importance of the champion to be involved with the entire life cycle of system development (e.g., Beynon-Davies and Martin, 2004; Evans and Yen, 2005; Fleming, 2008; Chen, Pan, Zhang, Huang and Zhu, 2009; Kamal et al., 2011). These studies established that the system champion should be able to negotiate for the resources needed to move an idea to fruition and who understands the underlying technology as well as the business and organisational context. This person may be the project manager advocates and ensures the progress of CiRM projects. The role played by the mayor in championing the e-Government implementation in local government is also recognised as highly important (Santana, 2009). They influenced the implementation success because of their skills in bringing about the organisational change in the organisations.

(3) Implementation planning

Planning for implementing the CiRM system is another recurring theme in the literature (e.g., Beynon-Davies and Martin, 2004; Evans and Yen, 2005; Bertot, Jaeger, McClure, 2008; Fleming, 2008; Tseng et al., 2008; Rose and Grant, 2010). Implementation planning is interesting because it is generally seen as the major barrier to the system's success (due to the lack of coordination between planning and process) (Schellong, 2005). A good of implementation planning should describe the specific citizen-centred strategies that will be incorporated in the design and operation of the e-Government

²² A system champion is an organisational member who initiates the use of a new technology in the organisation (Scheepers, 2003).

initiatives (Bertot et al., 2008). Leaving room for flexibility and adaptation in its timetable, target and method of execution, especially when in the midst of the uncertainties of risks stemming from organisational demands (such as diversity of stakeholders interests), is significant for the implementation activities to make progress (Tseng et al., 2008). Implementing a CiRM system in the local government may be successful when it is conducted through planned phases or on an incremental basis (Fleming, 2008; Santana, 2009). The approach allows for creating awareness about the value of the system's implementation and making stakeholders participate actively in the projects. To make this plan work best, organising a team of several members from cross-functional areas is the key to successful planning (e.g., Chen et al., 2009; Kamal et al., 2011). Good communication between the functional areas to the team members involved in the project is also an important ingredient in forging a shared understanding between them for the success of the implementation (Kim et al., 2007). Thus, a successful CiRM system needs to be planned and managed carefully throughout the process of implementation. Without such, a plan is likely to result in poor quality services with limited capacity to meet public needs (Bertot et al., 2008)

(4) User requirements

One of the reasons why the CiRM/e-Government implementation initiative fails is due to the lack of user requirements (Velsen et al., 2009; Rose and Grant, 2010). According to Saiedian and Dale (2000), user requirements have been defined as “all activities devoted to the identification of user requirements, analysis of the requirements to drive additional requirements, documentation of the requirements as a specification, and validation of the documented requirements against the actual user needs”. This serves to alert system developers about the architecture of the system and how it will work throughout the process of implementation. To generate a useful list of user requirements, a clear and formalised approach is needed (Velsen et al., 2009). In this sense, spending time to learn about the citizens' environment is the key to understanding their demands. This can be done by involving and identifying special groups of citizens who will have different needs in terms of which services would be most effective to each group (Fleming, 2008). The public should be involved in the planning, developing and testing of the CiRM system while their needs should be paramount throughout the system life cycle and every effort should be made to be proactive in meeting their future needs (Rose and Grant, 2010). Velsen et al. (2009)

proposed a requirement engineering approach to user requirements, called a citizen-centric approach (utilises interviews, the formulation of requirements, low-fidelity prototyping and citizen walkthrough). Although the approaches used in these studies are different, the aims of the user requirements are still the same – to obtain the needs of the citizen. Therefore, it is imperative to investigate the public needs if government organisations desire a highly successful, useful, and usable CiRM system outcome.

(5) Resistance to change

Resistance to change is seen in the CiRM/e-Government studies as the biggest barrier to successful implementation (Reddick, 2010; 2011). It may occur at any stage in the CiRM implementation life cycle. For instance, CiRM implementation is likely to become a problem when the needs of the end-users and organisations concerned are not taken into account at the early stage (Ebbers and Dijk, 2007). In another study, Beaumaster (2002) asserted that for most people, new technologies (such as CiRM) represent a daunting learning curve including possible downsizing of their jobs. This perception introduces fear into the implementation and creates significant resistance to change. The end-users (both users within local government departments and the public) may refuse to use the system's application. The staff are afraid of change as they believe that the system would replace them and so cause job losses (Ndou, 2004) or they do not understand the benefits of the system (Evans and Yen, 2005). Meanwhile, the public may be reluctant to use the technological change as they feel that the CiRM system is not secure for them to do an online transaction (Kaliannan et al., 2009). In this regard, several actions can be done to overcome these concerns for successful implementation. Involving staff during the implementation process, such as at the user requirements and system training activities, is recognised as a way to reduce the level of resistance (Tseng et al., 2008; Rose and Grant, 2010). Furthermore, promotion of the CiRM system for the public to engage with the local government can be conducted to make them realise the system benefits, and, thus, reduce resistance (Chan et al., 2008).

(6) System training

Another critical determinant is system training (e.g., Richter et al., 2004; Fleming, 2008; Tseng et al., 2008; Hung, Hung, Tsai and Jiang, 2010). For instance, Hung et al. (2010) argued that limited IS capabilities of staff (e.g., lack of skill in order to use more innovative IS) can be increased by providing them more educational programs such as

training during the CiRM implementation. It enables staff to acquire the skills they need to continue to be productive after the deployment of the system (Kim and Bretschneider, 2004). Training is critical not only to help staff overcome the uncertainty generated by the CiRM implementation, but for the public to use the new innovations of the system. The public should also be trained to foster their IS knowledge and the capabilities of e-Government, thus, reinforcing the desired image of CiRM system implementation (Tseng et al., 2008). Fleming (2008) argued that a proper training programme, formal or informal, concerning the use an application of CiRM is needed for the end-users (staff and the public). The training may help staff to understand and be better prepared for dealing with members of the public from different cultural backgrounds. A failure to invest in the planning of education and training programmes for those who will be affected by the system may affect the success of the CiRM implementation.

(7) Vendor support

The implementation of a CiRM system is likely to require additional outside technical support (Kannabiran et al., 2004; Larsen and Milakovich, 2005; Hung et al., 2010). This refers to any type of assistance provided by the CiRM vendor (e.g., product consultation, maintenance of CiRM system). For instance, Kim and Bretschneider (2004) found that five of the seven municipalities in their study tended to purchase CiRM applications from vendors rather than develop applications in-house using internal IT staff. The lack of qualified staff to develop and operate in-house applications, and train the end-users is found to be common to both of their studies as well as most of the other e-Government implementation studies (e.g., Wood-Harper, Ithnin and Ibrahim, 2004; Themistocleous and Irani, 2005; Hashim, 2010). In these studies, CiRM implementation is likely to be a success, especially when vendors possess strong technical, communication, and project management skills. To identify a suitable vendor, CiRM projects should establish a set of criterion. When selecting e-Government vendors, the respective experience possessed by the vendors is among the important evaluation criteria (Wood-Harper et al., 2004). If they can provide training and coaching for the knowledge management capabilities (e.g., quick services, accurate customer interaction), this will help government organisations to make the planning of CiRM implementation run smoothly (Hung et al., 2010). In this regard, competent CiRM vendors can increase the level of implementation success. .

2.3.4 Criticisms toward the Proposed Theoretical Framework

Despite the practicality of Lewin's work to the study, the model has faced some criticisms (Burnes, 2004a; 2004b). This section summarises the main criticisms and how they are resolved in this study. First, many studies have argued that the model is too prescriptive and simplistic in analysing and conceptualising organisational change (e.g., Garvin, 1993; Pettigrew, 1990a, 1990b). For instance, Pettigrew (1990a, 1990b) raised the issue that Lewin's conceptualisation of change lacked the context and process required to truly understand organisational change. Garvin (1993) further argued that organisational change is a more continuous and open-ended process than a set of discrete and self-contained events. Hence, the model is incapable of adapting the rapid pace of change. Nevertheless, Burnes (2004a) dismissed this issue by arguing that Lewin recognised the non-linear nature of change. He argued that Lewin viewed change as a complex and iterative learning process in which stability can be achieved only by preventing groups from reverting to their old habits. In this respect, Lewin's conception of change is very similar to that of many complexity theorists (Burnes, 2004b).

Second, Lewin's work was argued to be relevant only to incremental change projects and that it was unable to deal with radical change processes (Pettigrew 1990a; 1990b; Dunphy and Stace, 1993). This view argued that the model of change only focuses on small-scale and incremental change, which makes it less applicable in large-scale and transformational change situations (Burnes, 1996). Burnes (2004a), however, dismissed this argument by pointing out that Lewin's incremental change can lead to radical transformation at the individual, group, organisational and society levels. Third, Lewin's work was also accused of ignoring the culture, power and politics in organisations (Burnes, 2005). Burnes (2004a) dismissed the issue by claiming that the model has addressed both racism and religious intolerance. He further argued that many of the studies on power and politics (e.g., French and Raven's Power/Interaction model) are based on Lewin's work. Fourth, the model was criticised for adopting a management-driven approach to change and neglecting situations requiring a bottom-up change (Burnes, 2004a). For instance, Kanter, Stein and Jick (1992) argued that the model was based upon the traditional top-down, command-and-control style of management that was too bureaucratic, inflexible, and slow to change. Nonetheless, Burnes (2004a) argued that Lewin's work recognised that for a change effort to succeed,

full participation from many quarters (i.e., not just leaders and managers) are required. Lewin saw everyone as playing an important part in the change process.

The criticisms, however, did not avert this study from employing the model to confine its boundary of enquiries. The model is still supportive in understanding system implementation. It can be seen from the enormous emphasis that continues to be placed concerning the use of the Lewin's model in IS implementation (e.g., Bozak, 2003; Wastel et al., 2003; Pan et al., 2006; Šuc et al., 2009). As a result, it can be argued that the chosen framework is unwavering to encapsulate the implementation process throughout the lifecycle of the CiRM implementation initiative.

2.4 Summary

Reviewing the literature on both CRM/CiRM implementation research in the private and government sectors have identified three similar issues - the adoption, the system's applications, and the benefits of the implementation. Although CiRM implementation research in government is still considered at the early stage (i.e., it has only been studied within the past 10 years), it seems that the CiRM implementation studies have made great progress to catch-up with other CRM implementation studies focusing upon the private sector. CiRM implementation studies in the UK and Malaysian local governments have added one additional issue to the present literature, that is, the maturity level of CiRM system. This is not surprising as the local governments are trying to improve their service deliveries. Since they are under greater pressure to provide better services, much more attention is needed to find solutions or alternative ways concerning its implementation. However, the CiRM literature on local governments is still insufficient.²³ The existing studies, therefore, are still not fully able to encapsulate the CiRM implementation process.

To understand the process of CiRM implementation, a decision was made to use a "wider view" of implementation definition with emphasis on the beginning and end of the process. The use of the "wider view" has inevitably led to the use of the "process approach" as it is capable of examining the combination of sequential activities and events, the ingredients for implementation success. Additionally, as CiRM

²³ Although a number of implementation determinants have been identified that may affect the CiRM implementation success, a description of how they fit together in the process of implementation is still lacking

implementation involves the process of change, the three stages of Lewin's model have been selected to confine the process. The model divided the process into the *prior to*, *during* and *post* implementation phases. Although the model has received some criticisms, it is relatively stable to confine the scope of the study. This review also provides insights into the appropriate method of research design that is significant for constructing the research enquiries. Few theoretical guides were also found on how to refine the proposed theoretical framework or how to increase the rigour in understanding of the CiRM implementation process phenomenon. As the research aim is to capture the system developers experience while implementing the CiRM system, a combination of case study research and the GTA was chosen as the thesis's main research design. This methodology is discussed in detail in the following chapter.

Chapter 3

Research Methodology

This chapter describes the research method employed by this study. The first part of this chapter presents the philosophical basis of the study. The second part addresses the research design which combines a case study research and a grounded theory approach (GTA). The third part presents the sampling decisions and the process of gaining access to the sites/informants. In the fourth part, the data collection strategies are described while the fifth part consists of the strategies for data analysis. In the sixth part, the chapter continues by providing a description of the procedure used in refining the proposed framework. The seventh part presents the measurements used in determining the credibility of the research, and finally the eighth part summarises the chapter's main points.

3.1 Philosophical Underpinnings

To ensure a stable research design, researchers must choose a research paradigm.²⁴ This refers to a basic set of beliefs that guide their inquiries (Cresswell, 1998).²⁵ The underlying philosophy of this study was based on the phenomenological viewpoint (Easterby-Smith et al., 2008).²⁶ The *ontological* standpoint on this selection was that the CiRM implementation in the local government organisations in reality is a complex process of phenomena that can only be interpreted, not measured from the informants, the organisations or certain pattern occurs from the implementation process (e.g., what

²⁴ A research paradigm is significant in shaping the researcher's perspective of the world. It is sometimes influenced by the context of the research and the people revolving around the studies. The paradigm can also greatly influenced research design, chosen research methods, and how data are being collected and analysed.

²⁵ The researcher basic beliefs on the research enquiries would typically consist of assumptions on the nature of reality (*ontological*), the best way to enquire the knowledge (*epistemological*) and how to acquire it (*methodology*) (Hirschheim and Klein, 1989; Guba and Lincoln, 1994; Easterby-Smith, Thorpe, and Jackson, 2008).

²⁶ Two most common paradigms that have received most attention in the literature are *positivism* and *phenomenology* (Easterby-Smith et al., 2008).

influence certain actions). In this regard, the positivist's emphasis on stable and orderly social relations is not suitable in this study as the implementation of CiRM system would involve a change of processes over time in the local government organisation, thus, creating a certain amount of flexibility and conflict.²⁷ Adopting a positivist paradigm would not help this study to focus on investigating and understanding the complexity of emerging situations during the CiRM implementation (e.g., why user resistance emerge and how the system developers tried to solve them).

The *epistemological* stance that this study has adopted is based upon the belief that the most appropriate way of understanding the complex phenomena such as CiRM system is through the sharing of experience of the informants in the studied organisations (Goulding, 2002; Easterby-Smith et al., 2008). Through the phenomenological view of the world, the task of the researcher is to find out how system developers interpret their reality in association with CiRM implementation and appreciate their view of the world.

Additionally, constructing the system developers' meaning (*methodology*) is by being in the field and examining in detail their experience through in-depth interview. This approach can lead to a generation of new grounded theories (i.e. the process in which actions and events take place), and the issues underlying the implementation of a CiRM system. The next section describes the study's research methods under the topic of research design.

3.2 Research Design

Both case study research (Stake, 1995; Gummesson, 2000) and GTA (Strauss and Corbin, 1998) have been combined to form the main research design of the study. The combination is believed to counterbalance the strengths of one another by searching for more interpretation (Stake, 1995) which leads to "theoretical saturation" (i.e., helping to capture the meaning of the system developers' actions). Three reasons leading to this decision are:

- 1) The case study research approach was suitable due to the exploratory nature of this study. Given the evident that a few prior studies were found on the implementation

²⁷ The implementation of CiRM system within the organisations encompasses of numerous unstable social actions (Pang and Norris, 2002; King, 2007; Rose and Grant, 2010; Reddick, 2011).

of CiRM system (e.g., King, 2007; Schellong and Langenberg, 2007; Richter and Cornford, 2007; Reddicks 2010; 2011), the case study research enabled each local government organisation that has implemented the CiRM system to be studied as a case (Eisenhardt, 1989). This enabled the required characteristics (i.e., the implementation activities) of the implementation process to be identified by structuring and contrasting the collected data.

- 2) The combination was designed to generate a theory (Eisenhardt, 1989; Strauss and Corbin, 1998; Goulding 2002) of CiRM implementation process based upon the experiential accounts of system developers. The GTA is capable to define and develop the concepts and categories that are needed in generating the insight of system developer's 'world'.
- 3) The GTA is appropriate in dealing with the professional experience (i.e., system developers' experience) by controlling the risk of bias into the study (Fernandez, 2004). The control is achieved through the guidelines in developing the 'grounded theory' (the principle of emergence), the procedures in selecting the system developers' to feed the data (theoretical sampling) and the method (i.e., constant comparative analysis) in developing the CiRM implementation theory (a framework of CiRM implementation process). These three key principles (Strauss and Corbin, 1998), therefore, are suited to this study since it would keep the analysis close to the original data (Langley, 1999) and provide for inductive discoveries on the phenomenon of CiRM implementation process.

Subsequently, the GTA has evolved into two distinct streams - the Glaserian and the Straussian.²⁸ The Straussian version was explained in a clear, straightforward and step-by-step fashion on the procedures needed by researchers who want to develop their first grounded theory. The Glaserian of grounded theory, on the other hand, was explained in more detailed concepts such as theoretical sampling, theoretical coding and the use of theoretical memos. Although both streams shared the belief that knowledge can be increased by generating new theories, there are a few philosophical differences between them in the form of principle of emergence, coding procedures and priori theory (see

²⁸ GTA was first established by Barney Glaser and Anselm Strauss (Fernandez, 2004; Goulding, 2002; Heath and Cowley, 2004). The distinction between both approaches was often referred to as the 'emergence' (i.e., Glaserian) and 'forcing' (i.e., Straussian) streams (Kelle, 2005).

Appendix IV).²⁹ As a result, it is incumbent on every researcher using GTA to indicate which implementation of the stream they are using (Goulding, 2002; Fernandez, 2004).³⁰ Following this, the study employed the Straussian stream (Strauss and Corbin, 1998) for three reasons:

- 1) The approach has allowed this study to set the boundaries of the phenomena on CiRM implementation in local governments in advance rather than waiting for it to emerge at the coding phase as advocated by Glaser.³¹ Indeed, Strauss and Corbin (1998) maintained that an important aspect of the research statement is the setting of boundaries around the phenomenon to be studied by allowing the researcher to enter the field with some knowledge about the subject. Moreover, without the research statement, the study would become overwhelmed by the huge volume of data (Eisenhardt, 1989).
- 2) This study is more interested in gaining insights into the ‘full conceptual description’ from the system developers’ experience in understanding the CiRM implementation process. Being a novice researcher, the Straussian grounded theory approach which provides the three key principles of grounded theory in detail seem to be the more appropriate approach in achieving the study aims (Strauss and Corbin, 1998; Hughes and Jones, 2003). It was felt that the Straussian guideline would enable a firm framework of implementation process to be developed.
- 3) The approach is ‘married’ with the researcher’s knowledge on CiRM implementation studies. It has permitted the study to develop a set of prior CiRM implementation determinants which were associated to the system developers’ experience.³² Some of the prior CiRM implementation determinants were profoundly similar to the data as the study progresses (e.g., management support and vendor support), conforming the theory that these determinants were significant to the theory-building (Eisenhardt, 1989) on CiRM implementation process.

²⁹ GTA aims to explore basic social processes and to understand the multiplicity of interactions that produces variation in that process (Heath and Cowley, 2004).

³⁰ Each stream presents a different approach to the research process, therefore, may yield different results.

³¹ The study’s research boundaries had been formulated before the commencement of the case sites.

³² Once the core category has emerged from the data analysis, the prior CiRM implementation determinants may drop or a new determinant may emerge depending on how well they ‘married’ the data.

3.2.1 Unit of Analysis

A key challenge in constructing an acceptable case study research approach is to ensure that the key questions are applicable to the selected unit of analysis (Easterby-Smith et al., 2008). In this regards, the unit of analysis is the entire CiRM implementation process that has taken place over time in each of the local governments. An emphasis was placed upon the viewpoint the developers who went through the implementation process. Their experience was developed after dealing with their local government's CiRM implementation process.

3.3 Sampling Decision

Choosing a research approach as well as a research sample was crucial in encapsulating the phenomenon of CiRM implementation process.³³ Although there are many sampling approaches available, the theoretical sampling approach (Strauss and Corbin, 1998; Goulding 2002) was seen to be suitable based on three reasons:

- 1) The samples available for investigating the key CiRM implementation issues in the local governments tend to be small in size. This is because only a small number of local governments in the UK and Malaysia have implemented CiRM system. With restricted access, the number of system developers' who can be approached for interviews is limited. Moreover, the interest of this study is on understanding the complex issues of CiRM implementation process; investigating 'how' questions are more important than generalising the results to other setting.
- 2) The numbers of system developers' who have had the experience in implementing CiRM system is only known as the study reach the level of 'data saturation' (i.e., new categories, themes or explanations stop emerging from the data). This requires a flexible research design and an iterative approach to sampling.³⁴ In doing so, the system developers' of local governments were chosen for their relevance in developing any emerging categories and concepts which are required in CiRM implementation process. This was the strategy in which two local councils from the

³³ The research design should remain sufficiently open and flexible to explore the process of CiRM implementation that will be capable to inductively develop an emergent theory (Lincoln and Guba, 1985)

³⁴ Theoretical sampling means that informants were selected when they were needed rather than before the study was conducted (Strauss and Corbin, 1998)

UK and eight from Malaysia were selected for the study; resulting in twenty in-depth face-to-face interviews.

- 3) The selection of theoretical sampling was also due to that CiRM implementation in the local governments is still relatively a new area. To explore the new concepts (e.g., how the system developers' overcome the user resistance) in relation to CiRM implementation process in detail, it was essential to choose the samples that enables this 'driven oriented concept'. In this regard, the theoretical sampling enables the study to sample each event in CiRM implementation based upon previous data collection and analysis, and this in turn contributes to the next data collection and analysis.³⁵

3.3.1 The Process of Gaining Access

Entering and gaining access to the local governments where the case studies are to be conducted requires a flexible strategy or action (Neuman, 2003).³⁶ For this reason, the sampling process was not pre-specified but was developed as the fieldwork started (see in Figure 3.1). The process of gaining access to the multiple research sites contains four main of stages as follow:

(1) Stage 1 - Lobbying the CiRM vendors

The sampling process was initiated when the researcher attended a Government Computing Expo in London in June 2008. The expo demonstrated the latest technological innovation in the UK public sector. It gave the opportunity for the researcher to approach the vendors who have been engaged in CiRM projects in local governments. Unfortunately, after lobbying a few vendors with a short briefing and making a series of follow-up through e-mails and telephones for around two months, no feedback was received. Therefore, the researcher decided to stop waiting any longer and develop other means of approaching potential informants.

³⁵ The researcher needs to be creative in developing those categories that are most important to reflect the system developers' experiences.

³⁶ A proper strategy minimises the problems researchers will encounter while collecting data in the organisations and avoid gathering data irrelevant to the aims of the research.

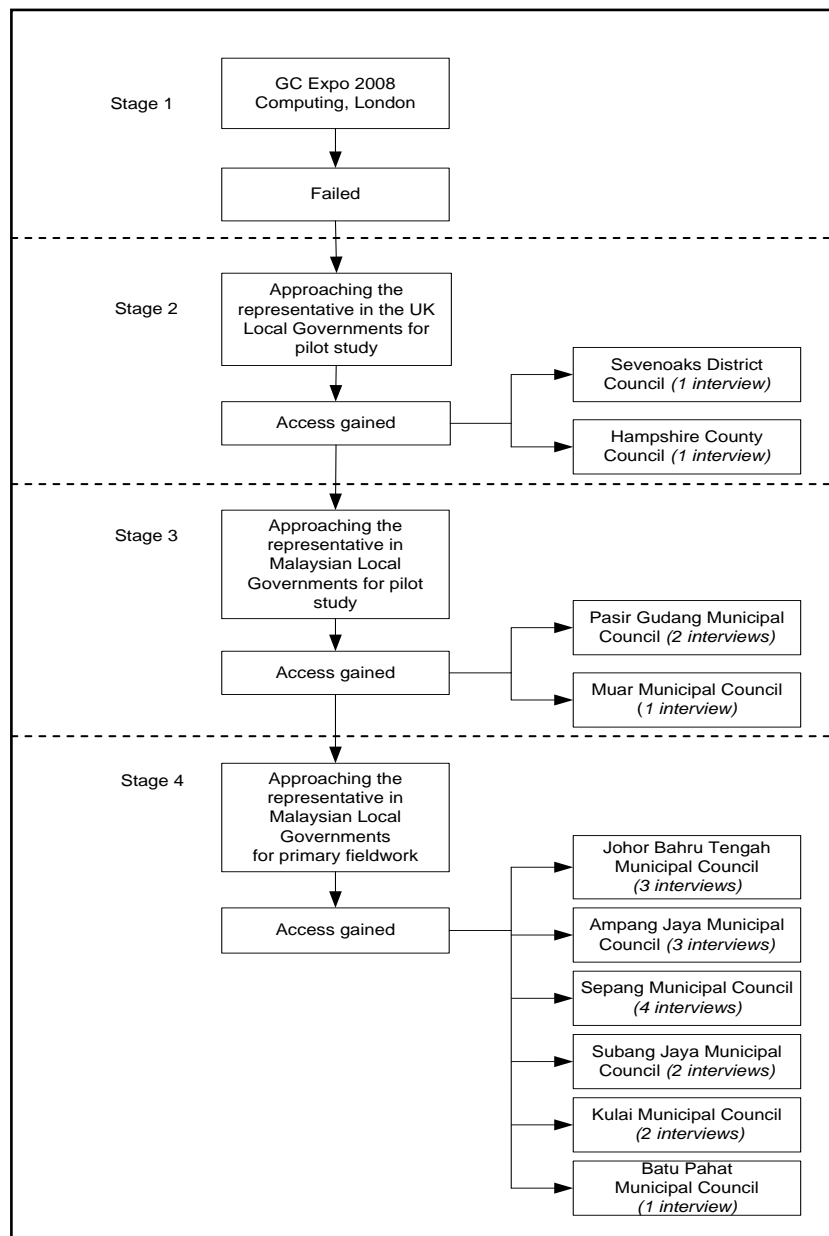


Figure 3.1: The theoretical sampling approach

(2) Stage 2 - Approaching the local governments' representatives (pilot studies)

In Stage 2, the representatives of CiRM project initiative in local government in Southeast of England were contacted. The contact details were found in the UK's local governments' websites and through written electronic mails with their customer service representatives. Several follow-up processes were then made using electronic mail and telephone conversations to develop a good rapport with these organisations. A brief introductory e-mail on the research topic was also sent out to persuade them to agree for a meeting. Two local governments finally came forward, expressing their willingness to

participate in this research. The local governments were Sevenoaks District Council (SDC) and Hampshire County Council (HCC).

Following this, all possible issues required for the interview were established by focusing upon the CiRM implementation process in UK local governments. A set of topics was sent to these two organisations in advance, giving the CiRM officers time to prepare for the interview. Then, a series of telephone conversations were made to clarify the topics and to confirm the meeting schedule.

The first in-depth pilot interview was held with CiRM Service Manager in SDC. This interview gave an opportunity to test the knowledge and methods of eliciting data which have been pre-specified. The second in-depth pilot interview was with the CiRM Manager of HCC. After completing these two in-depth pilot studies, it was still difficult to get further access into other local government in the UK. It was very difficult to approach the right CiRM system developer to agree to a meeting and this went on for about two months. It was decided not to prolong the waiting any longer and to start approaching the local governments in Malaysia for pilot study purposes.

Nevertheless, the two pilot in-depth studies in the UK local governments were adequate to test the premature knowledge from the review of literature (i.e., revealing the issues that were unclear previously). The data supplied was more than sufficient in terms of developing the means to access local governments and understanding the important issues involved in CiRM implementation process.

(3) Stage 3 - Approaching the representatives of local government in Malaysia (pilot studies)

In Stage 3, all the representatives of CiRM project in local governments in West Malaysia were approached using the same process used to approach the UK local governments. They were sent a brief introductory e-mail on the research topic. This was followed by telephone conversations trying to convince them to participate in this research. A follow-up on site meeting was then agreed with system developers in Pasir Gudang Municipal Council (PGMC) and Muar Municipal Council (MUMC), both in the state of Johor. Following the agreement, issues and topics required for the interview were developed, focusing on CiRM implementation process in Malaysian local

government. A set of topics was also sent to both local councils in advance, giving the CiRM system developers time to prepare for the interview. Thus, two pilot in-depth interviews in Malaysia can now commence.

The first in-depth pilot interview was with a System Analysts in PGMC. At the end of the interview session, she had made a reference to another system developer in the council. A speedy response was then received from the Head of the System Analysts whom has asked for an urgent appointment. This was quickly followed-up with a set of topics given to him to let him prepare for the interview (i.e., second in-depth pilot interview). The third in-depth pilot interview was held with Programmer in MUMC. With nearly three years experience with CiRM implementation, he has shared a number of issues regarding the CiRM implementation process.

All of the interviews were conducted face-to-face and were useful in developing questions (i.e., content of the questions and the procedures to be followed) as well as building up interviewing skills (i.e., restructuring and rephrasing questions). Additionally, the data supplied was sufficient to prepare for the issues of the CiRM implementation in the local governments in Malaysia.

(4) Stage 4 - Approaching the IT Managers of local governments in Malaysia (the beginning of primary fieldwork)

Following the experience gained from the pilot study in Malaysia, at Stage 4, all IT Managers of local governments in the Peninsular Malaysia were sent a brief introductory electronic mail on the research topic. A series of follow-up calls were then made. Meanwhile, the refereed system developers from PGMC and MUMC were also used in convincing the IT Managers to participate in this research. As a result, a number of good responses were received from the Head of the System Analysts (as shown in Table 3.1) who have agreed to participate in this study. The acknowledgement letter notifying them of the intention to conduct data collection was then attached together with a set of topics and sent to them. This strategy was used to let them know the nature of this study and to allow them to prepare for the interview. The role of the Head of the System Analysts is to grant further access to other system developers within the same local government in which Gummerson (2000) called the gatekeeper.³⁷

³⁷ The role of these “gatekeepers” is essential in ensuring effective access to the Malaysian local governments.

System Developer Position	Primary Fieldwork in Malaysian Local Government						Total
	JBTMC	AJMC	SEMC	SJMC	KUMC	BPMC	
Head of System Analysts	1	1	1	1	1	-	5
System Analysts	1	1	-	1	-	1	4
Programmer	1	1	3	-	1	-	6
Total	3	3	4	2	2	1	15

Table 3.1: The interviews conducted for primary fieldwork in Malaysia

Fifteen in-depth primary interviews were conducted with the CiRM system developers from six Malaysian local governments. Most of the interviews started by interviewing the Head of the System Analysts and recommendation were then made to meet other system developers (i.e., System Analysts and Programmer). Once access was granted, all system developers were given a set of topics in advance, allowing them to prepare for the interview. However, as in the case of BPMP, the System Analyst was contacted and interviewed directly because there was no role of gatekeeper in the council.

In Johor local governments, the interviews started with Johor Bahru Tengah Municipal Council (JBTMC), followed by Kulai Municipal Council (KUMC) and Batu Pahat Municipal Council (BPMC) respectively. For Selangor local governments, the interviews started with Ampang Jaya Municipal Council (AJMC), followed by Sepang Municipal Council (SEMC) and Subang Jaya Municipal Council (SJMC). These local governments were chosen because they have already implemented CiRM systems. Moreover, all of the system developers were chosen because they had the relevant qualities to be able to feed information to this study (they have the experience with the emergent framework of CiRM implementation process). However, the local government cannot be pre-specified and selected in a probabilistic manner (in contrast with quantitative sampling techniques). They were selected with the intention to depict any of the similarities and dissimilarities (Orlikowski 1993), providing the opportunity for comparing and understanding key relationships between the local governments.³⁸

³⁸ Miles and Huberman (1994) termed this approach as conceptual-driven sequential sampling.

3.4 Strategies for Data Collection

To enhance the quality of data collected, multiple data collection methods were employed (Patton, 2002; Stake, 1995). Two prime data collection methods were used concurrently for all the case studies: face-to-face interview and archives. This triangulation of data collection methods can supply more information on emerging categories, allowing for cross-checking on certain issues, and yield stronger substantiation of constructs (Orlikowski, 1993).³⁹ Both methods were mutually supportive in understanding the system developers' 'world', allowing for more in depth exploration of the issues facing the CiRM implementation process. The following sub-sections describe the data collection methods in detail.

3.4.1 In-Depth Interviews

Twenty usable in-depth interviews (with two system developers in the UK and eighteen system developers in Malaysia) were conducted to supply data of the study.⁴⁰ The important point in conducting these interviews is to describe the role of system developers' who have experience in the CiRM implementation phenomena. Thus, this fits with the aim of this study which is trying to understand the meaning that the participants make out of the CiRM implementation process. The face-to-face nature of these interviews was used for three reasons:

- 1) It develops the understanding of the CiRM implementation issues that system developers' faced in implementing the system. By using appropriate probing skills, some of the CiRM implementation issues that required more explanation can be uncovered more deeply. These issues most probably were susceptible issues, such as the level of awareness and support from the top management towards the project, that the informants were reluctant to reveal other than in confidence in a one-to-one interview. Probing such issues has allowed this study to better understand the system developers' 'world'.
- 2) The in-depth interviews have allowed the system developers' to answer questions and probes using their language (i.e., all interviews with Malaysian local

³⁹ Studies that only use one method are more vulnerable to errors linked to that particular method (e.g., loaded interview questions, biased or untrue responses) than studies that use multiple methods in which different types of data provide cross-data validity checks (Patton, 2002).

⁴⁰ From a phenomenologist point of view, in-depth interviews are the most significant source of data for the case studies (Goulding, 2002; Creswell, 2007).

governments were conducted in a mix of both English and Malay Language, a mixture of language commonly spoken by public servants especially in West Malaysia, where the case studies were conducted). The roles of the researcher were to listen, prompt, encouraged, and direct the conversation (Myers and Newman, 2007). The more comfortable the informants are, the more they are prepared to open up and talk, and the better the disclosure is likely to be. Such confession would enhance the chances of the study to focus on the participant's world directly.

- 3) The face-to-face interviews gave the system developers' an avenue to reflect their experience with the phenomena being studied. In this regard, several tactics have been used on the informants before the interview takes place. Among the tactics employed were getting fundamental knowledge about the local government's organisation, briefing the interview's aims, dressing appropriately and giving a friendly impression. Using these tactics, a close relationship and good rapport were developed. The close relationship made the system developers' more comfortable in revealing their experience. Once they were comfortable, they provided the historical data (i.e., activities during the implementation process) needed in relation to the CiRM implementation phenomena. Good rapport was also built with the system developers', and a considerable level of empathy was achieved between both parties in the interview.

All of the interviews, conducted on a one-to-one, face-to-face basis were designed to reveal the system developers' experience in implementing CiRM system in their own local government organisation. The questions were open-ended and each unexpected answer was incorporated into a new question for the next interview (it became an on-going process). This approach was fully used in developing some prior recognition of the informants' activities towards the process of CiRM implementation. With the establishment of such activities, questions and probes have been developed to reflect their experiences.

To ensure that the same basic line of question was well-explored with each informant, an interview guide was prepared (Patton, 2002; Myers and Newman, 2007). The interview guide was used to force the system developers to focus on the key implementation issues and explore its interesting lines of inquiry. They were asked to recall distinct facts and also give their opinions on a number of issues (e.g., senior

management awareness, user involvement, the selection criteria in choosing CiRM vendors etc.). They were also asked to give their insights on certain activities or occurrences towards these issues in relation to the CiRM implementation process. Such propositions were not only used as the basis for further inquiry, but also to develop emerging themes. Utilising this interview guide has allowed the researcher to use the limited time available for each interview session.

Each interview lasted approximately sixty to ninety minutes. These interviews were tape-recorded and were transcribed in full. The rationale for using this strategy is it aids the listening process and gives the opportunity of an unbiased record of the conversation. Working carefully with the interview transcripts and continuous reading of the source materials allow for the informants' insights and the underlying issues being faced by these system developers while implementing CiRM system, to be captured and interpreted.

Once the recording of the interviews has been transcribed and analysed, a follow up interview was conducted with the same system developer. This strategy was used to clarify and verify the issues that have emerged from the first interview. Due to the high cost of travelling to the system developer's workplace, the follow-up interviews were conducted either by telephone or e-mail.

3.4.2 Archives

Similar to conducting interviews, researchers needs to be organised, yet open for unexpected clues while collecting data through archives (Stake, 1995). The archives can capture useful information that interviews might miss (Creswell, 2007). Documentation related to the CiRM was reviewed which included secondary resources gathered in the local government organisations from both inside (e.g., brochures, a meeting report, a Corporate Performance Plan, and the Implementing Electronic Government (IEG) Statement) and outside (e.g., the local governments' Website, newsletters). The detail of the documents gathered from each local government can be found in Appendix V. Each of these documents was coded in the same way as the interviews (Corbin and Strauss, 2008). Without knowledge of those arguments from such document, it would have been difficult for this study to fully understand the relationship between the system developers' actions towards their activities during the implementation process.

Additionally, the archives were used as preparation and for refinement of interview questions (Patton, 2002). Interviews with the system developers involved has revealed different actions were employed to solve or overcome the same issues that were faced in all the different local government organisations. This indicated that there were differences of experience in implementing CiRM system.⁴¹

3.5 Strategies for Data Analysis

Although the Straussian version of the GTA was chosen, this approach does not provide the technique for developing the theory-building from multiple case studies. Strauss and Corbin (1998) implicitly suggested the need of modifiability when GTA is applied in a particular research project.⁴² The flexibility of GTA to fit the phenomena under study is also supported by Goulding (2002) as mentioned, “... *grounded theory’s actual use in practise has varied widely with the specifics of the area under study, its purpose and its focus*”. As a result, the decision was made to modify the GTA in developing the theory of CiRM implementation process. The modification was based upon the work done by Miles and Huberman (1994) in which they have suggested the analytical technique of within and cross-case analyses to analyse the gathered data to detect similarities and compare differences.

The within-case analysis is important for this study because it can help in managing the staggering volume of data that have been gathered (i.e., from the pilot and primary cases).⁴³ To accommodate the write-up process of each cases, a systematic coding procedures which contained *open coding* (i.e., developing possible categories), *axial coding* (i.e., relating categories and cross-connecting them) and *selective coding* (i.e., integrating main categories) (Strauss and Corbin’s, 1998) were used in investigating the outlines of CiRM implementation. However, the analysis did not stop at this level. The coding procedure was supported by the Lewin’s model of change (Zand and Sorensen, 1975). The model delineates whether each category and/or subcategory of CiRM implementation occurred during the *unfreezing*, *moving* or *refreezing* stages.

⁴¹ Implementation issues such as user resistance may happen at the initial or during the transitional period of implementation process due to the end-user unfamiliarity towards the CiRM system.

⁴² At the same time, the guiding of three key principles (i.e., theoretical sampling, constant comparative analysis, and the principle of emergence) remains the same.

⁴³ It involves detailed case study write-ups for each case (Eisenhardt, 1989; Orlikowski, 1993; Miles and Huberman, 1994). Even though these write-ups were simply pure descriptions, they were central to the generation of insight for the study to cope early in the analysis process (Eisenhardt, 1989)

For this study, since the within-case analysis has provided the implementation determinants for each local government, they were then compared to generate a normative theory that can explain the variations of cases.⁴⁴ Following the constant comparative analysis method (Strauss and Corbin, 1998), a cluster of local government organisations (i.e., by pilot case studies in the UK and Malaysia, and by primary case studies for Malaysian cases) were compared to search for common and uncommon determinants. This has been termed as pattern clustering by Miles and Huberman (1994) which involves a matrix display.

Table 3.2 outlines the experience in analysing the data for pilot and primary case studies on CiRM implementation process in local government.

Phase	Procedure	Purpose	Outcome
1	Analyse pilot studies data in the UK and Malaysia (within and cross-cases analyses)	To refine the initial determinants which has been proposed (from reviewing the implementation studies and analysing pilot studies data in the UK)	A set of refined determinants (see Chapter 4)
2	Analyse data for primary cases (Malaysia)	To further explore the determinants identified in Phase 1 and to explore new determinants (if any).	Further refined determinants (see Chapter 5)
3	Cross-cases analysis for primary data (Malaysia)	To compare the similarities and differences between the cases (and its determinants) from Phase 2	A set of established determinants on CiRM implementation process(see Chapters 6 and 7)

Table 3.2: Phases of conducting the data analysis process for pilot and primary case studies.

The phases listed in the table shows a linear process, but the method actually involves a series of several processes in operation at once (Coyne and Cowley, 2006). For example, as codes were compared and categories were merged, more data were collected. Additionally, interview transcripts were read and re-read as the categories of implementation determinants were developed. This strategy was used in confirming (or disconfirming) the categories that were grounded in the data (Strauss and Corbin, 1998). This is the strength of the GTA whereby the conceptualisations of the CiRM implementation process are grounded in the viewpoint of the system developers

⁴⁴ The cross-case analysis was used to understand the similarities and dissimilarities between the cases. Eisenhardt (1989) argued that cross-case comparisons can help the researcher to overcome the biases based upon limited and initial impressions, and as a result, new categories and subcategories will emerge. She further argued that the comparison between cases can be executed at different levels, from data by data, to category by category, and theory by theory.

involved. The following sub-sections outlined the phases of data analysis process in detail.

3.5.1 Phase 1: Case Data Analyses for Pilot Studies (in the UK and Malaysia)

Figure 3.2 illustrates the six steps of conducting Phase 1 data analysis for pilot studies in the UK and Malaysian local governments.

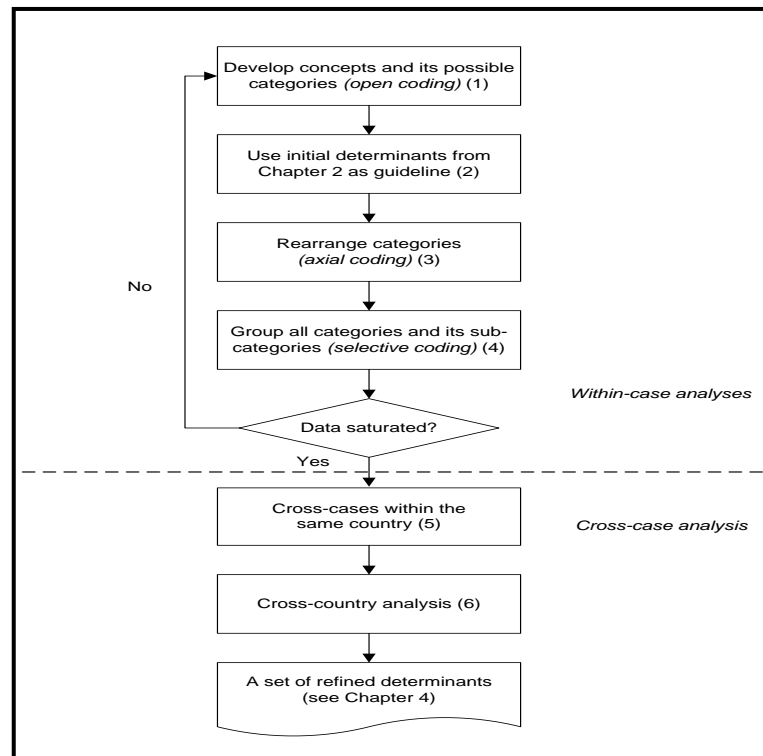


Figure 3.2: The process of conducting Phase 1 data analysis (within and cross-case analyses of pilot studies in the UK and Malaysia).

For each country, the within-case analysis process was started after the first in-depth interview (i.e., SDC in the UK and PGMC in Malaysia) commenced. The iterative approach to analysing data at these two sites was more open-ended than for the other sites. The focus was on the development of as many initial categories as possible that seem potentially relevant to the system developers' experience (i.e., open coding) (1). In doing this, the interview transcript was read in search of incidents and facts. The incidents were then compared with each other to discover or redevelop the code.⁴⁵ As guideline, the initial determinants which have been proposed in the literature and

⁴⁵ The codes were analysed and those relating to a common theme were grouped together to give stronger commonalities, called concepts.

emerged from the early cases were referred too (2).⁴⁶ Referring to the guideline enabled focus to be quickly directed to the relevant initial categories such as the management support and implementation planning.

As initial categories were formed, the process of developing the main and sub-categories occurred concurrently (i.e., axial coding) (3). This involved comparing the interviews and searching for any patterns in the data (i.e., constant comparative analysis). Once all the main categories have been developed, each sub-category (i.e., determinant/activity) was delineated as to whether they signified as a group (4). The determination was achieved by interconnecting them under the theme of CiRM implementation process phenomenon. The preliminary sets of categories and sub-categories from the first sites in each country then guided the second case studies.⁴⁷ For each country, steps (1) to (4) of analysis went through two iterations until no vital main and sub categories were missed (i.e., the data was saturated).⁴⁸

Besides the individual cases, cross-case analysis was also conducted to strengthen the understanding of the CiRM implementation issues in question. In order to achieve this, the second site for each country (i.e., HCC in the UK and MUMC in Malaysia) was compared and contrasted with the first site (i.e., SDC in the UK and PGMC in Malaysia) (5). For instance, in Malaysia, data from MUMC's were sorted into the sub-categories that generated by PGMC's data. It soon became clear that several sub-categories (i.e., determinants) from the first site did not accommodate some of the findings that have emerged from the second site. When the determinants have been identified, they were then compared through the cross-country analysis (6). The similarities and differences between the countries have produced a set of refined determinants (i.e., ten of them). As these determinants have been emerged through three times refinement process (i.e., first refinement in the UK, second refinement in Malaysia and third refinement for cross-country analysis), therefore, they are good enough for the study to consider the implementation issues for primary case studies (see Chapter 4). To further develop these

⁴⁶ For the UK based pilot studies, CiRM implementation determinants which have identified in Chapter 2 were used. For Malaysia, the determinants which have been emerged from the UK pilot studies were used.

⁴⁷ The same process of data analysis that has been used at the first site in each country was employed in the subsequent sites.

⁴⁸ The researcher felt that the process of identifying the main and sub categories of CiRM implementation process was actually continuous.

determinants as well as to explore a new determinant, the Phase 2 of analysis was conducted.

3.5.2 Phase 2: Case Data Analyses for Primary Studies in Malaysia

Figure 3.3 illustrates the five steps of Phase 2 data analysis process in conducting the primary case studies in Malaysian local governments.

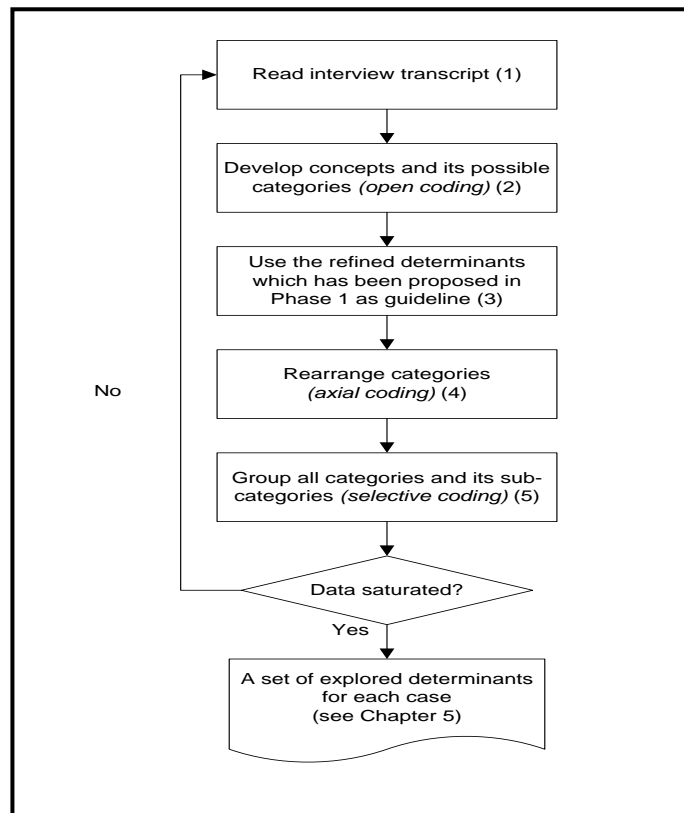


Figure 3.3: The process of conducting Phase 2 data analysis (within case analysis of primary case studies in Malaysia).

The Phase 2 analysis started after the first interview commenced with JBTMC (i.e., first site) where the interview transcript was read from beginning to end (1).⁴⁹ Initially, each interview was transcribed into a word processing document (with most of the transcripts translated from Malay language to English). Each transcript was also submitted to a reading test afterwards by an independent reader who is not a participant in the interviews. The independent reader read each transcript and made appropriate grammatical adjustment. After completion of the transcriptions, they were given back to the associated system developers for review. If there was a disagreement, it was resolved

⁴⁹ The idea behind the reading was to enter vicariously into the system developers' 'world'.

by discussing the meaning of the sentence and thereafter correction was made accordingly on the transcribed notes. For example, unfinished sentences and dangling fragments were completed in consultation with system developer. This step yielded fifteen transcripts for reading, indicating fifteen system developers' involvement in feeding the primary data.

At the first site (i.e., JBTMC), the open ended approach was utilised by examining and coding the interview transcript in searching for keywords or phrases which can give some insight into the system developers' experience with the CiRM implementation (2). The coding process at this stage relies on the identification of possible categories and their properties and dimensions (i.e., open coding). The data was broken down into incidents, ideas, events and acts, and a name was given to represents these data (Strauss and Corbin, 1998). The CiRM implementation determinants which emerged from Phase 1 data analysis were also referred to (3) as guideline in developing categories. Referring to this guideline enabled some relevant categories to be withdrawn immediately for the study.

Once all the data were analysed, the concepts of determinants were organised into recurring categories that seem to indicate a relationship (i.e., axial coding) (4). These initial categories then became a set of main categories that form connections between sub-categories to construct a more comprehensive structure (Corbin and Strauss, 2008; Strauss and Corbin, 1998). For example, at JBTMC, sub categories of '*internal forces*' and '*external forces*' were combined to form a main category called '*forces of the system implementation*'. By relating categories with sub-categories, the analysis yielded one broad category that best describes the experiences of system developers with the CiRM system implementation (i.e., selective coding) (5). The set of category and sub-categories then guided other interviews to see if they fit (Strauss and Corbin, 1998), allowing the process of data analysis to be more precise. For each local government, the step (1) until (5) of analysis went through reversing and forwarding process to ensure that no important categories were missed. It ended when the analysis reached its sixth iteration.⁵⁰ Chapter 5 will discuss the Phase 2 data analysis process in details with six local governments in Malaysia.

⁵⁰ At this stage, further interviews and analysis added little value to the emerging determinants.

3.5.3 Phase 3: Cross-case Data Analyses for Primary Studies in Malaysia

Figure 3.4 illustrates the steps of Phase 3 data analysis in conducting the primary case studies in Malaysia. The analysis started by contrasting the data from AJMC, SEMC, SJMC, KUMC and BPMC with those of JBTMC using constant cross-case analysis (1). The same process that was employed for JBTMC was followed for AJMC, SEMC, SJMC, KUMC and BPMC respectively.⁵¹ The analysis not only established the initial determinants which were produced from the Phase 1 and 2, but also explored new determinants (see Chapter 6).

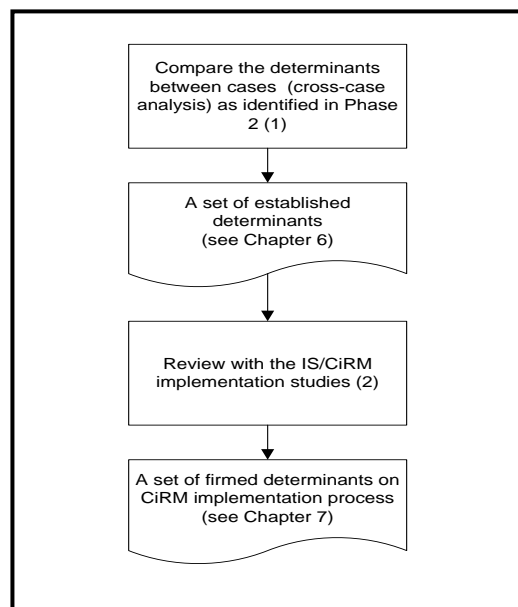


Figure 3.4: The process of conducting Phase 3 data analysis (cross-case analysis of primary case studies in Malaysia).

The final step of the data analysis process centres on a full review of the data (2) which will be described in detail in Chapter 7. In this sense, a process of abstraction which moved the analysis from the descriptive level to a theoretical interpretation was made (Goulding, 2002). This involved presenting the main CiRM implementation determinants along together with the issues that had emerged from the study. To strengthen the emergent determinants, a comparison with the IS implementations studies (i.e. DSS, CRM, CiRM/e-Government) will also be conducted.

⁵¹ The data was first grouped into the initial categories and sub-categories generated by JBTMC.

3.6 Procedure for Refining the Framework

Moving from the theoretical framework which has been proposed in Chapter 2 (see Section 2.5); this initial framework was further strengthened with the emerging CiRM implementation determinants (as come out from the data analysis stage). Figure 3.5 illustrates the three phases of framework refinements. The main purpose of having these multiple rounds of refinement was not only to improve the framework, but, also to reach the general understanding of the CiRM implementation process in the local government.

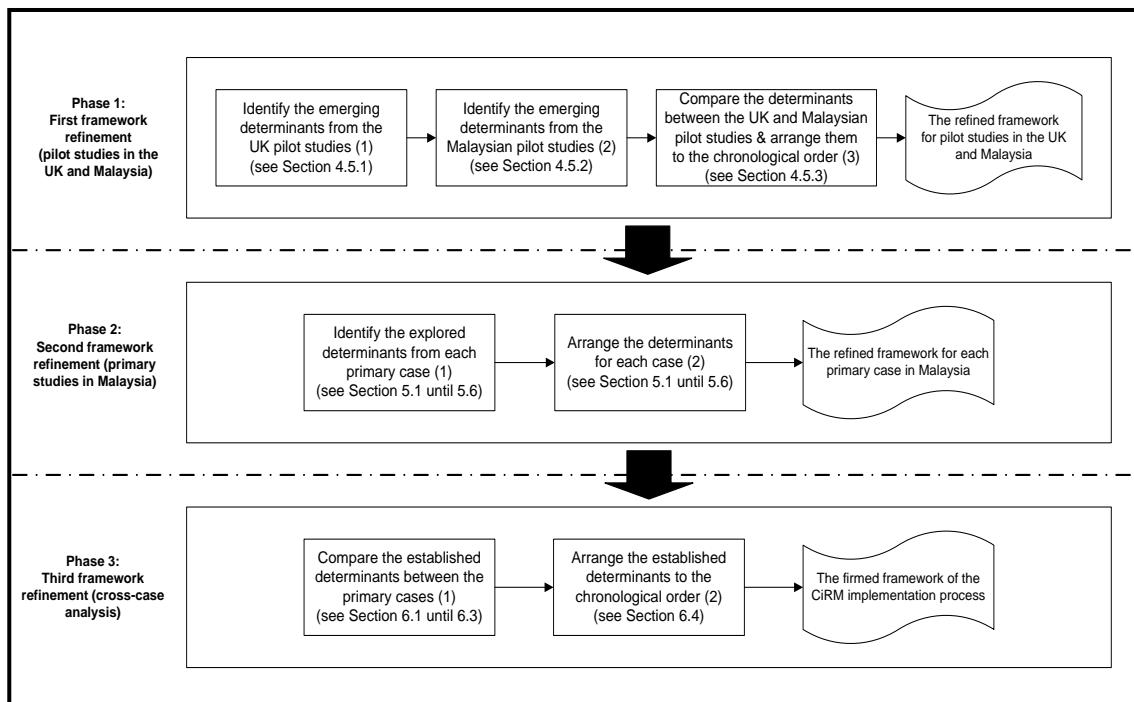


Figure 3.5: The refinement process in developing the framework of CiRM implementation process in the local government

In Phase 1, the refinement was developed as a result of analysing pilot studies data in the UK and Malaysia. Initially, the emerging determinants from the analysed data in the UK (pilot studies) were identified (1) (see Section 4.5.1). This is followed by identifying the determinants from the pilot studies in Malaysia (2) (see Section 4.5.2). All determinants which have emerged in both countries were then compared to distinguish their similarities and differences (3) (see Section 4.5.3). Once all the similar (and different) determinants have been identified, they were arranged in chronological order (step-by-step actions taken by the system developers in implementing the CiRM systems). The main outcome of this phase was a refined framework of CiRM implementation process (prior to the actual fieldwork).

The second refinement, Phase 2, was conducted as a result of analysing the primary cases data in Malaysia. Six sub-frameworks were developed as there were six local governments involved in the primary fieldwork. The development of these sub-frameworks includes the emerging forces and the implementation determinants that have shaped the CiRM implementation process in each local government (1 and 2) (see Sections 5.1 until 5.6 in Chapter 5). To determine the similarities and differences between the primary cases, the next refinement process, Phase 3, was conducted.

The Phase 3 refinement process was started by comparing the implementation determinants which have emerged from each of the primary case in Malaysia (1). The comparison was achieved by sorting-out the implementation activities (for each determinant) according to the three stages of the Lewin's Change Model (see Sections 6.1 until 6.3 in Chapter 6). The search for the subtle similarities and differences led to a more understanding on the phenomenon of the CiRM implementation process to be developed. Some arrangements that follow the CiRM implementation life cycle were also conducted on these determinants to reflect the system developer actions while implementing the systems (2). The result of this process was the firmed framework for the process of the CiRM implementation in the local governments (see Section 6.4).

3.7 Measuring the Credibility of the Research

Creswell and Miller (2000) and Healy and Perry (2000) suggested the need for all researchers (i.e., qualitative studies) to demonstrate their studies are credible through procedures such as peer reviews and external audits. This suggestion is in line with Hammersley (1987), which stated that the research account may be considered valid if *“it represents accurately those features of the phenomena that it is intended to describe, explain, or theorise”* (p. 67). In this respect, some credibility measures were used throughout this study to increase its quality.

Firstly, all the informants (i.e., system developers) were chosen because they possessed the relevant qualities which will be used to feed information to the study. They have experienced the challenges in implementing the CiRM system and were able to contribute to the evolving phenomenon (Creswell, 2007).⁵² As a consequence, twenty

⁵² Additionally, they were selected with the intention to depict any of the similarities and dissimilarities (Orlikowski 1993), providing the opportunity for comparing key implementation issues and its relationships with one another.

system developers were chosen to participate in the study.⁵³ This approach has allowed effective saturation of good themes (Morse, Barret, Mayan, Olson and Spiers, 2002). The selection of informants is, therefore, a function of the emerging themes, and the number of informants, a function of theoretical entirety.

Secondly, the strategy of feeding back the transcripts and findings to the informants (Creswell and Miller, 2000; Easterby-Smith, et al., 2008) has also been used in this study. Lincoln and Guba (1985) argued that this strategy was the most crucial technique for establishing credibility of naturalistic inquiries. By focusing on the participants, the researcher can systematically check the transcripts (Creswell and Miller, 2000). In doing so, the gathered data was validated by giving each transcript draft back to all the twenty system developers involved for review, which is referred to as member checking (Stake, 1995; Goulding, 2002).⁵⁴

Thirdly, any significant issues mentioned in the previous interviews was verified on the next data collection within or (and) across the site. This approach is in line with the verification strategy of “thinking theoretically” as recommended by Morse et al., (2002). This approach has allowed the researcher to focus on the subject’s of the interview, the system developers’ activities towards the implementation process (Myers and Newman, 2007). Additionally, the choice of open-ended questions was a practical strategy in developing and probing some issues that reflect on the developers’ experiences. Such measure has made new ideas or concepts to grow by checking and rechecking constantly (Morse, et al., 2002), thus building a solid foundation for the emerging key determinants on CiRM implementation.

Besides, relevant quotations from the informants (Healy and Perry, 2000; Patton, 2002; Chiovitti and Piran, 2003) were used extensively to enhance the credibility of the thesis. The aim is to provide as much detail as possible.⁵⁵ This will enable readers to understand the insights of the study by providing them with narrative description (Stake, 1995).

This strategy is in line with one of the listed criteria delineated by Chiovitti and Piran (2003), specifying how and why the informants were selected.

⁵³ From this, five in-depth pilot-interviews with five system developers in local government (i.e., two in the UK and three in Malaysia) and fifteen in-depth primary-interviews with fifteen system developers (in Malaysia) were conducted.

⁵⁴ Only sixteen system developers returned their transcribed notes, four of them disagreed on some of the sentences. The disagreement was later resolved and some corrections were made accordingly on the transcribed notes

⁵⁵ This may involve describing small slices of interactions, experiences, or action; locating individuals in specific situations; bringing a relationship or an interaction alive between two or more people; or providing a detailed rendering of how people feel (Denzin, 1989).

Moreover, all of the local governments' CiRM implementation processes in both countries have been cross-analysed to identify any similarities and differences in their implementation activities. The aim is to reduce the possibility of informants' bias. Instead, the framework was developed through the identification of implementation activities that occur across ten local governments - two in the UK and eight in Malaysia. As a result, these comparisons have enabled this study to present an accurate picture of the CiRM implementation process in local government.

Likewise, to ensure that the research findings have meaning to others in similar situations (i.e. transferability); literature review related to each theme in the final framework of CiRM implementation process will be described. In other words, the literature will be reviewed again for the emerging issues (i.e., from the findings) that are referred to be similar in IS implementation (i.e. DSS, CRM, CiRM/e-Government implementation studies) (see Section 7.1 in Chapter 7).

3.8 Summary

The chapter presents the reasons for combining both the case study research and GTA (Straussian) as the study's main research design. The combination was believed to be appropriate in encapsulating the CiRM implementation process. It has enabled the nature of the CiRM implementation process to be carefully understood, and the theoretical accounts that conform to the experience of the system developers' to be clearly developed.

The most challenging part of using these methods was to find willing sites that would allow apposite data collection to be made. Some local governments were not interested to contribute and denied access to their resources. Even when permissions were granted, it was still difficult to convince experience system developers to agree to a meeting. This was time consuming and stressful, which took more than one year to complete. Ten local councils (i.e., two in the UK and eight in Malaysia) eventually agreed to share their experience. As a result, twenty CiRM system developers from these organisations were interviewed (i.e., two in the UK and eighteen in Malaysia) face-to-face.⁵⁶ Follow-up interviews (through telephone or e-mail) were also conducted to clarify the issues

⁵⁶ This includes five pilot interviews (two in the UK and three in Malaysia) and fifteen primary interviews (in Malaysia)

that have emerged from the first interview. While in-depth interview was the main method to grasp the system developers' experience, some archives have also been examined to back-up the interviews.

As the study depended heavily on interviews, several measures were employed to enhance the credibility of the findings. Additionally, a procedure of analysing the interview data and refining the framework related to each analysis phase was developed. Both data analysis and framework refinement processes involved with three main phases. While the aim for analysing the collected data was to generate a set of established determinants, the framework refinement was intended to build a firmed framework of CiRM implementation process in the local government.

The next chapter provides a detailed description of pilot studies in the UK and Malaysia. The exploratory fieldwork in the UK was conducted to investigate how the system developers go about implementing their CiRM systems. The key aim was to refine the prior implementation determinants which were identified from reviewing the CiRM implementation studies. As one of the developed countries, the exemplary practices on CiRM implementation in some of the local governments in the UK were significant as the country has already gone through what Malaysia is going through at present. Any similarities and differences between both countries can enable the study to develop an initial 'picture' on the process of CiRM implementation.

Chapter 4

Pilot Studies

This chapter describes a series of in-depth pilot case studies that were conducted at four local governments both in the UK and Malaysia. The main purpose of developing these pilot studies was to not only to establish the initial implementation determinants but also to refine the proposed theoretical framework of CiRM implementation process that was developed after the review of the literature.

The pilot studies helped to further develop an initial understanding of the CiRM implementation process in local governments. The understanding was accomplished through the following stages: 1) establishing two case studies in the UK local governments; 2) establishing two case studies in Malaysian local governments; and 3) analysing the case studies between the UK and Malaysia.

This chapter is structured as follows – the first part presents the significance of conducting the pilot studies (with five system developers in four local governments). The second part addresses how theoretical sampling approached was employed in selecting the relevant informants. The third part presents the execution of multiple data collection methods, which includes in-depth face-to-face interview and archives. In the fourth part, data analysis strategies are described, which involve three principal coding phases - open, axial and selective. In the fifth part, the chapter continues by providing a detailed explanation on how the refinements were conducted to form the proposed CiRM implementation framework. The sixth part of this chapter discusses the lessons learned in conducting the pilot studies, while the seventh part summarises the chapter's main points in conducting pilot case studies.

4.1 The Significance of the Pilot Studies

The pilot cases provide significant insights into the basic issues of the CiRM implementation process in several ways:⁵⁷

- 1) The general aim of undertaking the pilot study was to support the initial knowledge obtained from reviewing the CiRM implementation studies in a real life setting. In other words, it allowed this study to clarify the vague knowledge in the literature review. For instance, there are several implementation issues that were not clear or were not apparent previously in the literature review (e.g., what are the roles of system developers during the implementation process). Being exploratory in nature, pilot studies helped in giving more understanding to the development of the theoretical concept of the CiRM implementation process. This understanding was then used in parallel with the ongoing review of the implementation literature, so that the final research design was informed both by prevailing theories and a fresh set of empirical observations. This was done to ensure that the CiRM implementation process reflected significant theoretical issues as well as questions relevant to the case studies.
- 2) A pilot study was used to refine the initial theoretical framework of the CiRM implementation process in the local governments, which was developed based on the review of the literature. This initial framework was refined by recognising the CiRM implementation determinants that emerged from the case studies.⁵⁸ While the pilot cases enabled the in-depth examination of each of the local governments, the GTA allowed the data to be explored and develop the main CiRM implementation determinants. These determinants formed the building blocks of the refined framework of the CiRM implementation process in the local governments.
- 3) A pilot study was undertaken to refine the data collection plans. In this regard, Yin (2003) urged that it is essential to note that a pilot study is “formative”. The pilot case was “formative” in assisting this research by developing relevant questions that were related to the CiRM implementation issues. In doing so, the issues were

⁵⁷ The term “pilot study” is used to refer to mini versions of a full-scale study (also called ‘feasibility’ studies) as well as the pre-test of a particular data collection instrument, such as interview guides (Teijlingen, Rennie, Hundley and Graham, 2001). The advantages of conducting a pilot study are to provide advance warning about the possibility of the main research failing, when the proposed research method was inappropriate or too complicated.

⁵⁸ In this case, Eisenhardt (1989) argued that case study research could actually be combined with the grounded theory approach in building a theory.

discussed in the interviews by using an open-ended approach where each unexpected answer was incorporated into a new question at the next interview. This allowed the study to strengthen the overall structure of the research design.

In short, the pilot studies have assisted not just in clarifying those unclear implementation issues raised during the review of the literature, but also helped to refine the proposed theoretical framework and to purify the subsequent data collection approach.⁵⁹

4.2 The Pilot Studies Sampling Procedure

Although the theoretical sampling was chosen to feed the study's data, in the initial stage, the sampling was open and purposeful (Goulding, 2002; Eisenhardt, 1989; Strauss and Corbin, 1998). In other words, sampling was opened to those system developers in any local government that could provide the greatest opportunities in discovering as many CiRM implementation determinants as possible.⁶⁰ The IS/CiRM implementation literature and the pilot studies were used to improve the reliability of the sampling procedure during this stage. Throughout these two combinations of sampling (purposeful and theoretical), new data were compared with previously obtained data using the constant comparative method. This not only helped in identifying the properties and developing categories but also helped in pointing out where to find new and relevant data. Figure 4.1 illustrates the experience in executing the sampling approaches.

⁵⁹ The pilot studies have allowed a better understanding (and formation) of the CiRM implementation determinants.

⁶⁰ Strauss and Corbin (1998) argued that to ensure openness, it is beneficial not to structure data gathering approach too tightly. They suggested that the researcher must be patient while waiting for something significant to happen or someone to say something interesting.

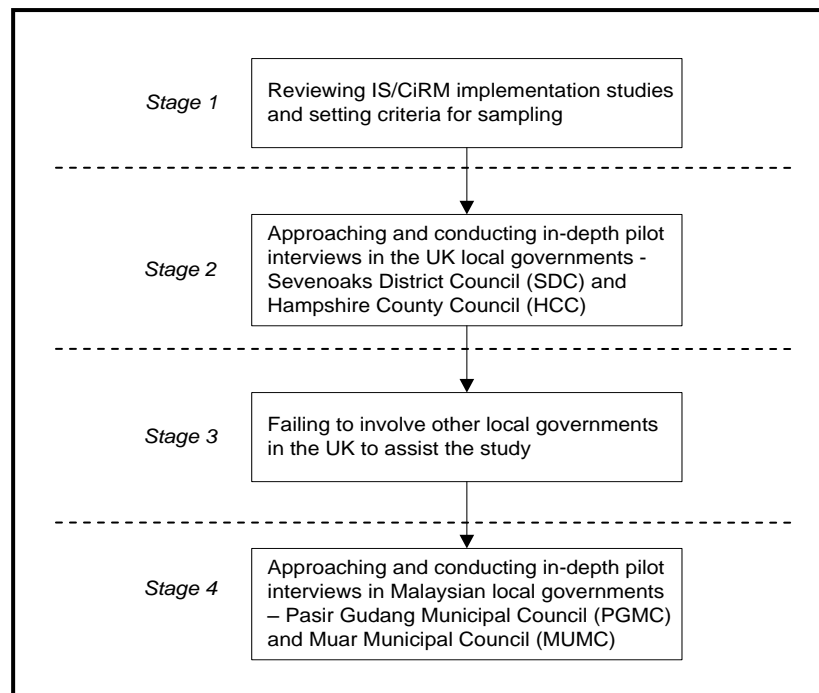


Figure 4.1: The theoretical sampling process in conducting the pilot case studies.

In Stage 1, the IS/CiRM/CRM implementation literature was used; most of the literature came from a secondary data (scientific papers in academic journals and information from local government websites). The literature has enhanced the researcher's understanding of the sector, its significance and the key issues in the CiRM implementation process from the perspective of system developers. Some foundation concepts in the form of CiRM implementation determinants have emerged from this initial understanding (e.g., support from senior management and vendor, end-users involvement, implementation planning). These initial key determinants have provided the basis for this study to begin with the pilot studies.

At this preliminary stage, the study sets two inclusion criteria for sampling – local governments must have already implemented the CiRM system and their system developers' must have been involved in the system implementation.⁶¹ As a result, two local governments from both the UK and Malaysia were selected – Sevenoaks District Council (SDC) and Hampshire County Council (HCC) in the UK, and Pasir Gudang Municipal Council (PGMC) and Muar Municipal Council (MUMC) in Malaysia. From these organisations, two CiRM Managers and System Analysts, and one Programmer

⁶¹ Both criterions were employed after the researcher failed to interview some vendors who had been involved with the UK's local government of CiRM implementation projects (i.e., participants in the Government Computing Expo in June 2008 in London). The vendors declined to participate and were more interested in selling their products and services.

were interviewed face-to-face (see Table 4.1). These system developers were chosen because they were experienced in the CiRM implementation process.

System developer position	UK		Malaysia		Total
	SDC	HCC	PGMC	MUMC	
CiRM Manager	1	1	-	-	2
Head of the System Analysts	-	-	1	-	1
System Analyst	-	-	1	-	1
Programmer	-	-	-	1	1
Total	1	1	2	1	5

Table 4.1: Pilot studies informants' profiles

Stage 2 was initiated by contacting seventy-four local governments in the Southeast of England, which had already implemented the CiRM system.⁶² However, only seven local governments replied, and, of those, only two (i.e., HCC and SDC) granted access for the pilot case studies. The first in-depth pilot interview was conducted with the CiRM Manager in the SDC. At the end of the interview session, the researcher asked for assistance in identifying other system developers who could be approached for interviews. The CiRM Manager then suggested a Project Manager and a System Analyst. After the interview, both individuals were contacted. Unfortunately, they did not agree to the interview as they do not entertain requests from researchers. Nevertheless, the first in-depth interview raised a number of issues; as the system developer was directly involved with the whole process of implementation. Most of the issues involved were organisational rather than technical in nature, for instance, support elements, such as from top management and vendor towards the process (although some technical issues have also been discussed, such as integration of data).

The second in-depth interview was with the CiRM Manager of Hantsdirect Contact Centre of HCC, who was responsible for the whole service operations. The data supplied enabled the researcher to understand the issues during and post implementation of the CiRM system (i.e., he participated once the CiRM project had been approved for

⁶² The local governments' efforts to implement the CiRM system were obtained from their website as well as their customer service representatives.

implementation). As HCC was in the middle of the growing stage of the CiRM system implementation, most of the issues discussed focused on organisational issues.⁶³ However, when asked for assistance in naming another person who is responsible for the system implementation, the system developer was not in a position to help.

In Stage 3, other local governments in the UK that had experienced with the implementation of CiRM were pursued. Other cases were required to strengthen the emerging issues contributed by both SDC and HCC cases. Some of the issues (e.g., planning for future implementation, building a partnership approach with other implementers) need to be explained further. Hence, a decision was made to widen the research area (i.e., by approaching fifty-four local governments in the East Midlands). Unfortunately, after about three months of trying, these organisations, decided not to participate in the studies.

As there was a lack of interest from the local governments in the UK to assist this study, Stage 4 was initiated by approaching the local governments in Malaysia.⁶⁴ To identify the potential research sites, all the government municipalities in West Malaysia were scrutinised in terms of their services offered to their public. As a result, two local governments in the State of Johor (i.e., PGMC and MUMC) came forward immediately and willingly participated in this research.⁶⁵ The third in-depth pilot interview was conducted with the system analyst in PGMC. During the interview session, the researcher took the opportunity to ask the system developer for references to other individuals who could be approached for interviews. She suggested the Head of the System Analysts. Fortunately, she agreed to the interview, thus, the fourth in-depth pilot interview commenced. As both system developers were at management level, the issues involved were also mostly on the organisational aspects. Nevertheless, technical issues were still raised, especially in the development stage of the implementation process. Lastly, the fourth pilot data collection was conducted in MUMC by interviewing its programmer. With experience of more than three years on CiRM implementation, the

⁶³ The similarities concerning the CiRM implementation issues (determinants) that emerged from HCC were then compared to SDC's data in searching for their properties and dimensions (in axial coding).

⁶⁴ Strauss and Corbin (1998) claimed that a decision regarding the number of sites and interviews depend on access granted which would influenced by the available resources, research goals and the researcher's time schedule and energy.

⁶⁵ The emerging issues (determinants) from these two local governments could enhance the study's initial understanding of CiRM implementation process, which was based upon the UK cases.

programmer shared a number of issues, which were mostly technical (especially in the development stage due to his involvement).⁶⁶

In short, the sampling process for conducting pilot case studies ended at Stage 4. The reason why only five system developers were chosen to feed the sample was that they were adequate for the emergence of the initial concepts and categories of CiRM implementation determinants.

4.3 Piloting the “Correct Approach” to Collecting Data

To capture the exact procedure of the CiRM implementation process from the approached pilot case studies, multiple data collection methods – in-depth face-to-face interviews and archives were employed. The following sub-sections will elaborate on the execution of these two approaches.

4.3.1 In-depth Face-to-face Interviews

For each local government study, the pilot interviews were conducted on a one-to-one basis and lasted, on average, about 60 minutes, although some of the interviews lasted a lot longer (e.g., the interviews in SDC and PGMC were closer to 90 minutes before the researcher was confident that the interviews covered all the implementation issues possible).

At the same time, the system developers involved were sent a brief introductory e-mail on the research topic. Additionally, a set of interview questions that were developed based upon prior CiRM implementation issues was sent in advance to the system developers as a guide and to allow them to prepare for the interview.

Due to the exploratory nature of the research, an open-ended interviewing method was adopted to help develop the conversation. Each unexpected answer from the earlier sessions was noted and included as a new question for the next interview (e.g., unexpected answer from SDC was included in the question for HCC). Additionally, each interview session was conducted on-site at the local governments’ office. Prior to the start of each session, the researcher explained the aims of the interview.

⁶⁶ MUMC had implemented a simple CiRM system with the help from a vendor, which was appointed by the state government. This approach is totally different from the local governments studied earlier (pilot cases), leading to further development of vendor support issue (determinant).

Additionally, an effort was made to indicate to system developers that the interviews would be wholly confidential. It was then explained that a report would be produced from the interviews and made available to the local government management. All the system developers agreed to have the interviews tape-recorded and the tapes were later properly transcribed in full. To ensure the validity of the responses, the participants were encouraged to provide examples to support their statements.

4.3.2 Developing the Interview Guides

A number of issues had to be considered before this study started to conduct pilot data collection which includes:

- 1) Questions had to be suitably probing to achieve the study's aim. Strauss and Corbin (1998) advocated that some concepts, which are derived from literature, can be useful in developing initial interview questions.⁶⁷ In doing so, this study has considered some issues (e.g., needs analysis, implementation planning, senior management support, system training and resistance to change) that might influence local governments in their efforts to implement the CiRM system. These initial concepts (that identified from reviewing the IS/CiRM implementation studies) allowed this study to formulate initial broad questions, as well as areas to focus on during the initial interviews.
- 2) Initial broad questions, such as *"How do you go about implementing the CiRM system in your organisation?"* and *"Why did your organisation implement it?"* were asked during the interview sessions.⁶⁸ Questioning the system developers using a narrative style encouraged them to impart their past and present, as well as future expectations of CiRM implementation using the same style.⁶⁹ Asking the system developers to discuss their involvement in CiRM implementation encouraged them to provide a narrative answer (i.e., descriptions about their experiences and thought activities in CiRM implementation).
- 3) Once data collection and data analysis began; initial questions were altered and adjusted in light of emerging categories from the grounded data. This strategy is necessary in grounded theory case studies as it permits the researcher to focus on

⁶⁷ No researcher enters a research site without some pre-existing ideas about what, how and who they are going to study and how they are going to study them.

⁶⁸ Such questions, according to Atkinson (1998) are termed as narrative construction.

⁶⁹ Stories which follow a chronological sequence and events are told in a linear order (Alvarez and Urla, 2002).

emergent concepts and categories and helps in theory building (Strauss and Corbin, 1998).

4.3.3 Tape-recording and Interview Transcriptions Development

There is much debate about recording interviews in grounded theory case study research, mainly, whether or not interviews should be tape-recorded (e.g., Strauss and Corbin, 1998; Fernandez, 2004; Hansen and Kautz, 2005).⁷⁰ Relying on note taking after conducting an interview might result in this study missing invaluable data that were either not clearly heard or subsequently forgotten. For this reason, tape-recording the system developers' experience was selected over taking notes. Although the technique chosen was time consuming, it provided a full description of the conversation between the researcher and the informants (Walsham, 2006).

All pilot data interviews in this study were recorded by using analogue technology. To prevent any possibility that the system developers might be less inclined to speak openly about sensitive information (Walsham, 2006) when the interview is recorded, the researcher used the first few minutes to create a pleasant ambience for the interviews. Tactics, such as explaining the purpose of the interview before moving on to the interview questions, greatly helped the researcher in ensuring that the system developers felt relaxed and did not feel nervous during the interview sessions. As a result, none of the system developers objected to having their interviews recorded. The system developers expressed that they did not mind, as the topic of this study certainly did not deal with sensitive personal issues. All interviews were then transcribed into a full interview text soon after their completion. This enabled the study to use the complete interview transcripts for coding purposes (Hansen and Kautz, 2005). Additionally, the researcher would be able to revisit and access the transcriptions as well as to replay the interview tapes at any time, thus, improving the insights from the data material.

⁷⁰ Glaser (1992), for instance, recommended that a researcher should make detailed notes once the interviews were conducted. Hansen and Kautz, (2005) further argued that taking notes would invariably involve an interpretation and a selection of what to write down and what appears to be relevant to the interview situation.

4.3.4 Archive Scrutinisation

In all the interviews, the researcher spent sometimes after the interview sessions to persuade the informants to provide any form of archives to support what they had mentioned during the interview. Various archive materials were collected, including a meeting report, a Corporate Performance Plan and the Implementing Electronic Government (IEG) Statement (from SDC and HCC). This additional information enabled the researcher to develop an in-depth understanding of the issues surrounding the process of the CiRM implementation in local governments.

4.4 The Coding Process

The transcripts from the interviews of the five system developers were the primary input to the pilot data analysis.⁷¹ The pilot data analysis systematically followed the three coding phases – open, axial and selective (Strauss and Corbin, 1998). Open coding generates concepts and categories from the data. In the axial coding, paradigm modelling is used to establish relationships between categories. Finally, all categories are subsumed into core categories in selective coding. The following sub-sections will describe how these three coding procedures were conducted.

4.4.1 Concepts and Categories Development through Open Coding

Open coding started when the interview transcript was read and coded.⁷² In doing this, concepts and properties were identified, and categories were developed. This means that certain significant statements (in-vivo code) that are relevant to some concepts of CiRM issues were identified. For example, in the following statement, the incidents and facts (i.e., bold with underline highlighted) from the first pilot in-depth interview (in SDC) were identified. The question asked was how the vendor helps the council during the system implementation. The highlighted text from the statement below was then coded as ‘Vendor-involvement’.

*“We had to buy servers and they **sold us the consultancy, training and support to set it up.** We **have Lagan’s vendor** and they provide us with CiRM application and we pay maintenance licence each year so, it is a licence based on application”.*

⁷¹ A qualitative computer software package, NVivo 9 was used in managing the interview transcripts as well as in analysing the text.

⁷² The coding processes were more difficult during the first two interviews (in SDC and HCC) as no earlier data had been collected. However, as data was collected and concepts were started to develop, the coding processes for PGMC and MUMC had become easier.

The process of open coding was carried out for each interview transcript, with each interview being transcribed before carrying out the next one. This means that during the subsequent data analysis and through the constant comparative analysis process, statements that shared similar characteristics were given the same code. For example, the following quote taken from the transcript of the second interview is part of a reply given by the system developer when asked how the council (i.e., HCC) was supported by the vendor. Based on the system developer's response, these data were also assigned the 'Vendor-involvement' code.

"If one of the staffs is doing and it's doesn't work quit rightly (in solving the solution of the system operation), so in a first place, there will some initial investigation. Within the council, we hand it to IT support (based in Manchester). If they (IT) cannot fix that problem, then a call goes to the Lagan support team who will then look at the problem directly"

However, not all of the concepts that were derived from the early interviews emerged again during the subsequent data collection. For example, the concept of 'communicating with citizens', which emerged in SDC, did not appear in HCC as there were no discussion concerning the actions of the system developer in promoting the CiRM system. Meanwhile, some new concepts emerged and they were developed into either new categories or assimilated into pre-existing categories. For instance, the following statement (in PGMC) is coded 'ensuring the system operation' as the system developer had involved in the post-implementation activity:

*We have to **make sure that the public data is valid and accurate**. When there were **complaints from the public** (telephone calls, email also from the counter) that says that the information is not updated, **we would look back at the system**.*

Referring to prior CiRM implementation determinants and searching for in-vivo codes assisted the study to accomplish the process of open coding. As a result, the initial set of categories was developed (see Table 4.2).⁷³

At this stage, however, performing open coding yielded too many conceptual codes, which were still not strong enough to work with. To understand and reduce these concepts further, they were re-categorised in terms of their similar characteristics in the axial coding phase. The following section will discuss on how to develop the relationship between these initial categories.

⁷³ While developing the categories, appropriate names were given that relates to the derived concepts

	Initial categories	Main concepts which have emerged from the pilot case studies			
		Sevenoaks District Council (SDC)	Hampshire County Council (HCC)	Pasir Gudang Municipal Council (PGMC)	Muar Municipal Council (MUMC)
1.	System lifecycle	Prior to implementation, current system	Prior to implementation, current system	Prior to implementation, current system	Prior to implementation, current system
2.	Forces of the system implementation	Disordered technology, request from citizen, government funding, vendor action	Disordered technology, senior management under pressure, request from citizen, government funding	Improving data management, departmental usage, better services to public, competition from other councils	Senior management under pressure, high expectation from public, direction from the state government
3.	System developer's role	Lead the project, managing the project, reviewing the post-implementation, communicating effectively at all levels	Segregating duties to other senior managers, monitoring the project, working closely in a team	Lead the project, managing the project, working closely in a team, communicating effectively at all levels, knowledge sharing with other councils	Generated the idea of implementation, intermediary between internal and external stakeholders
4.	Senior management support	Persuading senior managers, securing the support, continuous communicating with senior managers	Senior management awareness, funding available	Senior management awareness, funding available, hiring more system developers, continuous support	Persuading senior management, securing the support
5.	Implementation planning	Approach for implementation, setting the implementation objectives, structuring team members, planning for future implementation, setting a realistic schedule, developing strategic partnership with neighbouring council	Approach for implementation, structuring the contact centre operation, setting the implementation objectives, formulating team members	Setting the implementation objective, identifying the implementation approach, appointing consultant, seeking help from vendor	Approach for implementation, setting the implementation objectives
6.	User needs analysis	Techniques for data gathering, structuring the user needs	Techniques for data gathering, structuring user needs	Departmental requests, obtaining public complaints, merging all end-user requirements	Techniques for data gathering, discussing the solid requirement
7.	System procurement	Purchasing guideline, opening tender to interested vendors, selection process, buying the same technology with other councils	Purchasing guideline, opening tender to interested vendors, selection process	Issuing request for proposal opening tender to interested vendors, evaluating vendors,	Not involved
8.	System development and installation	No discussion	No discussion	Method in developing the system, building a series of prototypes, getting feedback from the end-users, modules of the system, integrating all data in one database, data	Building version of prototypes, configuration works

				conversion, installation activity, installation approach, system testing	
9.	Training the staff	Content of the programme, determine the training programmes, mode of training, equipment and training materials	Determine the training programmes, mode of training, organising the training, continuous training, training materials	Identifying the training programmes, mode of training, content of the programmes	Mode of training, training materials
10.	Managing end-user resistance	Making the user feel conscious, inviting staff to participate	Use the communication channels, train the staff	Users reluctant to change, leader enforcement, presentations by system developers, training sessions	No discussion
11.	Vendor support	Vendor involvement, vendor expertise, building a close relationship	Vendor involvement by request, vendor expertise	Vendor involvement, vendor shows commitment, continuous support	Vendor involvement, limited support provided by vendor
12.	Maintaining the system operation	No discussion	No discussion	Ensuring the system operation	No discussion
13.	Promoting the system	No discussion	No discussion	Communicating with citizens, getting feedback	Communicating with citizens, getting feedback
14.	Implementation outcome	Successful	Successful	Successful	Not successful ⁷⁴

Table 4.2: Main concepts which have been developed into initial categories (through the open-coding)

⁷⁴ The system developer had no capability to manage the implementation issues (determinants) efficiently

4.4.2 Rearranging Categories in the Axial Coding Stage

In axial coding (i.e., second phase), the categories that have emerged during open coding were further explored (in exploring their relationship) by using the ‘paradigm model’ (Strauss and Corbin, 1998).⁷⁵ From further analysis of the data the phenomenon of the CiRM implementation process was discovered. The phenomenon emerged when the researcher examined the data for repeated patterns of events and identified that it describes how the system developers implement the CiRM system.

Table 4.3 shows the paradigm model, indicating the local government relationship between its categories and sub-categories.

Component part of the paradigm model	New category (C) or sub-category (SC) that emerged from axial coding	Initial category from open coding
Causal condition	Internal forces (new SC)	Forces of the system implementation
Context	System lifecycle	System lifecycle
Intervening condition	External forces (new SC)	Forces of the system implementation
Actions	<ol style="list-style-type: none"> 1. Preparing for the system implementation (new C) 2. Learning the pattern of implementation issues (new C) 3. Stabilising the pattern of implementation issues (new C) 	<ol style="list-style-type: none"> 1. System developer’s role 2. Senior management support 3. Implementation planning 4. User needs analysis 5. System procurement 6. System development and installation 7. Training the staff 8. Managing end-user resistance 9. Vendor support 10. Promoting the system
Consequence	Implementation outcome	Implementation outcome

Table 4.3: Paradigm model of the phenomenon of the CiRM implementation process (in the axial coding stage)

Ten (10) out of the fourteen (14) initial categories (which were identified earlier in open coding) that reflected actions taken by the system developers in implementing the CiRM system were segregated into the new categories. These categories, however, are subjected to Lewin’s three stages (model of change) as follows:

- 1) Preparing for the system implementation (in *unfreezing* stage)
- 2) Learning the pattern of implementation issues (in *moving* stage)
- 3) Stabilising the pattern of implementation issues (in *refreezing* stage)

⁷⁵ The initial categories that were identified through the open coding are still fractured and should be reassembled.

New sub-categories “internal forces” and “external forces” also emerged from the category of “forces of the system implementation”, which resulted from the condition of local governments to implement the system. Meanwhile, the other two (2) initial categories, “system lifecycle” and “implementation outcome” still exist (as category), which explain the context and consequence of the phenomenon. Only one initial category, ‘maintaining the system operation’, was not included in the paradigm model, as this category was weak in terms of its characteristics.

4.4.3 Proposed Theoretical Concept of CiRM Implementation Process in the Selective Coding Stage

While the axial coding process is employed in developing the categories, selective coding is used in explaining the relationships between the categories to provide the overall theoretical picture of the CiRM implementation process.⁷⁶ In doing this, all categories and sub-categories from the axial coding process were grouped, considering what they signified as a group. As a result, a number of core categories and sub-categories that are significant to each local government emerged, as shown in Table 4.4. The symbol “√” and “-” indicate a presence or an absence of sub-category involvement in the implementation process, respectively. By relating categories with sub-categories, as well as interconnecting them, one central theme was identified that best explained and made sense of all the categories that influenced the CiRM implementation process (see Figure 4.2).

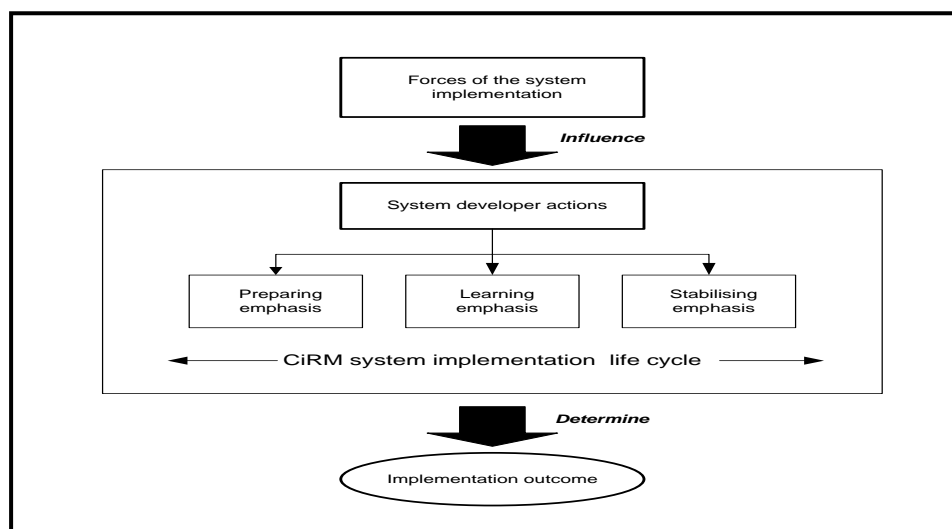


Figure 4.2: The theoretical concept of the CiRM implementation process

⁷⁶ It involves the process of integrating and refining categories in forming larger theoretical scheme of the phenomenon (Strauss and Corbin, 1998).

	Core Categories	Sub-categories	Pilot Case Studies			
			SDC	HCC	PGMC	MUMC
1.	System lifecycle	Prior to CiRM system	✓	✓	✓	✓
		Current CiRM system	✓	✓	✓	✓
2.	Forces of the system implementation	Internal Forces	✓	✓	✓	✓
		External Forces	✓	✓	✓	✓
3.	Preparing emphasis	Role of system developer	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓
		User needs analysis	✓	✓	✓	✓
		System procurement	✓	✓	✓	✓
		System development	-	-	✓	✓
		Training the staff	✓	✓	✓	✓
		Promoting the system	-	-	✓	✓
		Managing end-user resistance	✓	✓	✓	-
		Vendor support	✓	✓	✓	✓
4.	Learning emphasis	Role of system developer	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓
		User needs analysis	✓	✓	✓	✓
		System development and installation	-	-	✓	✓
		Training the staff	✓	✓	✓	✓
		Promoting the system	-	-	✓	✓
		Managing end-user resistance	✓	✓	✓	-
		Vendor support	✓	✓	✓	✓
5.	Stabilising emphasis	Role of system developer	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓
		User needs analysis	✓	✓	✓	✓
		System development and installation	-	-	✓	✓
		Training the staff	✓	✓	✓	✓
		Promoting the system	-	-	✓	✓
		Managing end-user resistance	✓	✓	✓	-
		Vendor support	✓	✓	✓	✓
6.	Implementation outcome	-	✓	✓	✓	✓

Table 4.4: Core categories and sub-categories of pilot studies (in the selective coding stage)

The theme of this theoretical concept is the actions (i.e., determinants/activities) of the system developer while implementing the CiRM system.⁷⁷ The actions are influenced by internal and external forces that caused the system developer to proceed with the system implementation. Meanwhile, three different emphases led to the development of the system developer's actions – preparing, learning and stabilising of the implementation issues. These three actions occur throughout the life cycle of the CiRM implementation process and they are categorised according to the emphasis placed by the respective system developer. The preparing emphasis includes determinants that the system developer raised during the introduction of the implementation (*unfreezing* stage). Learning emphasis consists of determinants pre-determined in the middle of the implementation (*moving* stage) while stabilising emphasis comprises determinants that are specified in the post-implementation (*refreezing* stage). Subsequently, if the system developer is able to manage these three types of emphases in an effective manner, the implementation outcome will be successful or vice versa.

At this stage (i.e., through selective coding), the study has developed the theoretical concept of the CiRM implementation process phenomenon. In this regard, a total of four local government cases were necessitated in developing this initial concept. The following section will explain how this concept was used to develop a framework of the CiRM implementation process for the local government (i.e., prior to the actual fieldwork).

4.5 Proposed Theoretical Framework of CiRM Implementation Process

As the prior implementation determinants (from Chapter 2) have been refined and new determinants have emerged (from the pilot data analysis), the initial framework of CiRM implementation process needs to be redeveloped.⁷⁸ In line with the procedure of refining the framework development (as discussed in Chapter 3 in Section 3.6), three rounds of iterations were conducted to the pilot data (see Figure 4.3). Besides improving the theoretical framework, the refinement process was aims to capture the pathway of the CiRM implementation process (prior to the primary fieldwork). This would enable

⁷⁷ The system developers' actions were developed in response to the needs of the phenomenon of CiRM implementation process.

⁷⁸ The framework contains a 'picture' of the CiRM implementation process, which includes the forces and the determinants that lie within the process.

further understanding of the CiRM implementation process in the local government phenomenon.

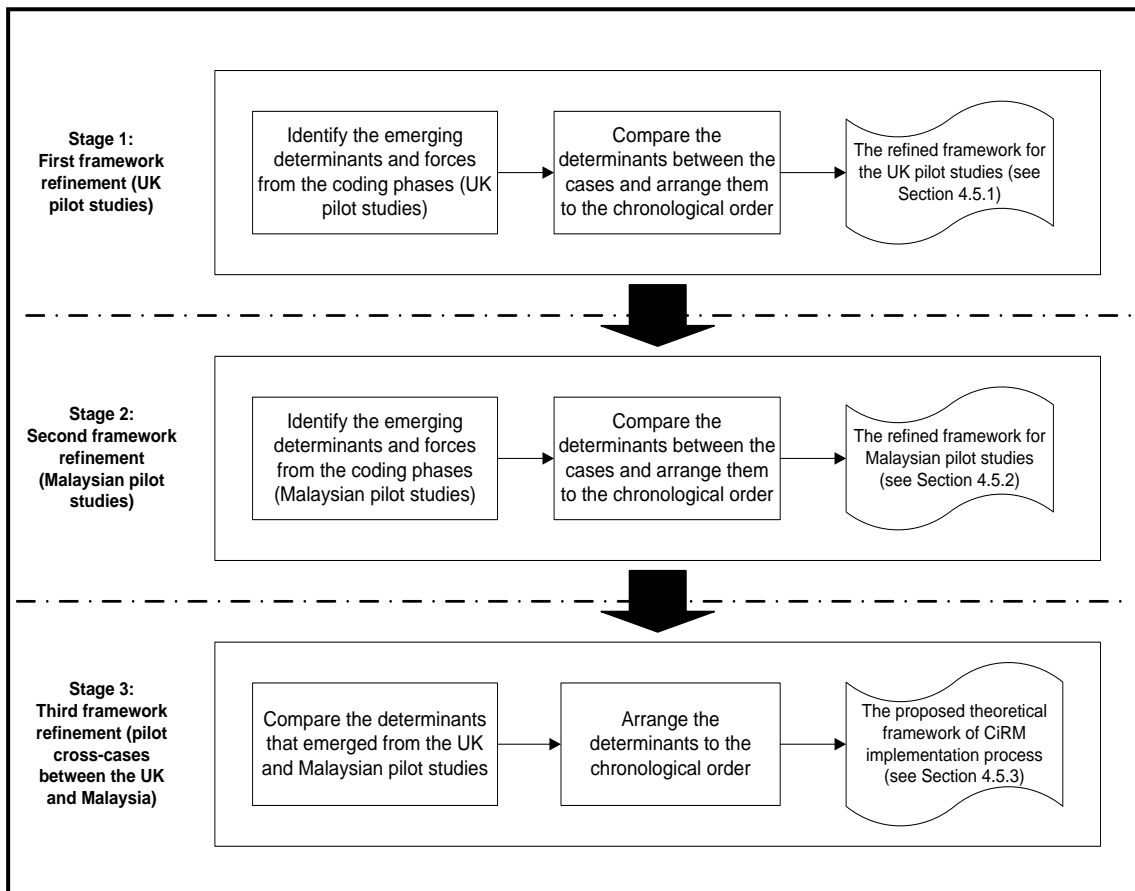


Figure 4.3: The refinement processes in developing the proposed theoretical framework of CiRM implementation process

The first refinement was developed as a result of analysing pilot data in the UK (see Section 4.5.1). The framework was further strengthened with the pilot data, which were conducted in Malaysia, thus, producing the second framework (see Section 4.5.2). Finally, the third framework was developed as a result of cross-case analysis between the pilot cases in the UK and Malaysia (see Section 4.5.3). While developing these frameworks, several implementation determinants were identified as crucial to the implementation process. Furthermore, the determinants can be arranged that follow the CiRM implementation life cycle (see Table 4.5). The following sub-sections will describe these framework refinements in details.

Determinants Generated from the Initial Proposed Theoretical Framework (see Chapter 2)	Stage	Determinants Generated from the First Refinement (the UK pilot cases)	Determinants Generated from the Second Refinement (Malaysia pilot cases)	Determinants Generated from the Third Refinement (pilot cross-cases between the UK and Malaysia)
System champions, management support, implementation planning, user requirements, vendor support, system training, resistance to change	1.	System developer roles	Senior management support	Senior management support
	2.	Senior management support	Implementation planning	System developer roles
	3.	Implementation planning	System developer roles	Implementation planning
	4.	User needs analysis	User needs analysis	User needs analysis
	5.	System procurement	System procurement	System procurement
	6.	Training the staff	System development and installation	System development and installation
	7.	Managing the resistance	Training the staff	Training the staff
	8.	Vendor support	Promoting the system	Promoting the system
	9.	-	Managing the resistance	Managing the resistance
	10.	-	Vendor support	Vendor support

Table 4.5: The emerging determinants during the refinement process (pilot studies)

4.5.1 First Framework Refinement (UK pilot studies)

The first framework refinement started by identifying the system developer's actions (i.e., central theme of the theoretical concept) in the UK cases (SDC and HCC). The initial determinants generated from reviewing the IS/CiRM implementation studies (see Chapter 2) was also referred to facilitate the process. For both local governments, the main internal forces leading to the implementation were caused by the disordered system in handling enquiries from the public. There were also some external forces that shaped the CiRM implementation process, particularly the pressure from the public and the vendor.

As a result of both sets of forces, both local governments decided to concentrate on implementing a new CiRM system, which then produced a set of implementation activities. At SDC, the implementation process began with the role of the system developer (1), followed by senior management support (2), implementation planning (3), user needs analysis (4), system procurement (5), training the user (6), managing

resistance (7), and, finally, vendor support (8). In contrast, at HCC, the process started with senior management support (1), followed by the role of the system developer (2), implementation planning (3), user needs analysis (4), system procurement (5), managing the resistance (6), training the staff (7), and, finally, vendor support (8). Table 4.6 compares the similarities and differences between the efforts of both local governments in implementing the CiRM system.

Based upon the comparison, the first framework refinement of the CiRM implementation process in the UK local governments was developed (see Figure 4.4).

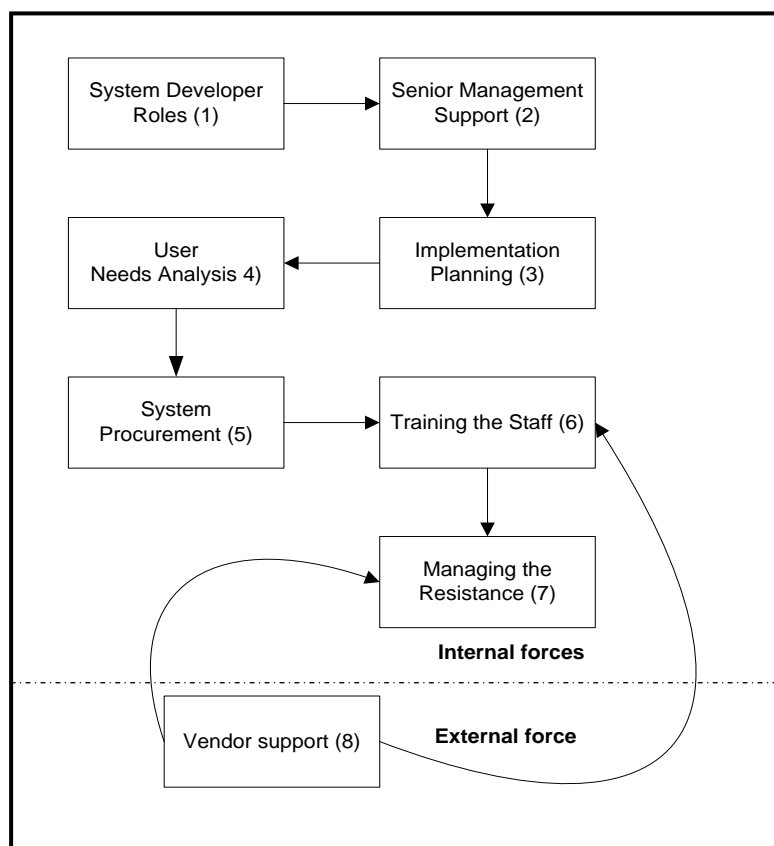


Figure 4.4: The refined framework of the CiRM implementation process in the UK local government (2nd framework iteration).

Therefore, the refined CiRM implementation process developed at this stage represents the CiRM implementation experience from the two local governments, SDC and HCC.

Determinants	Case 1: Sevenoaks District Council (SDC)			Case 2: Hampshire County Council (HCC)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
Role of the system developers	System developers initiated the use of a new CiRM technology	System developers communicated with other council members to promote the idea of implementation	Continuous discussions with potential managers were made to understand the benefits of the system	System developers spread the news for the implementation to other senior managers	System developers worked together with senior managers to monitor the progress of the implementation	Continuous monitoring of the implementation of the system
Senior management support	The level of support was not encouraging	Senior managers were persuaded by system developers to agree to the implementation	Sustain communications with senior managers for the implementation	Senior management was aware of the CiRM	The support was excellent and their commitment in the implementation was presented (e.g., regular meetings)	Continuous support from senior management was received (e.g., in enhancing the system)
Implementation planning	System developers set the implementation objective and reviewed the possibility of joint working with other councils	The implementation activities were carried out by forming a project team with a time-frame	System developers and senior managers had planned the future implementation (e.g., adding some modules)	The implementation approach was identified and the implementation objective was set by the system developers	The implementation activities were carried out by forming a project team	The council was planning for integrating other back-end applications with the CiRM system
User needs analysis	Public needs were determined by the project team through a focus groups	The structure of the CiRM system was built by the project team	A series of discussions were conducted between the project team and senior managers on the system structure	The approach for collecting the citizens' requirement was identified by the system developers	Public needs were gathered through surveys	The priority of service in the new system was identified
System procurement	CiRM vendor was selected through the selection process	-	-	CiRM vendor was selected through the selection process	-	-
Training the staff	The training programme according to the roles of users was identified by the system developers	Certified trainer from Lagan conducted on-site and off-site training. Training materials also provided	Continuous informal training to the end-users was provided on request by the vendor	System developers had identified suitable training programmes for anyone involved in the project	Certified trainer from Lagan conducted on-site training. Training materials also provided	Continuous informal training to the end-users was conducted by the vendor
Managing resistance	Resistance was strong from the end-users. System developers spread the news about the system benefits to overcome the resistance	Resistance was slowly being overcome through effective training programmes	Continuous training for the end-users to overcome the resistance	Resistance was strong from the end-users. System developers spread the news about the benefits of the system to overcome the resistance	Resistance was slowly being overcome through effective training programmes	Continuous training for end-users to overcome the resistance
Vendor support	The vendor was contractually responsible for delivering the system	A good relationship with the vendor was built	Established the relationship	The vendor was responsible for delivering the system	System developers communicated and engaged with the vendor in the implementation	Continuous communication with the vendor

Table 4.6: Cross-case comparisons of the activities of the CiRM implementation in the UK local governments

The framework begins with the role of the system developers (1) who can help to increase the level of implementation success through the tasks that they undertake. It can be argued that the UK local governments would have more than one system developer in-charge of the implementation project. When management realises the benefits of implementing the CiRM system (2), the project will be given top priority. This is because their support can provide a long-term strategic vision and commitment to create a positive environment for the CiRM initiative.

In Stage (3), the possibility of the success of CiRM implementation in the UK local governments can be extended through a formal agreement of proper planning. There should be a clear plan to guide the CiRM project. The formal planning means that there is a need to set implementation objectives along together with its time frame through the system implementation. Stage (4) is the user needs analysis. Here, to understand the end-user demand, several approaches of data gathering can be applied. This includes the use of an interview method to capture the departments' needs as well as focus groups to identify the interests of the public. The diverse requirements then need to merge to build a solid structure for the CiRM system. The next activity is the choice of the right package (5) for the CiRM system, which involves important decisions regarding system budgets, objectives and deliverables that will shape the entire implementation project. The framework indicates that the selection of the system is driven by the relevance of the application's features to the end-user needs (current and future).

Stage (6) involves training for the end-users. Here, a specific well-structured training programme (both informal and formal) should be outlined for staff affected by the CiRM system. Moreover, a certified CiRM trainer from the vendor has to be responsible for the training using proper material. This is then followed by managing the resistance of the end-users (7). The studies indicate that resistance to change mostly occurs during the initial and transitional stages of the lifecycle, as most of the users are still unfamiliar with the new CiRM technology. The level of user resistance was eventually reduced once they were trained. Stage (8) in the framework involves the support provided by the vendors. Implementing the CiRM system in the UK local governments is likely to involve additional external assistance. This usually refers to three types of vendor assistance, which include consultancy, training and support. As the system developers in

both local governments have managed these eight issues in an effective manner, the implementation process went smoothly to produce the desired outcome (i.e., success).

4.5.2 Second Framework Refinement (Malaysian Pilot Studies)

The second stage started by identifying the emerging determinants and forces that have influenced Malaysia pilot studies (i.e., PGMC and MUMC) to implement CiRM system. For both cases, the main internal force was caused by the departmental usage for data integration. While for the external force, it was based on public demand for a variety of service delivery channels. These forces shaped the CiRM implementation process in both councils. Table 4.7 compares the similarities and differences between both cases in implementing the CiRM system.

In PGMC, the process started with the implementation planning (1), followed by senior management support (2), role of the system developer (3), user needs analysis (4), system procurement (5), system development and installation (6), training staff (7), promoting the system (8), managing resistance (9) and, finally vendor support (10). In contrast, in MUMC, the CiRM implementation process began with the role of the system developer (1) activity, followed by senior management support (2), implementation planning (3), user needs analysis (4), system procurement (5), system development (6), training staff (7), promoting the system (8), vendor support (9) and managing resistance (10).

Based on the comparison, the second framework refinement was developed (see Figure 4.5).

Determinants	Case 3: Pasir Gudang Municipal Council (PGMC))			Case 4: Muar Municipal Council (MUMC)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
Role of the system developers	System developers promoted the idea of implementation to all senior managers	System developers worked together with the users and vendor in facilitating the project's progress	Continuous discussions with users and vendor were conducted to smooth the implementation process	System developer spread the news for the implementation to senior managers	Continuous publicity activity was conducted for senior managers to agree to the system implementation	System developers worked together with senior managers to monitor the progress of the implementation
Senior management support	The top management played an important role in supporting the initiative (e.g., in funding approval, adding more staff)	The management support was strong because they were aware of the technological change	There was continuous support from management for the implementation	Senior management was not aware of the CiRM, thus, lobbying activity was conducted	System developers continuously persuaded senior managers to accept the system	Senior management support was not given at this stage (i.e., did not receive additional funding)
Implementation planning	The implementation objectives were identified	System developers scheduled the implementation tasks	The next system implementation was planned (e.g., enhancing the system)	System developers determined the implementation objectives	The implementation tasks were scheduled by the vendor	Planned for the next system implementation
User needs analysis	Hired a consultant company to determine the user needs	Regular meetings with end-users and senior managers were conducted to discuss the needs of the department. Public requirements were also obtained	CiRM system was structured to meet both requirements from the end-user and public. A tender document was also issued	Determined the approach for collecting the requirements of the public	The end-users (staff) were interviewed face-to-face	A solid requirement was formed by conducting a series of discussions with vendor
System procurement	CiRM vendor was chosen through the selection process (a double evaluation method was used)	-	-	Since the state government had already appointed a vendor, there was no selection criteria set-up	-	-
System development	The traditional method (SDLC) was used to organise the development stage. A series of prototype applications was developed by the CiRM vendor.	A series of discussions was conducted to integrate the scattered data and transfer of data between different formats.	The CiRM system was tested and installed. Both activities were performed together by the council and vendor system developers	Although two versions of prototypes were developed by the CiRM vendor, they were not employed to its full capability	The prototypes were enhanced according to the users' feedbacks	The CiRM system was tested and installed. Both activities were conducted by the vendor system developers
Training the staff	The training programme was identified according to the role of users	Vendor trainer conducted formal and informal training. Training materials were also provided	There was continuous informal training conducted for the end-users	CiRM vendor had identified the training programme	CiRM vendor conducted the training with proper materials	Continuous informal training was given upon request by the vendor
Managing resistance	Resistance was strong from the end-users	Resistance was found to be minor (there was enforcement from the top management for anyone involved in the project)	Resistance was slowly being overcome through the support provided (e.g., training programme)	Resistance was strong from the end-users	Trained the end-users to familiarise themselves with the system	Continuous training for the end-users
Vendor support	Several prototype applications were developed by the vendor	Training and product support were provided through regular visits. Collaboration was also established	Maintained the system	Product consultation was given in customising the CiRM system	Training support was provided.	Primary function was maintaining the system
Promoting the system	System developers and senior managers identified promotion activities	Active promotion of the system to the public was conducted by the Management Service Department	Continuous promotion of the system	The promotion activity was conducted by the state government	The promotion activity was performed independently by the system developer through the portal	The promotion activity was continuously performed independently by the system developer

Table 4.7: Cross-case comparisons of the activities of the CiRM implementation in Malaysian local governments

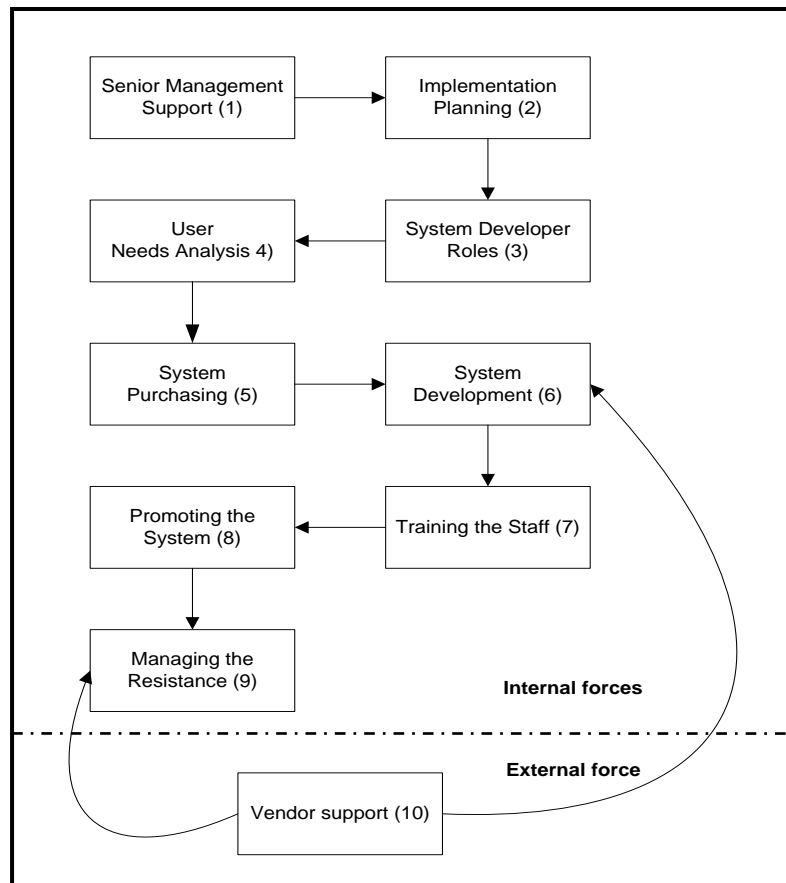


Figure 4.5: The refined framework of the CiRM implementation process in Malaysian local government (3rd framework iteration)

This refined framework begins with senior management support (1). The support can be seen through the function of the management level in initiating the idea of implementation. Indeed, when the management allocates funding to the project, the project can move to the implementation planning (2). Implementation in both cases was aimed to deliver public services efficiently and effectively. In doing this, the phased approach was chosen to minimise any failure during the implementation and to expand any future applications. A suitable implementation strategy (e.g., appointing a knowledgeable consultant to determine the actual requirements for the system implementation) was also used to smooth the implementation process. To promote the idea of the implementation, both local governments depended on the actions taken by their system developers (3). The system developers (who mostly came from the IT Department) must show their full commitment throughout the implementation process (e.g., monitoring the project progress, meeting with different stakeholders).

Nevertheless, the action cannot be taken alone; they need help from other stakeholders, especially a vendor system developer to smooth the implementation process.

Stage (4) involves the user needs analysis. A suitable data gathering approach (e.g., interview, focus group) should be identified to collect the diverse requirements, both from the users' department and the public. As information is gathered, a series of discussions between the system developers, senior managers and vendor may be involved in forming a firm requirement. This activity then leads to system procurement (5). Both cases realised that the CiRM system is only viable if they engage the selected vendor as their partner (i.e., either through open-tender or the vendor was already chosen by the state government). The rationale for this strategy is that the system developers do not have the required technical skills in developing a complex CiRM system.

Stage (6) involves the system development. Both local governments have developed a series of prototypes to provide their end-users with the familiarity of using the system. Taking into account all comments from the users, the real CiRM system was tested and installed. When the system was error-free (e.g., network connection), the activity of training the staff (7) can commence. Both local governments determined suitable training programmes for those involved with the CiRM system. The user training programme, either formally or non-formally, is likely to be one of the requirements that the vendor must provide along with its contract agreement. The next activity is promoting the CiRM system (8). An appropriate promotional activity should be conducted during the implementation process to make the public aware of the existence of the system. This can be done by distributing leaflets and publishing it through the council's portal to encourage the public to use the CiRM.

Stage (9) is managing the end-users resistance. The exposure received during the training has slowly reduced the user resistance in the local governments. The resistance was also managed by the system developers to prevent it from hindering the CiRM system implementation in their organisations. The implementation process ends with stage (10), that is, support from the vendor. Implementing the CiRM system in both cases made it possible for them to engage the vendors' expertise. However, support from the vendor is critical if the local governments award the contract for system

implementation by using ‘simple’ criteria. This is because the lack of vendor’s knowledge about the CiRM implementation will limit their ability to provide good support to the councils.

4.5.3 Third Framework Refinement (Pilot cross-cases between the UK and Malaysia)

The third framework refinement was developed by comparing the implementation activities in both the UK and Malaysia. The comparison was significant as it allows the study to merge the common implementation determinants in both countries (see Table 4.8). Therefore, building the refined framework was straightforward, as illustrated in Figure 4.6. Additionally, several changes have also been incorporated into the refined framework. The framework contains ten common implementation determinants that are crucial to the local government. These determinants can also be arranged in a sequence that follows the life cycle of the CiRM system implementation.⁷⁹ This refined framework will be employed during the primary data collection stage.

Step	The UK local government	Malaysian local government
1.	System developer roles	Senior management support
2.	Senior management support	Implementation planning
3.	Implementation planning	System developer roles
4.	User needs analysis	User needs analysis
5.	System procurement	System development
6.	Training the staff	System procurement
7.	Managing the resistance	Promoting the system
8.	Vendor support	Training the staff
9.	-	Managing the resistance
10.	-	Vendor support

Table 4.8: A comparison of the implementation determinants by the UK and Malaysian local governments

⁷⁹ The arrows in the framework represent the flow of activities and their sequence.

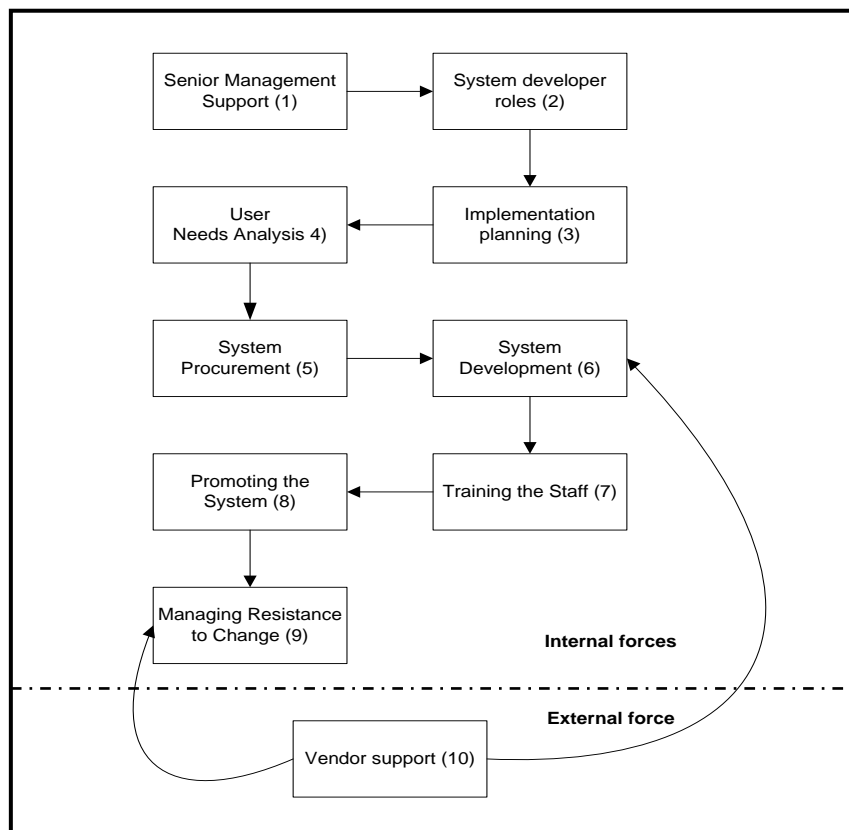


Figure 4.6: The proposed framework of the CiRM implementation process in the local government

Stage (1) involves senior management support. The findings from the pilot studies indicate that the willingness of top management was given priority by the local government organisations to provide the necessary resources and power for the CiRM implementation. When management agree to proceed with the implementation, system developers can start their roles in the process (2). It can be argued that the level of implementation success can be increased if local governments have the full cooperation of the system developers to complete the implementation tasks. The system developers must show their total commitment despite the obstacles they might face with the implementation. Furthermore, they should have a proper plan to guide the direction of the project (3). Outlining the aims with a course of action within an appropriate time frame can be done at this stage. System developers also are advised to determine the appropriate implementation approach (e.g., phased implementation) and implementation strategy (e.g., appointing a knowledgeable consultant to determine the actual requirements for the system implementation) to smooth the process.

Stage (4) is the user needs analysis. Knowing the users and the tasks they perform is imperative if system developers want to implement a CiRM system that fully captures

the needs of their organisations. Spending time to learn about the requirements of the public is the key to understanding their demands. This can be done by using different approaches (e.g., interviews, surveys) to identify the needs and interests in terms of which services will be most desirable. Once the user requirements have been addressed, the system developers can proceed to the procurement system (5). Both countries realise that the CiRM system is only possible if the CiRM vendor is invited to participate in the project. However, the framework indicates that the system developers in Malaysian local governments are more discriminating in the selection process. A double evaluation method (besides the system requirement criteria), for instance, is used to choose a really capable CiRM vendor. Consequently, this activity leads to the system development and installation (6). As the vendor in Malaysia had not offered the CiRM package, both system developers from the local governments and the vendor built the CiRM system from scratch. It can be argued that this activity causes tension in the system developers as many discussions and meetings are required in developing a series of prototype applications, integrating the database, and testing and installing the CiRM system. The system developers can only proceed with the next activity when these issues have been solved.

Stage (7) involves the training of staff. The system developers and senior managers have to ensure that a proper training process is in place. This refers to specific knowledge that encompasses a level of training for the user and system developer. A series of well structured training programmes (informal and formal training), which includes the staff responsibilities (e.g., customer care capability for customer service and system administration for system developer), will help the users to understand how the system will affect the business process. Meanwhile, findings from the pilot studies in Malaysia suggest that publicity for the CiRM system plays a big part in the implementation process (8). Promotional activities are needed to create awareness among the public concerning the new technology, and, thus, can encourage them to use the CiRM system. Several activities can be conducted at this stage, which include the distribution of leaflets and the dissemination of information regarding the system through the council's portal. The system developers can work together with the departmental users (e.g., senior manager, supervisor, and clerical clerks) to facilitate these activities. Therefore, the CiRM publicity activity has been added to the framework.

In stage (9), the system developers will possibly face user resistance to change, which can happen at any stage (e.g., during the initial and transitional stages) in the CiRM implementation life cycle. The users may be reluctant to change, as they are unaware of the benefits of using the new CiRM system. Nevertheless, the findings suggest that once the staffs are trained to use the system, the level of user resistance eventually reduces. The training provided for the system helps the users to become confident and familiar with all processes contained in the new system. Once the users gain confidence, they overcome this resistance on their own. The last stage in the framework is vendor support (10), which is significant to the success of the CiRM implementation. The framework suggests that the system developers should build a strong relationship with the CiRM vendor as a partner. The partnership provides some benefits to local governments, as most of the vendors have expertise in product consultancy, training and technical operation.

4.6 Lessons Learned From the Pilot Studies

The pilot studies not only helped the study to identify the emerging determinants and purifying the proposed theoretical framework of the CiRM implementation process, but they also identified some key lessons that will be used as guidance during the primary data collection. The lessons are:

First, the decision to focus on the system developers' perspective during their implementation efforts was justified as the pilot studies suggest that the responsibilities of the system developers in the local governments are considerable. They established the idea for the CiRM implementation, convinced senior management of the need for the CiRM implementation, and carried out the projects until the system was implemented in their organisations. However, this does not mean that other key stakeholders who were involved during the implementation process were not significant. The pilot studies found that other stakeholders, such as end-users, senior managers and vendors, were also important in facilitating the implementation process, albeit limited to several activities. For instance, the end-users' involvement was limited to identifying the initial requirement and using the system.⁸⁰

⁸⁰ Instead of studying these persons' (i.e., end-user, senior managers and vendor) behaviour towards the CiRM implementation, the focus should be on how the system developers' manage the issues that came out from these key stakeholders during the implementation process

Second, building the case description for each of the local government and comparing their implementation activities proved to be a sensible strategy in purifying the proposed framework of the CiRM implementation process in the local government. This refined framework helps to confine the focus of the study. One of the findings suggested that local governments' implementation processes present many similarities (e.g., setting implementation objectives before moving for planning) despite the CiRM system that each locality offered to the public varies (see Table 4.7 and 4.8). Furthermore, the comparisons enabled the differences between the local governments' implementation activities to be clearly determined (further strengthening the framework). This strategy is valuable in building a stable foundation of the CiRM implementation process for the primary fieldwork.

Third, the pilot studies also suggested that there were an array of CiRM implementation determinants in the local government with technical issues would not entirely influence the success of implementation process. It was argued by some system developers that technical activities (e.g., applications development, installation of the system, etc.) would only be a short-term issue and that organisational activities (e.g., lobbying senior management support, managing resistance to change, etc.) would have greater significance to the long-term accomplishment of the implementation process. These findings concur with the studies of Kannabiran et al. (2004), Ong and Wang (2009), and Hashim (2010) who argued that the implementation of CiRM in the e-Government programme is not simply a technological concern, but is affected by those organisationally-led determinants. However, separating both organisational and technical issues from this study may not be possible as it won't encapsulate the complete 'map' of the CiRM implementation process. Therefore, a decision was made to consider both elements (i.e., technical and organisational) in the implementation process as they were strongly correlated with each other.

Fourth, the pilot studies suggested ten (10) main implementation determinants that are significant to the successful implementation of the CiRM system in the local governments. Some of these determinants were found to be similar with the CiRM implementation studies, which include the senior management support (e.g., Kannabiran et al., 2004; Moon and Norris, 2005; Schellong, and Langenberg, 2007; Tseng et al., 2008; Santana, 2009; Chu, 2010; Reddick, 2010; Kamal et al., 2011), implementation

planning (e.g., Beynon-Davies and Martin, 2004; Evans and Yen, 2005; Bertot et al., 2008; Fleming, 2008; Tseng et al., 2008; Rose and Grant, 2010), user's need analysis (e.g., Fleming, 2008; Velsen et al., 2009; Rose and Grant, 2010), training the staff (e.g., Richter et al., 2004; Fleming, 2008; Tseng et al., 2008; Hung et al., 2010), vendor support (e.g., Wood-Harper et al., 2004; Kannabiran et al., 2004; Larsen and Milakovich, 2005; Themistocleous and Irani, 2005; Hashim, 2010; Hung et al., 2010), and user resistance to change (e.g., Evans and Yen, 2005; Ebbers and Dijk, 2007; Tseng et al., 2008; Reddick, 2010; Rose and Grant, 2010; Reddick, 2011). These determinants will be used in contextualizing the CiRM implementation process in the primary case studies in Malaysian local governments.

Fifth, the experience gained while conducting these pilot studies has allowed the primary data collection strategy to be improved in two ways:

- 1) The decision to use the narrative style (during the interview sessions) was justified as the system developers' seemed to be more comfortable with the development of the questions in a storyline format, and thus, were able to speak more freely about their past and present experience as well as future expectations of the CiRM implementation in their organisations.
- 2) The use of an interview guide assisted the researcher in appearing more confident (i.e., by asking the system developers the right questions). Additionally, the open-ended approach helped the study to further understand the existing issues being discussed while allowing detail probing of any emerging issues. By rephrasing and restructuring these questions, more inner meaning concerning the phenomenon highlighted from the early interviews was discovered.

4.7 Summary

This chapter presents the experience of conducting pilot case studies at four local governments, both in the UK and Malaysia. By gathering, coding and analysing the data from these local governments, the pilot studies helped to identify some emergent issues underlying the phenomenon of CiRM implementation process. Ten main implementation determinants that have emerged were developed through three rounds of iterations (i.e., producing a list of stable CiRM implementation determinants which can now be forwarded to the primary fieldwork stage). Several rounds of iterations have

also helped to develop a better understanding of the CiRM implementation process in these local governments. In addition, the pilot studies led to the refinement of the proposed framework of the CiRM implementation process and the data collection strategy. Finally, the pilot studies have actually helped enhancing the researcher's interviewing skills (which deem to be valuable in the primary data collection stage).

To gain a deeper understanding of the CiRM implementation process, the following chapter, Chapter 5, will provide a thorough description of the primary case studies. The primary data collection took place in six Malaysian local governments, (i.e., offering six sub-frameworks of CiRM implementation processes).

Chapter 5

In-Depth Case Studies of the Citizen Relationship Management Implementation Process

This chapter presents six primary in-depth case studies of the citizen relationship management (CiRM) implementation process in local governments throughout Central and South of Peninsular Malaysia. The local governments involved were:

- 1) Johor Bahru Tengah Municipal Council (JBTMC),
- 2) Ampang Jaya Municipal Council (AJMC),
- 3) Sepang Municipal Council (SEMC),
- 4) Subang Jaya Municipal Council (SJMC),
- 5) Kulai Municipal Council (KUMC), and
- 6) Batu Pahat Municipal Council (BPMC).

These cases were chosen due to their readiness of (i.e., respective system developers) in sharing their valuable experience in implementing the CiRM systems.

The CiRM systems are used by these local governments for a variety of applications with the general aim being to engage with their local public. The case studies were developed to encapsulate the determinants influencing the *unfreezing*, *moving* and *refreezing* stages of the implementation process.⁸¹ As a result, a CiRM implementation framework was developed. The development of the framework and its determinants are central to this study.

⁸¹ The CiRM implementation process framework for each local government was developed to the three stages of Lewin's Change Model (1975).

5.1 Case Study 1: The CiRM Implementation Process at Johor Bahru Tengah Municipal Council

The Johor Bahru Tengah Municipal Council is located in Johor State. It started as a small administration centre, which was eventually upgraded to a district council, and was accorded municipal status in 2001. With a total area of approximately 130 square miles, the council is divided into two main zones: the east and west zones. It was estimated that, in 2008, more than 700,000 residents were living within these areas.

JBTMC has been proactive in managing public services that are significant to its local citizens. One of its strategies was to become the leading local government in Johor in the field of information technology (IT). As a result, various technologies of the CiRM system were implemented at this council. These included the development of electronic services applications (i.e., Internet-based systems) such as a complaints system (2005), payment system (2007) and tax review system (2008). These systems were connected to each other through a single database.

The council entered the second stage of the CiRM implementation in 2009 with the development of its new web portal. This portal serves as a single gateway access to integrated public information and service delivery. The existing CiRM functions such as complaints, payments and tax reviews can also be carried out through the portal. The council also implemented a non-Internet-based CiRM solution, known as a kiosk payment. Two kiosk machines were installed in the council's headquarters in Skudai. The CiRM kiosk payment system has provided alternative channels to the local public for the payment of council taxes. In addition, the evolution of the CiRM technologies in this council was supported by traditional channels, such as face-to-face interactions or telephone. The council was assisted by certain vendors in implementing these CiRM solutions.

5.1.1 Forces Leading to the CiRM Implementation Process

The notion of CiRM implementation started with the demand from the council's departments (e.g., Licensing Services, Finance and Development Planning) for the efficient use of IT in handling enquiries from the public. In the late 1990s, these departments requested that public work processes must be electronically enabled and

share the same database. Prior to the implementation, several applications were implemented through the client-based architecture; however, they were not integrated. Rather than establishing a centralised database, the council had taken a decentralised approach, where each department stored and controlled its own data. The council, therefore, was not as efficient as it should be in managing information (e.g., redundancy of the data), and this traditional approach created problems not only for the council but also for the public. For example, the public had to enter the same required data (such as identity number and name) several times in different systems in order to access the relevant information (e.g., taxation). As a result, there were complaints from the public regarding the inefficiency of the services offered. As the head of the JBTMC System Analysts noted:

“The younger generation living in this council area are educated at least with Diploma or Bachelor degree and exposed to up-to-date technology. Many of them are professionals such as doctors, engineers, lawyers, accountants and professors at UTM [University of Technology Malaysia]. They expect us to provide better services.”

Meanwhile, there was also a strong interest from the federal government for the local authorities to develop their own e-Government programmes with the view to providing more efficient and better quality services.⁸² Some neighbouring local councils such as Johor Bahru City Council were then seen to provide some critical services through the use of Internet technology. This scenario then pressured the senior management in JBTMC to start implementing a similar technology. The search for this approach led to the implementation of the CiRM system in the council. Table 5.1 summarises the internal and external forces leading to the implementation of the CiRM system in JBTMC.

Type of forces	Category
Internal forces	<ol style="list-style-type: none"> 1. Senior management pressured to deliver better services 2. Increasing demand for departmental usage 3. No data integration between the systems
External forces	<ol style="list-style-type: none"> 1. Citizen demand for better services 2. Attention from the federal government 3. Competition from other local governments' CiRM implementation initiatives

Table 5.1: Forces leading to the CiRM implementation process at JBTMC

⁸² This strategy was in line with the federal government's programmes such as the Knowledge-Based Economy Master Plan (2002-2010), Public Sector ICT Master Plan (2003) and the 9th Malaysia Plan (2006-2010). Local authorities were rated and funded through these programmes.

5.1.2 Main Determinants of the CiRM Implementation Process

Thirteen main CiRM implementation determinants were identified through the in-depth interviews held with three system developers, as summarised in Table 5.2. The symbols “√” and “x” indicate the presence or absence of system developer involvement in the implementation process, respectively.

Determinants	CiRM implementation life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. Role of the system developers	✓	✓	✓
2. Implementation objectives and planning	✓	✓	✓
3. Identifying the users' requirements	✓	✓	✓
4. Senior management support	✓	✓	✓
5. CiRM partnership	✓	✓	✓
6. CiRM procurement	✓	x	x
7. Applications and system development	✓	✓	✓
8. User acceptance testing and installation	✓	✓	✓
9. Staff training	✓	✓	✓
10. CiRM publicity	✓	✓	✓
11. Managing end-users' resistance	✓	✓	✓
12. Vendor support	✓	✓	✓
13. CiRM post-implementation	x	x	✓

Table 5.2: Main determinants of the CiRM implementation process at JBTMC

These determinants were influenced by internal and external forces. The determinants were then arranged to form the framework of the CiRM implementation process (see Figure 5.1). The framework consisted of: the role of the system developers (1), followed by the implementation objectives and planning (2), identifying the users' requirements (3), senior management support (4), CiRM partnership (5), CiRM procurement (6), applications and system development (7), user acceptance testing and installation (8), staff training (9), CiRM publicity (10), managing end-users' resistance (11), vendor support (12), and CiRM post-implementation (13).

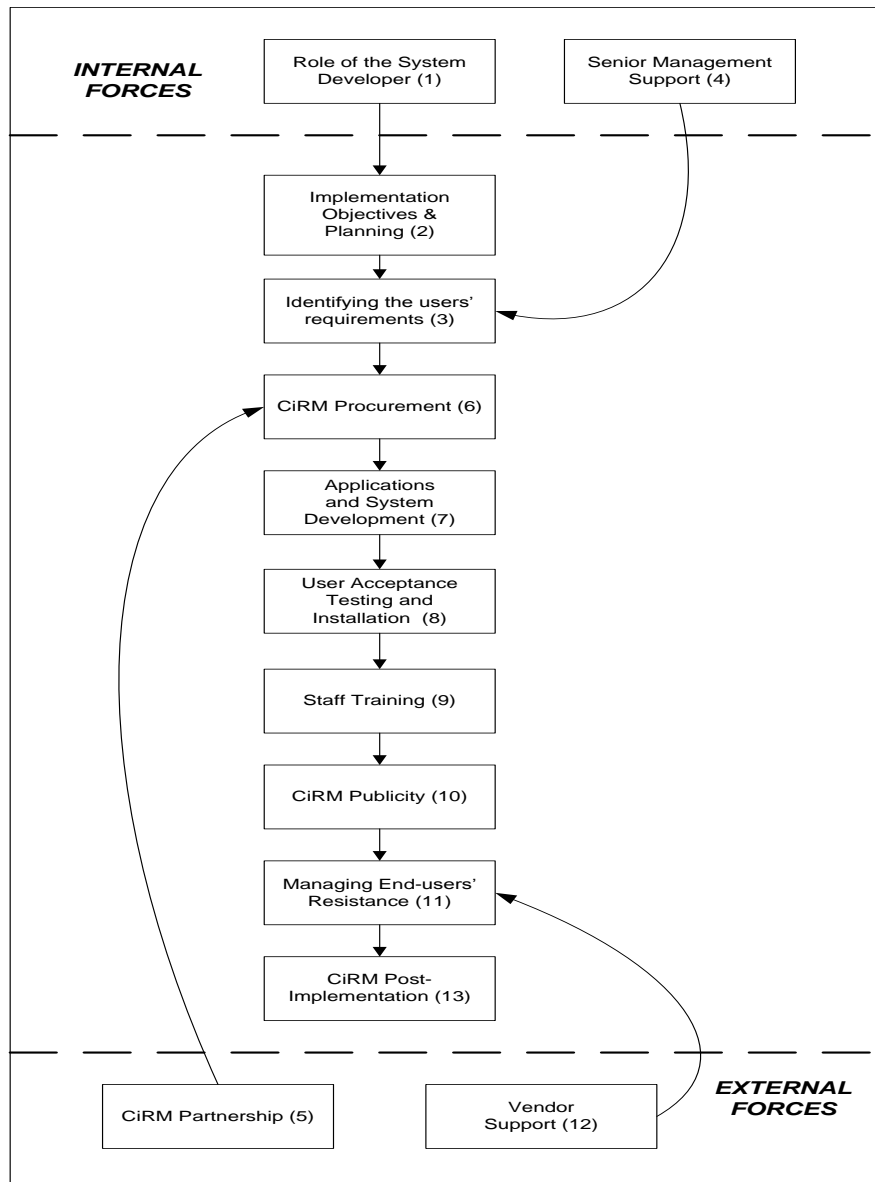


Figure 5.1: CiRM implementation process at JBTMC

(1) Role of the System Developers

The adoption of the CiRM technology at JBTMC was driven by the Head of the System Analysts. She initiated the project and communicated the need for the CiRM system. For example, with some help from the vendor who had successfully implemented the payment kiosk system in other local governments, she took the initiative to justify to the senior management the need for installing similar technology. Additionally, other system developers (e.g., system analysts, programmers) and senior managers from the participating departments were involved in carrying out the implementation activities.

Various methods of communication such as e-mails, bulletins and regular briefing of members (i.e., weekly and monthly) were employed by these system developers to update the project's progress and communicate to all the stakeholders involved in the CiRM implementation. This approach was used to ensure that the end-users were aware of the system's impact on their tasks and duties. The Head of the System Analysts also acted as the Project Manager in managing and monitoring all the issues that arose from the implementation, including reporting the progress to management. Her role at this stage was to function as a 'liaison' entity between the senior management, end-users and vendor in overseeing and managing all the matters raised by these stakeholders.

During the more advanced stages, the system developers' roles then gradually increased to focus more on the project management such as attending the meetings, reporting the progress status to the management level and ensuring the cooperation of other departments to support the system implementation. Without having these skills, the system developers could not successfully implement a CiRM. As the Head of the System Analysts recalled:

"... good communication skills are necessary in interacting with these parties [senior managers, end-users and vendors] or there may be a misunderstanding."

(2) Implementation Objectives and Planning

At JBTMC, the general aim underlying the objectives and planning for the CiRM implementation was to provide the local public with better services. In doing this, three implementation objectives were set. The first objective was to improve public services through the use of Internet technology. For example, the use of an online payment system would allow the council to provide a solution to the problem of inefficient counter service during the tax payment period. The second objective was to develop integrated CiRM functions, thus enhancing the effectiveness of data management. For example, the implementation of an online payment system, web-based complaints system and web-based tax review system that shared the same information (i.e., stored in one database) would allow the public to access these services through the web portal. The third objective was to educate the public and staff by providing them with the latest technology. The council hoped that the use of CiRM technologies would improve the quality of life of the public and would ease the workload of the staff.

To minimise any failure during the implementation process, the development of all CiRM implementation efforts was planned on an incremental basis. To support the successful implementation, a staged approach within a one-year timeframe was used. For example, two months were spent upfront for the preliminary study and process definition regarding the implementation of the web-based complaint system. The council then worked with the vendor for three months to focus on application prototypes and system development, configuration and installation of the system. When the CiRM system went live, new requirements for enhancement would then be addressed (i.e., depending on the commitment from the top management).

For its long-term implementation, JBTMC planned to add other Internet-based CiRM solutions to lead Johor's local governments in providing e-Government applications.⁸³ One of the intended systems was a Document Archiving Management System. The implementation of this system would help the public to submit their applications for the renovation of properties and to check their applications through the Internet. This CiRM solution was required by the public and several departments, such as the departments of Planning and Development Evaluation and Engineering, to store and manage the public applications in a proper manner. At the time of this study, the council had identified several vendors who were capable of implementing this solution.

The council was seriously considering using the same vendor to enhance the system. For example, it planned to develop data mining applications to enhance its analytical functions and efficiency in its Internet-based complaint system. As the Head of the System Analysts explained:

“There was a request from the public that we need to adapt and enhance the system ability to meet the current objectives and future requirements.”

However, if there is a need for immediate improvement to the system, delays can be an issue. For example, the funding approval process is time consuming (approximately 6 months). Moreover, any improvement costs above RM 50,000 require the approval of the state government.

⁸³ The plan, which was included in the JBTMC Information Technology Strategic Plan, specifically highlighted all the activities that the council wanted to implement during its five year plan (2009-2014).

(3) Identifying the Users' Requirements

Identifying the users' requirements for the implementation of the CiRM in the council required collecting data from among both the staff and public. Multidisciplinary end-users among staff at the operational level were invited to be involved in the system specification. Additionally, the local public were encouraged to give any comments, suggestions and ideas for improvement. For example, they were invited to express their views about service improvements and system requirements through the counter, the council's web portal, telephone, e-mail and during the community events (such as *Hari Bertemu Pelanggan*) in the high density population areas.

Ultimately, however, the system developers faced the challenge of determining the most suitable end-user requirements whenever differing requirements were received from the participating departments. In some cases, for example, there were mismatched requirements from the operational staff and from senior managers. Going back to the participants to confirm and disconfirm those requirements through face-to-face interviews helped to solve the problem. Other strategies such as conducting meetings and workshops were also used to develop a clearer picture of the comprehensive requirements. This situation was explained by the Head of the System Analysts as follows:

"We explored the transformation of the complaints and suggestions into the system solution through the use of various information gathering such as interviews, meetings and workshops."

When the system requirements were fully developed, the system developers then moved forward by producing a Request for Proposal (RFP) document, which included the objectives, outlines and the cost and time estimations for the project.

(4) Senior Management Support

At the early stage of the implementation, the awareness of senior management regarding the need for the CiRM system was critical. The senior managers did not have any prior knowledge about the CiRM technology. As a result, the lobbying for the CiRM implementation was conducted by the Head of the System Analysts. She experienced some difficulties in persuading her senior managers to install a non-Internet-based CiRM system. The proposal to implement the CiRM kiosk system was not widely supported

initially because the council had already implemented an online payment system. Senior managers argued against the new technological change.

Nevertheless, the RFP, which had been prepared in the previous stage, assisted in convincing the management to agree with the plan for implementation. One of the approaches that the Head of the System Analysts used was explaining and justifying the needs for the implementation of the system through presentations. The justification came in the form of the benefits expected by the council from the investment. Among these benefits were that the system would improve public services and enhance the working environment of the staff. The JBTMC President's commitment to improving public services helped to secure the funding for the project. As the Head of the System Analysts explained:

“Our council's President himself is very alert and open about ICT technology. If the proposed project was deemed useful for the public with clear justification, he would definitely approve the project by allocating some budget for it.”

The CiRM kiosk system was subsequently well received and was given priority for implementation. As the systems (i.e., the CiRM kiosk and Internet-based technologies) started to develop, there was continuous support from the senior management. Throughout the five-year period of CiRM implementation (2005-2009), the management support could be seen through the purchase and upgrade of the necessary equipment (such as computers and cabling network). Management believed that these facilities were necessary to make the CiRM system reliable for long-term operations.

(5) CiRM Partnership

At JBTMC, the CiRM implementation involved a few external experts as partners. This included assistance from the CiRM vendor, neighbouring local authorities and institutions of higher learning. The partnership approach was extensively used as the council lacked staff that possessed sufficient knowledge and skills to develop and implement a CiRM project.

During the early stages, the system developers visited and reviewed other local governments that had implemented similar technology. This strategy was employed for the purpose of examining how the other councils had implemented the CiRM system in their organisations. The examination would enhance the system developers'

understanding of the intended system and enable them to see how successful the implementation could be. The implementation of CiRM systems also involved vendor assistance due to the lack of open source skills among the system developers.

During the more advanced stages, the system developers maintained regular communication and strengthened the relationships with the stakeholders. Issues relating to the CiRM system implementation were discussed transparently. For example, the system developers communicated regularly with the vendor representatives in relation to required technical assistance, such as system updates and system configurations. Additionally, the Head of the System Analysts proactively consulted with several IT professionals (e.g., the head of the IT Department of Johor Bahru City Council and Professor of IT in the neighbouring institution of higher learning) to update and increase her knowledge about the effective use of the new technologies applied in the CiRM system. Communication methods such as discussions via e-mail and telephone and face-to-face meetings were used to determine the benefits and to develop good relationships. Regular communication was necessary for the system developers to extend the capabilities of the CiRM system and plan for future implementations.

(6) CiRM Procurement

The system developers' understanding of similar CiRM systems, gained while reviewing and visiting other local authorities, was employed as a guideline for the procurement of the CiRM system. All CiRM vendors must be chosen through the government's tender approach. Vendors were invited to submit their proposals and quotations, and were then asked to make presentations. Having conducted a thorough review, a recommendation regarding the vendor to be selected for the CiRM implementation was then made. Among the criteria were the vendor's reputation (e.g., had successfully implemented a similar system in other local councils) and ability (e.g., had staff with necessary expertise) for implementing the system within the specified timeframe.

A series of discussions were then held between the project team and the selected vendor to clarify any unclear issues concerning the specification of the users' requirements. This involved explaining the system's work process to the vendor. A contractual agreement was subsequently made between the council and the vendor, which stated the obligations

of the two stakeholders. This included the responsibility of the vendor to build prototype applications and to train the council's staff.

(7) Applications and System Development

Application and system development issues are some of the technical issues of CiRM implementation process at the JBTMC. As the CiRM implementation involved more than one vendor at different time, both system developers from the vendor and the council must follow the council's standard in designing CiRM system's applications. This task was necessary to ensure the quality of the real working CiRM systems. Although the work processes of the systems differ according to the solution taken by each system, their characteristics and functions must standard. As highlighted by one of the programmers:

“We would like the system utilised by the public to have its own identity. For example, there are two different vendors for the payment system, one through kiosk and the other through online. We have provided a standard user-friendly layout of the systems ... by colours or icons. In the search function, we standardise the search criteria by identity number and public account number.”

To facilitate the standard, all vendors were directed to use the Malaysia Administrative Modernisation and Management Planning Unit (MAMPU) guideline in implementing the council's CiRM system. For example, the menus of all systems must present a standard set of clear choices, which were developed in the open source platform (e.g., for Internet-based CiRM solutions). The use of such features would prevent the end-users from making errors in data entry operations.

Developing the CiRM system's applications was the other issue that the system developers had to give careful attention. Based on the RFP, application prototypes were developed to function as the input for the public and for the internal users. This visualisation design was then worked out by providing an interface and interaction design (e.g., screenshots in PowerPoint presentation by showing the system's workflow). After taking into account all the comments from the end-users until they were satisfied with the prototypes' improvement, a detailed work process for the real working system was then developed. The process of prototyping allowed the system developers to demonstrate the satisfaction of the users' needs in the realisation of the CiRM system's objectives.

In developing the system, it was also the responsibility of the system developers from both the vendor and the council to integrate all the CiRM solutions into a single database. The council faced two issues during this technical task:

- 1) The connections became a problem because the CiRM solutions were developed by different vendors. For example, the Internet-based CiRM tax review system was developed by a company called DigiCom, and the payment system was implemented by Gates IT Solution.
- 2) The integration sometimes had to be postponed until certain parts of the database scripting (in the new system were completed. The situation caused the development process to take longer. This is because different vendors would use different scripting logics in linking and exchanging data; thus, the time taken to solve the problem was also different.

(8) User Acceptance Testing and Installation

Once the CiRM system's applications have already developed, the system is ready for acceptance testing. At JBTMC, the CiRM system was tested by the operational users for one month to ensure that it met the mutually agreed upon requirements. One level of testing involved the end-users, and a second level of testing involved the system developers from the vendor and the council. At the first level, the end-users supplied input data or used an acceptance test business case environment prepared by the system developers to direct the work process of the CiRM system. The results obtained were then compared with the expected results. If there were errors, the vendor would be expected to fix them. The second level of testing covered the acceptance status for a particular comment from the first level testing, whereas the system developers dealt with the aspect of technical testing (e.g., Internet protocol setting, system turnaround time). Only when these two levels of testing were completed successfully (i.e., met the end-users' criteria and were free from technical issues), did the council sign off on the CiRM system as being satisfactory.

Following the user acceptance testing is installation activity. This included the linking of the CiRM system with the existing systems. All technical aspects, such as Internet protocol configuration, network connectivity, the database, the connectivity of the

database to the server, and the hardware, must be error free. At this stage, the council faced two issues:

- 1) The installation sometimes had to be aligned with the different network infrastructure of the council's new building. In other words, sometimes the installation had to be postponed until the network infrastructure and its connectivity in the new building were completed. For example, when installing the online payment system in 2007, the CiRM vendor and the system developers had to wait approximately four months after the system passed through user acceptance testing for the network connectivity – which was the responsibility of another vendor – to be ready in the new building.
- 2) The newly proposed CiRM system had to be linked with the existing system. The connection became a problem as the CiRM systems were developed by different vendors.

(9) Staff Training

It was the responsibility of the Head of the System Analysts to ensure that anyone whose work would be affected by the CiRM system was properly trained. The training aimed to familiarise the end-users with the operation of the systems.⁸⁴ Most of the sessions were conducted by a certified trainer in accordance with the roles of the users.⁸⁵ For example, the operational staff were given hands-on training on how to use all the modules and system functions, including a demonstration of the handling of the CiRM system (e.g., the kiosk system) if necessary. The system developers (usually programmers) were also trained on the system configuration and administration, database scripting and ad-hoc reporting script. As one of the programmers explained:

“I have gained a lot of benefits in terms of knowledge/technology transfer. The vendor who supplied the server for this system (included in the hardware purchase terms of conditions during tender offer) guided me on how to make commands (configure) on the system.”

While formal training was given on a scheduled basis to end-users, senior managers and system developers, informal training was also conducted upon request. This informal training was provided to those who were still not comfortable in using the system.

⁸⁴ Staff training was one of the items specified in the contract between the council and the vendors; that is, training was one of the responsibilities the vendor must fulfil when accepting the tender.

⁸⁵ Most of the staff training sessions were made available two months prior to the rollout date of the CiRM system.

(10) CiRM Publicity

Promoting the CiRM system involved activities to persuade the public to use the system. The activities were initiated and conducted continuously through a joint effort between the Department of Management Services and the system developers. Among the activities were:

- 1) The announcement of the system's availability through the council's web portal together with its instruction manual.
- 2) Distribution of printed information (e.g., brochures, booklets) and informing the public at community events.
- 3) The placement of staff to provide assistance near the service area. For example, two staff members from the Customer Service Division were assigned to assist the public in using the CiRM kiosk system during the first two months after the launch date.
- 4) The offer of attractive incentives. For example, when the Internet-based payment system was first introduced, lucky draw prizes were offered to attract members of the public to use the system.
- 5) A combination of the above approaches. For example, in the case of the CiRM kiosk system, after no particular member of staff was assigned to provide assistance, brochures were provided at the information desks for the public to refer to.

(11) Managing End-Users' Resistance

At JBTMC, the end-users' resistance throughout the implementation process was found to be minor and was overcome by the following strategies:

- 1) The staffs were made aware of the technological change by the system developers who communicated with staff through bulletins and mini-presentations during the implementation process. These strategies helped the staff to reduce any fear of the new CiRM system.
- 2) The end-users were eager to change because they realised the benefits from the use of the CiRM system. For example, the staff from the Customer Service Division wanted to use the Internet-based complaint system to help them generate 'public comments' reports more easily.

- 3) The use of a phased implementation strategy, which signified that the council's procedures work step-by-step rather than through wholesale changes, gave the end-users ample time to deal with the intricacies of the CiRM system.
- 4) Training sessions conducted by the vendors' certified trainers helped the staff to reduce their level of resistance. The training built their confidence and familiarity with the new way of operations using the CiRM system.

The council did, however, face some resistance from the public. This resistance was caused by two factors:

- 1) Members of the public were reluctant to trust the Internet-based CiRM payment system because of the perceived risk of fraudulent use of credit card details.
- 2) The majority of the senior citizens (i.e., above 50 years old) faced difficulty in using the advanced technology. For example, instead of using the kiosk CiRM system, senior citizens preferred to use the counter system to pay their taxes to the council.

(12) Vendor Support

To gain benefits from the vendors' expertise, a good relationship with all the CiRM vendors was developed by the council. As a result, the vendors provided the technical support needed whenever the council's system developers faced problems relating to the system. This situation was explained by one of the programmers:

"I have a very good relationship with the vendor. When their services were needed with little arrangement, they would come to discuss. They could deliver their work according to the timeframe given because of their expertise."

The level of good support was achieved by two factors. First, the council only engaged credible vendors based on their reputation. As a result, the CiRM solutions would usually be in production within the given budget and timeframe. Second, the vendors' representatives came personally to the council and solved the problem. Because the same representatives were also responsible for the development, installation and maintenance of the system, the problems were always solved quickly.

(13) CiRM Post-Implementation

The council continuously maintained all of the CiRM solutions to keep them in operation and meet the needs of the internal staff and public users. For example, the

system developers had received some requests for simple modifications, particularly from the senior management, to produce additional ad-hoc reports through the online payment system. Because the system developers were trained in SQL scripting for generating new reports, they were able to modify this effortlessly and avoid maintenance costs. However, the system developers were prevented from modifying the database design (e.g., creating a new 'table' in the database) or changing the programming codes that would cause problems for the whole operation of the CiRM system at the council.

5.1.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Johor Bahru Tengah Municipal Council

As JBTMC was one of the newcomers amongst the local governments in implementing the CiRM system, the system developers benefited from the lessons learned by other councils that had already implemented such a system (e.g., Johor Bahru City Council and Subang Jaya Municipal Council). These lessons enabled the system developers to move forward smoothly with the various critical activities during the process, such as determining the users' requirements quickly and successfully convincing the senior management to support the project. As a result, various applications were developed with more applications being explored and considered for later development. Therefore, implementation of the CiRM system has supported the council in its effort to deliver public services by utilising the benefits of a multi-channel strategy.

The CiRM implementation in JBTMC confirmed that senior management support, users' requirements, implementation planning, vendor support, system procurement, system development, staff training, promoting the CiRM system and managing resistance to change were the crucial determinants for a successful CiRM implementation process. These determinants are in line with the determinants that emerged from the pilot case studies. In addition, several new implementation determinants emerge from the analysis of this council's experience, including building the partnership and CiRM post-implementation.

The JBTMC case study also reveals that the system developers paid attention to strengthening the communications among the end-users, vendors, and members of the public. Effective communication methods were needed with all of these stakeholders in

identifying, negotiating and developing a common understanding towards the vision for CiRM system implementation. The findings from this study suggest that the system developers believed that building an intimate relationship with the interested parties such as the neighbouring local government and academia was also necessary. These relationships helped the system developers enhance the CiRM capabilities and plan for future implementation.

5.2 Case Study 2: The CiRM Implementation Process at Ampang Jaya Municipal Council

The Ampang Jaya Municipal Council is one of the well-established local authorities in the State of Selangor. The council, which received municipal status in 1992, serves an area of approximately 54 square miles. It was estimated that, in 2008, more than 600,000 people were living within this area. Its location within the capital city of Malaysia, Kuala Lumpur, has resulted in many advantages. For example, it is one of the wealthiest councils in terms of tax revenue with more than RM 100 million tax incomes yearly.

Under the guidance set by the federal and state governments, the council implemented a variety of e-Government applications to improve the provision of public services. The CiRM implementation was one of the initiatives that had been identified. Since the early 2000s, collaboration between vendors and the Malaysian Administrative Modernisation and Manpower Planning Unit (MAMPU) and the Ministry of Housing and Local Government (MHLG) has provided much assistance to the council in implementing its CiRM system, including the implementation of the electronic *Pihak Berkuasa Tempatan* (e-PBT). The system contains the applications for tax review and payment, public complaints, issuance of certificates, and applications for permission and procurement of appliances. The system went live in early 2008 and can be accessed through the council's web portal. It is also supported by other systems such as the electronic Kuala Lumpur, or e-KL, kiosk system and Geographic Information Systems. This CiRM solution can also be accessed through the traditional channels, such as telephone (e.g. issuance for complaints) and in person at a counter. The availability of this CiRM system enabled AJMC to provide the public with improved services.

5.2.1 Forces Leading to the CiRM Implementation Process

The CiRM system was first introduced at AJMC through the effort of the Information Systems Division during the late 1990s. At that time, applications such as complaints, downloading of forms and tax reviews were implemented over the Internet. The system was then actively developed and implemented in conjunction with the Y2K problem. While investigating Y2K bugs, the system developers found new requirements, such as the need to integrate the existing systems in a single database. The system developers

felt that by integrating all the services in one system, the council could manage the public data in a proper manner.

Meanwhile, the implementation of the Internet-based complaint system in 2002 enabled the public to express their opinions, requests and complaints easily. Many suggestions and comments were received each year requesting the council to provide more innovative technology. The public were not only increasingly demanding a variety of services, but were also demanding high quality and efficient services from the system. In 2004, the council also received advice from the federal government to enhance the quality of its services. As one of the local governments that provide services for those living in the metropolitan city of Kuala Lumpur, the council is responsible for creating a benchmark for other local governments to deliver high quality services through the CiRM system. These situations pressured the AJMC senior management to find a suitable CiRM solution.

In 2006, the federal government introduced a plan to implement a standard local e-Government initiative. The AJMC was the only council chosen as the blueprint in Selangor for implementing the integrated CiRM system. To do this, the council was assisted by a vendor, GW Intech, which had been appointed earlier by the federal government. The plan helped the council to move towards the latest state-of-the-art technology CiRM system. Table 5.3 summarises the internal and external forces leading to the implementation of the CiRM system in AJMC.

Type of forces	Category
Internal forces	<ol style="list-style-type: none"> 1. Departmental demand for better improvement 2. No data integration between the systems 3. Senior management pressured to deliver better services
External forces	<ol style="list-style-type: none"> 1. Attention and direction from the central government 2. Citizen demand for better services

Table 5.3: Forces leading to the CiRM implementation process at AJMC

5.2.2 Main Determinants of the CiRM Implementation Process

As a result of both the internal and external forces, in 2006, AJMC came to a decision to concentrate on implementing a CiRM system. The first system would be the e-PBT. Twelve main determinants were identified through the in-depth interviews held with three system developers (see Table 5.4). The symbols “√” and “x” indicate the presence or absence of system developer involvement in the implementation process, respectively.

Determinants	CiRM implementation life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. The role of the system developers	√	√	√
2. CiRM partnership	√	√	√
3. Senior management support	√	√	√
4. Implementation objectives and planning	√	√	√
5. Users' requirements	√	√	√
6. System Development	√	√	√
7. User Acceptance Testing and Installation	√	√	√
8. Staff training	√	√	√
9. Managing end-users' resistance	√	√	√
10. Vendor support	√	√	√
11. CiRM publicity	√	√	√
12. CiRM post-implementation	x	x	√

Table 5.4: Main determinants of the CiRM implementation process at AJMC

The determinants were then arranged to form the framework of the CiRM implementation process (see Figure 5.2). The framework consisted of the role of the system developers (1), followed by forming the CiRM partnership (2), senior management support (3), implementation objectives and planning (4), users' requirements (5), system development (6), user acceptance testing and installation (7), staff training (8), managing end-users' resistance (9), vendor support (10), CiRM publicity (11), and CiRM post-implementation (12).

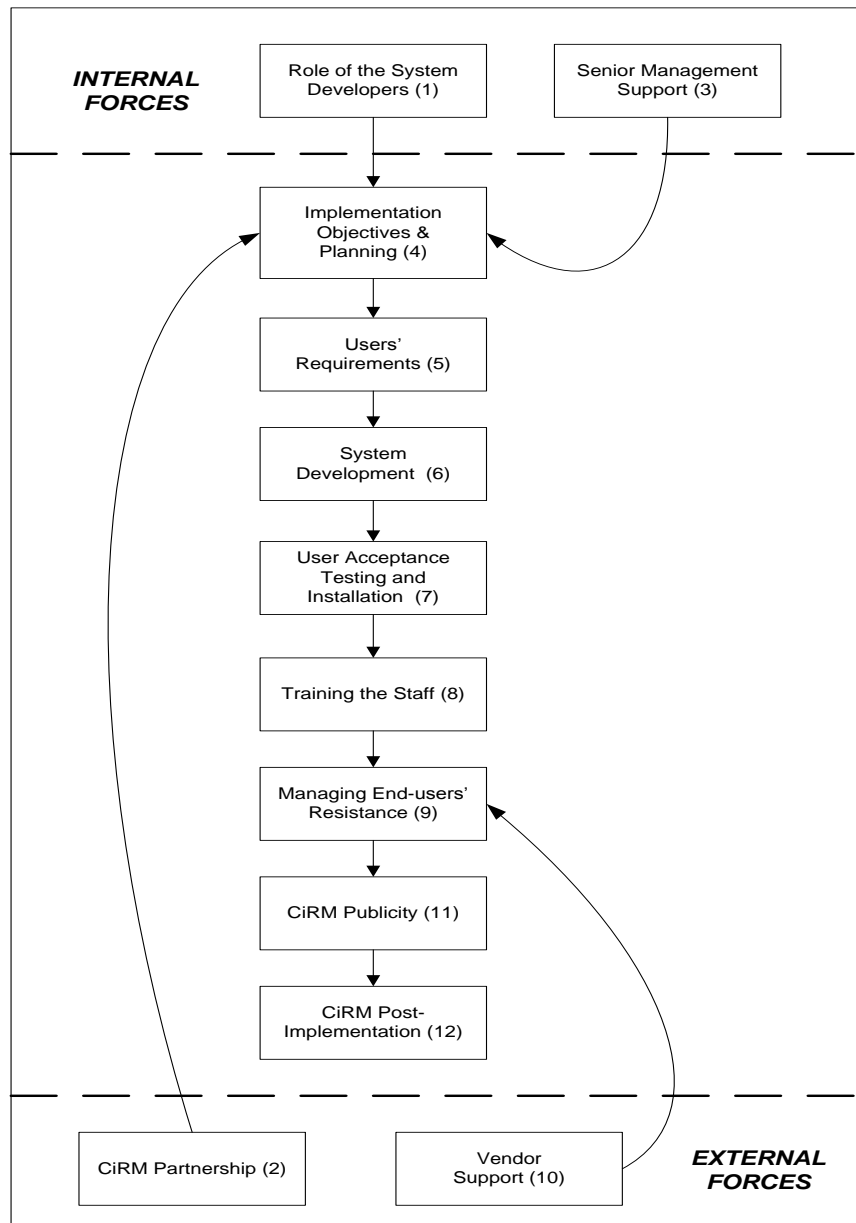


Figure 5.2: CiRM implementation process at AJMC

(1) Role of the System Developers

During the earlier stages of the implementation at AJMC, the Head of the System Analysts built internal support for the CiRM system implementation within the IT Department. With assistance from other system developers, some critical activities such as lobbying senior management about the system implementation and explaining the benefits of the CiRM to operational staff were carried out. As the Programmer described:

“The Head of the System Analysis is someone who is very knowledgeable in ICT technology. She is a very open-minded person and very ambitious. She is the anchor who mobilised the implementation to be done here.”

To ensure widespread acceptance of the project, the system developers persuasively communicated the need for the implementation to the entire organisation. Communication media such as bulletins, e-mail and the Intranet site were extensively used to inform the senior managers and end-users about the project. This included information about the project, its progress, the composition of the project steering committee and the external stakeholders involved (e.g., MAMPU, MHLG, vendor). An FAQ rubric was also made available on the website for the end-users to express any queries. The system developers also used soft communication skills such as diplomacy in briefing the stakeholders and explaining the benefits. The Head of the System Analysts recalled her experience as follows:

“When you are working in an office environment, you will learn about public relations, that is, how to tackle the heart of your staff.”

As the implementation proceeded, the system developers’ roles then slowly enlarged as they began to concentrate on project management tasks such as attending the meetings with internal stakeholders (e.g., senior management) and external stakeholders, managing resistance to change and planning for future CiRM solutions. Throughout the implementation process, the system developers can be seen to function as ‘middlemen’ to mediate between and manage all the stakeholders. The Head of the System Analysts herself had to oversee and monitor the project progress. Her commitment also took the project forward despite some implementation issues faced by the council at certain stages.

(2) CiRM Partnership

As the council was asked by the federal government to implement its integrated CiRM system, the implementation involved several experts. During the earlier stages, the partnership with government agencies (i.e., MAMPU and MHLG) was dominant. However, as the implementation proceeded, these government agencies directed the council to build the relationship with the appointed CiRM vendor, GW Intech.

To facilitate the interaction between these stakeholders, several forms of communication were used. A session dialogue between the system developers and the government agencies was conducted to discuss the concept of the system and the plan for implementation. When the system developers had a better understanding of the system, a number of regular meetings focusing more on technical aspects were held

with the vendor's representatives. Separate meetings were also conducted with the government agencies to discuss issues raised by the vendor. The Head of the System Analysts strengthened the CiRM partnership by mediating these relationships to solve any issues that arose. As a result, the project progressed smoothly.

(3) Senior Management Support

The system developers considered the senior management support to be critical in the CiRM implementation. During the earlier stages, the responsiveness and support of the senior managers who were participating in the project (e.g., the departments of Corporate and Planning, Management Services, and Treasury) was not significant. Some of the senior management were not interested in implementing the system. They were simply interested in having the system's output. The Head of the System Analysts explained this as follows:

“Some senior managers mainly focussed on the output only. They required us to do whatever we had to do as long as they could get reports such as a statement of how much the council collect for each month.”

It was also more critical to gain the support of senior managers who were not involved in the project, such as the senior managers in the Department of Health and Municipal Services and the Division of Youth, Sports and Culture. This group did not recognise the benefits that would be gained from the implementation. As the System Analyst noted:

“Some senior managers who were not involved with the project were not that friendly concerning the technology, and expressed that the system made things worse.”

Nevertheless, the implementation received strong and full commitment from the council President. He used the CiRM system as a tactic to drive the organisational change necessary to put the public at the centre of the council's strategy. His support throughout the implementation process was an important influence on all staff directly involved in the project. As one of the system developers stated:

“Our President is aware of the local e-Government and he knows the best way to provide services to our citizens and enable them to deal with us.”

The President realised that the federal government expected strategic solutions to be found to enhance the council's services. In addition, the council could find savings in its fiscal budget as the project was sponsored by the federal government. Once the CiRM system began to develop, the level of support from the senior management increased.

(4) Implementation Objectives and Planning

Two CiRM implementation objectives were outlined at AJMC. The first was to build services around the public's choice with the use of state-of-the-art technology. This objective was achieved through the development of a friendly CiRM system that made its applications accessible through a centralised database, thus producing the second objective – to make the council services accessible. For example, the One-stop Service Centre (OSC), which was one of the components in the CiRM system, was introduced to make it easy for the public to pay multiple bills at one counter. Both objectives were set out after the system developers conducting several meetings and discussions with the government agencies senior representatives.

In achieving both objectives, the implementation of the CiRM system was planned on an incremental basis. The project was to be gradually implemented over three years, from 2007 to 2010. This approach gave the council sufficient time to adjust to the complexities of the system and to verify that a particular work process was fully functioning before moving forward. The incremental approach had also been practised in other e-Government projects in the council (e.g., e-Services). As one of the system developers mentioned:

“We did not implement any large scale projects that cost RM3 or 4 million. We tried our best to implement the e-Government projects with a small budget and if we have extra budget, we will upgrade the system later.”

With regard to future implementation, the council had drafted its Information Technology Strategic Plan (ITSP) in 2008, which stated its short-term and long-term plans. For example, as there was a need to better serve members of the public who wanted to obtain a temporary business permit (e.g., for a stall during the month of Ramadan). In response, the council planned to enhance the system by developing a bazaar seller module. At the time of this study, the Head of the System Analysts had received approval and funding to proceed with the project with the same vendor, GW Intech.

(5) Users' Requirements

At AJMC, achieving the expectations of the users was a crucial issue in its CiRM implementation. As the council decided to use the “package of users' requirements”, which had already been developed by the relevant government agencies, data collection

and data analysis activities were not conducted. The system developers considered that the government agencies would already possess a better understanding of the local government work processes.⁸⁶ As one of the system developers stated:

“We are not involved in the activity of getting the users’ requirements. We only received instructions to use the ready e-PBT system and AJMC was asked to run the pilot test in its operation. The identification of users’ requirements from MAMPU and MHLG can represent our requirements of local government.”

As a result, there was an issue in customising the CiRM package to suit the council’s needs. It took almost three months for the system developers from both the council and the vendor to find a solution at that stage.

(6) System Development

At AJMC, since both the MAMPU and MHLG were directly involved in implementing CiRM system, a MAMPU guideline had been used to facilitate the standard of the system design. Moreover, a few system developers from the GW Intech vendor were placed in the council premises for several months to smooth the development process. However, at this stage, the council faced another issue related to the data migration which involved transferring data from the scattered databases to the CiRM system. In this regard, neither the council’s system developers nor the vendor had proposed a proper migration plan. As the Head of the System Analysts explained:

“From our experience, if let’s say you have prepared a migration plan and it goes well, then you will get a successful system. However, in our case, we faced problems on our transaction side and need to use the existing system to address that problem.”

There was no discussion about this matter in the early stage of the implementation process. The council’s system developers presumed that the vendor would be aware of this issue. A system developer shared his perspective as follows:

“The vendor should know more about the technical aspects. They are the ones who create the structure for the data and database, supposedly they should know better regarding what data is required in the e-PBT system.”

As a result, the council faced the issue of inconsistency between the structure and the data format.⁸⁷ A series of adjustments (to identify, for example, which data needed to be moved) from the original scripts that GW Intech had developed earlier were then

⁸⁶ MAMPU and MHLG went to every local authority in Malaysia to look for the “best practice” CiRM implementation.

⁸⁷ The existing databases were built in Sybase while the structure for the e-PBT system was created in Oracle 10G.

conducted to solve the problem. This activity put the implementation process far behind the schedule.

(7) User Acceptance Testing and Installation

Executing the user acceptance test and installing the CiRM system were other technical issues of CiRM implementation process at the AJMC. For the system testing, two levels of user acceptance testing (UAT) were carried out. In the first level, the system developers from both the council and the vendor performed a series of technical tests, which included transferring data between the council's virtual private networks and mapping tests to check the consistency of data between the two different systems. Only when the testing was confirmed to be error free by the Head of the System Analysts, could the second level be executed.

Once the UAT has satisfactorily completed, the system developers moved to install the CiRM system. It was the responsibility of the vendor's developers to ensure the successful completion of the project by installing the system. The installation activity included linking the system with other existing systems (e.g., e-Services, e-KL). The council's system developers also assisted in configuring the network connection within and outside the council and ensured that no technical problems arose. The Head of the System Analysts explained this work as follows:

“People do not want to wait 10 minutes in front of their computer to do the online payment. So, we have to check the network's connectivity.”

To complement the installation activity, the execution of the system was also put in place. Since the council faced the issue of handling data migration, a parallel operation was used to reduce the risk from the public transactions and to enable the council's end-users to become comfortable with the system's work processes.⁸⁸

(8) Staff Training

The CiRM implementation in the council led to a change in some of its existing work processes. For example, in the new system, tax could be paid by credit card. As a result, training the council's staff was necessary. The MAMPU and MHLG government agencies had assigned the vendor to train those staff who were affected by the system. A

⁸⁸ Both the legacy systems (e.g., e-Services, e-KL) and the CiRM system were running simultaneously for almost one month until the new CiRM system started to become more reliable to handle the council's operations.

suitable training programme was then determined with the assistance of the system developers.

All trainees were divided into different training sessions according to the nature of their work and responsibility in the system. For example, the system developers were trained for approximately two weeks on how to handle the systems operation in SQL scripting and also the maintenance work, while the end-users were taught over three days how to use the system based on the procedures and certain steps. Additionally, the trainees were provided with the user manual documentation for their future reference.

Two approaches to training were taken by the instructor-facilitated certified trainer from the vendor. The first approach was formal training, which was conducted outside the council. In the rare event of inadequate formal training, informal training was also available upon request, and was conducted at the council. Continuous informal training was also given to those end-users who were interested.

(9) Managing End-Users' Resistance

Even though the training programmes had been conducted, the system developers detected strong resistance to the use of the system, mainly because:

- 1) The use of a parallel approach had burdened the operational staff by requiring them to complete a single public transaction in two different systems (i.e., the old system and the CiRM system). Sometimes they were only entering and updating the public transaction in one system (i.e., either in the old system or the new system). As a result, the issue of inconsistency in the data arose. This situation led to chaos and to a number of complaints, particularly from senior management, because of the conflicting reports produced by these two systems.
- 2) The end-users found that they would need to complete many steps to solve a certain work process and the process was totally different to what they were familiar with in the previous system. They felt that the same process was much simpler when using the old system.

To overcome the first issue, the council's management agreed to pay an extra allowance to member of staff that was required to use both the old and new system. Additionally,

the senior management endorsed a memo to staff instructing them to continue to use both systems until further notice. Meanwhile, to overcome the second issue, an additional training programme based on one-to-one personal assistance was conducted for staff that were still not comfortable using the system. Both strategies made the end-users more aware of the importance of their daily routine work for the success of the CiRM system operations.

(10) Vendor Support

The government agencies made the CiRM vendor contractually responsible for the delivery of the system. This included providing system training and technical support to the council. Both formal and non-formal training courses were given for various levels of end-users who were affected by the new work processes of the system. The vendor also provided continuous technical support through regular visits. The system developers communicated transparently with the vendor to overcome any technical issues relating to the system's operation. However, the council's system developers felt that the support response time fluctuated due to the limited number of staff to deal with the problems. The vendor's representatives who were responsible for the development of the system were not involved in solving the problems in the system's operation and this further exacerbated the problems with the level of support. As a result, there was a delay in solving problems. However, once the issue was raised, the vendor assigned three technical staff to monitor the effectiveness of the system's operation.⁸⁹

(11) CiRM Publicity

Encouraging the public to use the system was the responsibility of the government agencies, senior managers and the system developers involved. Since the council had experience in conducting similar promotional activities (e.g., the promotion of the e-KL), the task was seen to be relatively easy for them. Several efforts were made to promote the system to the public. These included:

- 1) Advertising its operation through the council's web portal including a downloadable step-by-step instruction manual on how to use it.
- 2) Distributing printed information (e.g., brochure, bulletin).

⁸⁹ The vendor's staff was stationed permanently in the council until the system was fully developed and operational in 2010.

3) Inviting journalists to announce the availability of the system in the local media.

(12) CiRM Post-Implementation

To ensure the system was working properly, the CiRM system underwent maintenance on a regular basis. System developers from both the council and the vendor consistently checked the public data in the old system and the CiRM system to make sure they were reliable for every single transaction. This task was a daily routine for one month until the CiRM system was reliable. A revision was also made in both databases if differences in the data occurred.

5.2.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Ampang Jaya Municipal Council

AJMC was one of the earliest implementers of a CiRM system, so the e-PBT system at that time was relatively immature. Consequently, the system developers faced several issues during the implementation process. The strategy implemented was too dependent on the requirements from the government agencies, resulting in the CiRM system operation becoming chaotic when the level of user resistance to change was high.⁹⁰ The low level of commitment from the vendor who was responsible for the critical tasks such as handling the data migration and supporting the system's operation was also seen as a factor that hindered the success of the CiRM implementation. Only the commitment and involvement of the system developers saved the project from being incomplete. Through the twelve determinants identified, their endeavours throughout the implementation process enabled the CiRM project to be completed.

AJMC was the only case study where the CiRM system was developed through a strategic partnership between the council, vendor and federal government. Although other local governments in this study have made similar efforts to strengthen the CiRM partnership approach, their partnerships did not involve the federal government. It was enforcement from the federal government to use the system that led the council to implement the CiRM system. The findings from this study suggest that the management of local governments should realise that 'freebies' are not always 'free'. The AJMC case study reveals that while the cost of developing the CiRM system was funded by the

⁹⁰ The system developers were dependent on the general CiRM requirements, which had been prepared by the MHLG's appointed vendor (neglecting the involvement of the system's users in the project).

federal government, the system still needed updates and enhancement for its long-term usage. This incurred additional financial cost and was subject to the council's management ability.

5.3 Case Study 3: The CiRM Implementation Process at Sepang Municipal Council

The Sepang Municipal Council is located in the southern part of Selangor State. The administrative area of the council is approximately 217 square miles. SEMC is the youngest local government in Selangor; it started as a district council in 2002 and was granted municipal status in 2005. One of the reasons why the council received the status within a short time period was the rapid development of the many ICT companies operating in the Multimedia Super Corridor region, which is also under the council's jurisdiction. This economic activity attracted people to the council's area as a promising place to live. In 2008, it was estimated that the population within the council's area was more than 200,000.

The rapid growth of development within the council's boundaries in locations such as Cyberjaya and nearby in places like Putrajaya had a direct impact on the council's decision to improve its public delivery services. One of the approaches taken was to improve services through the implementation of a CiRM system. In 2007, with vendor assistance, the council implemented an integrated e-complaint system to facilitate communication with the public. This CiRM system can handle different channels from the public when they make a complaint, such as through telephone, fax, written letter or e-mail.⁹¹ The implementation was also in line with the council's strategic plan which aimed to make all of its services fully electronic by 2013.

5.3.1 Forces Leading to the CiRM Implementation Process

The concept of the CiRM implementation was first introduced in 2005. At that time, the complaint system was developed in-house, but with limited functions.⁹² The system presented many shortcomings including unresponsive communication. For example, the system did not provide enquiry and feedback mechanisms. In addition, there was no classification of the status of complaints, which led to inefficient complaint handling. These scenarios resulted in the level of service being very poor.

In 2006, with some assistance from consultants, the council carried out an audit to identify services that could be 'electronically enabled' (e-enabled) and found that some

⁹¹ After some complaints were gathered from these channels, the operational staff will enter the complaint into the system to take advantage of the e-complaint's handling mechanism.

⁹² For instance, the complaint's details can only be used internally.

areas, such as complaints, taxation and payments should be given high priority. Following this, the council decided to apply a citizen-centred approach. This approach was parallel with the attention paid by the federal and the state governments towards e-Government activities at the local government level. Moreover, there were suggestions from the public concerning the provision of better services. The public wanted the council to offer more Internet-based systems for their use. As the SEMC Head of the System Analysts explained:

“Now, the Internet usage for residential households is increasingly higher. We have received suggestions from them to provide high quality services in this area. For example, they wanted to know the status of their complaints, what action the council had taken. This proves that the public do need the CiRM oriented service.”

All these internal and external forces led SEMC to implement the CiRM system (see Table 5.5).

Type of forces	Category
Internal forces	<ol style="list-style-type: none"> 1. The council commitment towards e-Government initiatives 2. Disordered technology of the existing system in handling the complaint mechanism
External forces	<ol style="list-style-type: none"> 1. Attention from the state and federal governments 2. Public demand for better services

Table 5.5: Forces leading to the CiRM implementation process at SEMC

5.3.2 Main Determinants of the CiRM Implementation Process

Twelve main implementation determinants were identified through the in-depth interviews held with four system developers, as summarised in Table 5.6. The determinants were arranged to form the framework of the CiRM implementation process (see Figure 5.3). The framework consisted of the senior management support (1), followed by the role of the system developers (2), analysis of users’ requirements (3), CiRM partnership (4), implementation objectives and planning (5), CiRM procurement (6), applications and system development (7), staff training (8), CiRM publicity (9), vendor support (10), managing the resistance (11), and CiRM post-implementation (12).

Determinants	CiRM implementation life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. Senior management support	✓	✓	✓
2. Role of the system developers	✓	✓	✓
3. Analysis of users' requirements	✓	✓	✓
4. CiRM partnership	✓	✓	✓
5. Implementation objectives and planning	✓	✓	✓
6. CiRM procurement	✓	✗	✗
7. Applications and system development	✓	✓	✓
8. Staff training	✓	✓	✓
9. CiRM publicity	✓	✓	✓
10. Vendor support	✓	✓	✓
11. Managing the resistance	✓	✓	✓
12. CiRM post-implementation	✗	✗	✓

Table 5.6: Main determinants of the CiRM implementation process at SEMC

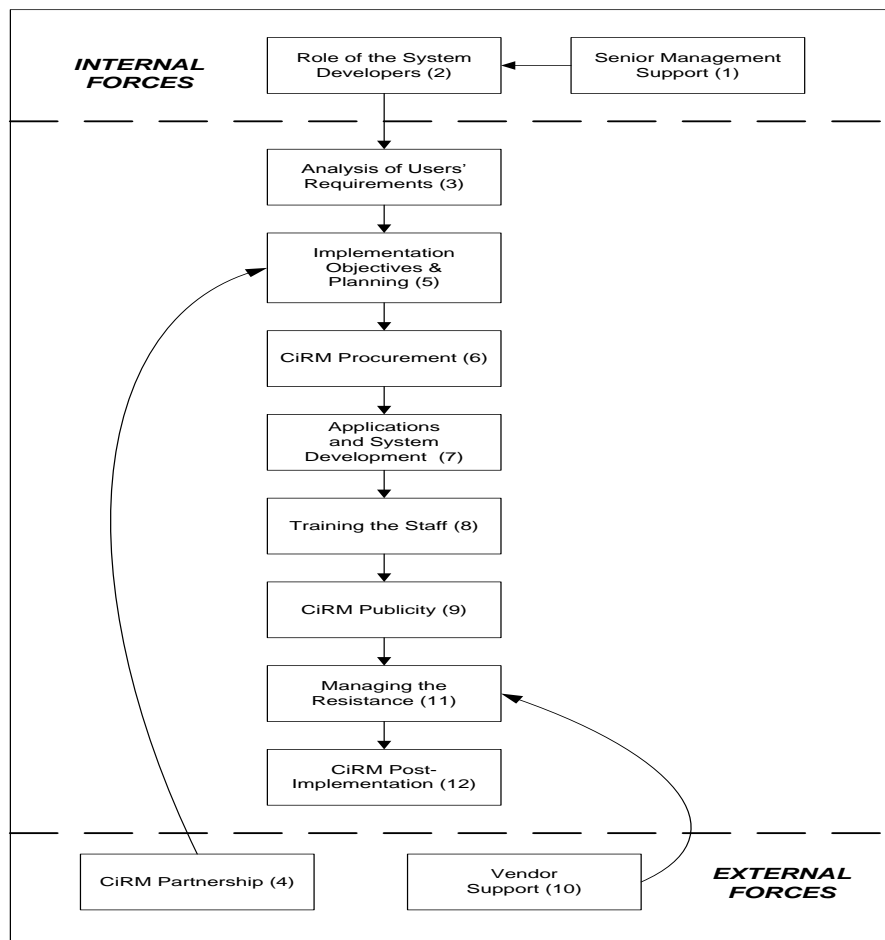


Figure 5.3: CiRM implementation process at SEMC

(1) Senior Management Support

In the early stages of the implementation process, the support from the senior managers was not universal. Some of them did not realise the benefits from the implementation. They considered that the council's focus on e-Government was unimportant. However, the President's commitment to implementation of the CiRM was high. He recognised that the CiRM system had an important role in providing better services to the public. This can be seen through his action of inviting consultants from the Multimedia Development Corporation to investigate the ICT audit in the council. Through the investigation, the council was advised to improve some of its main service areas, which included the public complaints. In this sense, the council's President was seen as the key advocate of the CiRM implementation. The Head of the System Analysts shared this comment about the support of the council President:

“We were very fortunate for having a very encouraging President, especially towards approving the budget from the council members and senior management. He supported us on any projects, especially the systems that benefited the public.”

The senior management then agreed to use the business case for improved complaints handling as the driver for the CiRM initiative. They conceded that the existing complaint system did not have the capabilities required to attract the public to engage with the council's services. The commitment and support from the senior managers to the implementation process continued through their monitoring of the project's progress reports and meeting with the external stakeholders such as the vendor and government agencies.

(2) Role of the System Developers

The President's vision for the technological change enabled the Head of the System Analysts to proceed with the plan of implementation. He led the system implementation by working with the external consultant and project team members on the initiative. With assistance from the consultant, he developed the council's CiRM info-structure which listed the priority service areas including complaints, payments and taxation. To further understand the structure for a particular service, the Head of the System Analysts then worked together with other system developers, namely, a system analyst and several programmers.

When the system developers had gained an understanding of the intended CiRM system, they continued their roles by selling the idea of the implementation to the entire organisation. To encourage the targeted senior managers and end-users, several communication media were used. These included the use of briefing methods, such as the employment of Friday morning sessions where the end-users (operational staff) were encouraged to state what they wanted from the system to help their traditional work processes. Similarly, the availability of communication technologies, such as e-mail and Intranet, were utilised to keep the senior managers well informed of the benefits of the system.

At the more advanced stages, the system developers worked together with the CiRM vendor on the technical activities. They played a role in resolving any conflicts that arose between the external stakeholder and the senior managers and end-users. Such conflicts could, for example, be resolved by clarifying the system requirements. The implementation activities then progressed smoothly despite the system developers facing several main implementation issues, including the users' resistance to change. The dedicated action by the Head of the System Analysts as the Project Manager also contributed to the success of the CiRM implementation. For instance, at certain milestones, he had to report the project progress as well as its issues (if any) to the senior management. This made the senior managers responsive throughout the implementation process. He also segregated some of the implementation tasks to the system developers involved. Among the tasks were identifying the user and system requirements, testing for acceptance and monitoring the system's operation.

(3) Analysis of Users' Requirements

The system developers took two approaches to identifying the diverse requirements of the CiRM system. In the first approach, effective communication with the end-users was emphasised. The prospective end-users were interviewed face-to-face several times. As one of the system developers explained:

"We studied their requests ... looked at the work process that they were conducting. The users were then interviewed to identify their necessary requirements."

At the same time, the system developers also considered public complaints. However, due to the impossibility of directly engaging all citizens, the requirements were gathered

through the council members who represented each zone and through the conventional channels such as e-mail, telephone and face-to-face.

When the requirements were collected, the system developers then carried out business process mapping to determine the system requirements. However, the Head of the System Analysts faced the issue of reengineering the existing complaints system due to the inexperience of the other system developers in obtaining the real requirements. As a result, several discussion sessions were conducted with the participating end-users. They were revisited for the purpose of confirming and disconfirming certain issues (e.g., what are the primary categories and sub-categories for the complaints) and to obtain more accuracy concerning the requirements. The Head of the System Analysts also took the initiative to train the system developers in mapping the business process, so that they were equipped to carry out detailed analysis work and develop proposals for the new CiRM system.

As the CiRM system started to develop, further discussions were held between the system developers and senior managers on a regular basis. The discussion was significant to make sure that the development of the CiRM system met all the departmental requirements. Reference was also made to the external consultant in exposing the strengths of the system's capabilities.

(4) CiRM Partnership

The council proactively engaged with some experts from outside as partners throughout the implementation process. The partnership was not limited to the technical aspects, such as system development and testing, but also focused on gaining an understanding and acquiring new knowledge concerning the CiRM system.

In the early stages, the external consultant was brought into the council to investigate some of the critical work processes. The system developers benefited from this partnership as the consultant provided a foundation for the progression of further implementation activities, such as prioritising the critical services identified earlier and developing short-term and long-term plans. Several vendors were also contacted based on their previous partnerships with the council. The purpose of this strategy was to acquire the data structure and format for the existing systems.

As the implementation proceeded, the council built a relationship with the CiRM vendor. This partnership was made due to the lack of experience and knowledge among the system developers involved in the CiRM system. A strengthened relationship with the existing consultant was also made at this stage to ensure that the development of the system was aligned with the original plan of the implementation. Several communication mediums, including meetings and discussions, were used at this stage to strengthen the partnership. As Project Manager, the Head of the System Analysts mediated these relationships to smooth the process.

At more advanced stages, the council engaged a new expert as the partner for the next implementation. New relationships with MAMPU and MHLG were formed as the federal government had asked the council to implement a new integrated CiRM system, the e-PBT, which contained several applications through multi-channels, by 2012. Additionally, the council carried out several discussions with MAMPU to build a stronger relationship. The MAMPU partnership was needed to help the system developers integrate the council's back-end with front-end applications. The council realised that they did not have the ability to do it by themselves.

(5) Implementation Objectives and Planning

The general objective of the CiRM implementation was to re-engineer the complaint handling process by integrating all channels into a single access through the use of Internet technology. This objective was achieved through proper planning, which was developed by the joint effort of the consultant and the Head of the System Analysts. According to the implementation plan, the CiRM system was to be developed using an incremental strategy over one year (from June 2006 to May 2007) with the cost of development at almost RM 70,000. The strategy was also in line with the one-year budget planning that was practised by the council.

Delivering the CiRM system within the predetermined timeframe was a challenge to the Head of the System Analysts. One of the tasks that he was required to perform was developing the CiRM system within four months. However, through the involvement of several system developers, each task could be assigned to a team. Additionally, several senior managers and end-users from participating departments (i.e., Corporate Planning, Licensing and Enforcement, Engineering, and Urban Planning and Landscape) were

invited to participate in the project at certain stages. As a result, the CiRM system was delivered on time.

After the CiRM system went live, the council demonstrated commitment to developing a culture of continuous improvement. This can be seen through the development of an Information Technology Strategic Plan articulating the long-term plan for the implementation (2009 to 2013). Through this plan, the council shows a strong intention to have a fully e-enabled system. This includes the plan to enhance the system by joining the state government's CiRM system (called the Sistem Talian Aduan Rakyat Selangor, or STARS). This integration would provide the public with a second gateway for making complaints through text messages. Moreover, the council intends to widen the system usage by integrating Internet and telephone technologies, so it can move to utilise the benefits of a 'call centre'. By utilising this concept, the operational staff can handle calls based on identifying and understanding the callers' needs, and then search for the appropriate information. It is believed that both plans would increase the convenience and enhance the quality of the interaction between the council and its public.

(6) CiRM Procurement

As most of the system developers were inexperienced in implementing CiRM systems, the Head of the System Analysts convinced the management to call in vendor expertise. The council realised that they did not have the internal skills to develop and implement this system. A decision was then made to proceed with the implementation plan through quotation instead of open tender. This approach was taken due to budget constraints as well as to foster the development stage without incurring the longer waiting time in the selection process. Five CiRM vendors were contacted to submit quotations. The vendors were also asked to present their basic ideas about the complaints system to the project team.

Having conducted thorough reviews, the vendor called VSO was awarded the contract to develop the CiRM system. This selection was based on the price of the quote that was attractive and also met the system's requirements. VSO was also chosen because it had the experience of implementing similar systems in several states' local governments.

This factor gave added value to the vendor portfolio, strengthening the confidence level of system developers and senior managers in their CiRM implementation.

(7) Applications and System Development

Several discussions were carried out between the vendor and council developers to further detail the development of the system. Because VSO already had a template for the system, the development only took three months.⁹³ This quick time was also due to the vendor being asked to conduct this critical task in the council. There were then several presentation sessions conducted by the vendor to explore the end-users' needs with any comments being used to further improve the next session. As a result, the vendor completely understood the work process and eventually customised the system within the given timeframe.

At SEMC, ensuring the standard of the CiRM system was an important technical issue. The vendor system developers were asked to use a standard guideline to refer to during the development stage. This included the use of open source language (e.g., PHP scripting language) that was compatible with the database management system software (e.g., MySQL database). This strategy was in line with the MAMPU guideline for cost saving purposes as it would reduce the expense for a new database server and data conversion for any subsequent implementation. Additionally, the vendor was urged to use a responsive design standard from the Malaysian Government Portal and Website Assessment. Website personalisation that provided a quick and easy way to direct the public, use of sessions to eliminate the usage of cookies, and the enabling of feedback response and multi-language, were among the criteria recognised as good practice.

Transferring the data from the old system to the CiRM system was another -technical issue for SEMC. Since both the old and new complaint systems had been developed using the same database structure (i.e., in relational design), the data migration was quite straightforward. As one of the system developers explained:

“All data from the old system into the new system was transferred in a simple way.”

At this step, however, the ability to analyse the data structure was needed, which included the skill of analysing and defining the source and target structure. Although the

⁹³ The original system had only been customised in accordance with the council's requirements.

council developers were lacking these skills, they benefited from their partnership with the VSO developers. No main problems arose during this stage.

(8) Staff Training

Training the staff was required to smooth the process of CiRM implementation in SEMC. The council not only realised the importance of structuring a suitable training programme, but also of providing a good facility for training purposes. The Head of the System Analysts and some managers were involved in designing appropriate programmes for those staff that were affected by the new processes of the system. To accommodate the training, the council upgraded the training facilities in the IT department by providing the necessary equipment including computers and a liquid crystal display projector.

Members of staff from the operational to the strategic level were involved in the formal training programme. These staff included:

- 1) The system developers who were trained on the system administration and the scripting language (i.e., PHP). The training was provided to make them aware of their responsibilities.
- 2) Managers from participating departments together with their end-users were given hands-on training over three days in the use and handling of the new complaints work processes.

All training was conducted by the vendor's certified trainer on the council premises. A simpler version of the manual system was provided to the trainees, as the council developers found the vendor's version contained too many technical terms and was too complicated to understand. There was also continuous informal training given to those interested, which was conducted by the council developers.

(9) CiRM Publicity

The promotional activities of the CiRM system were initiated as a joint effort between the system developers and the senior managers from participating departments. However, at the more advanced stages of the implementation process, the system

developers collaborated with the Management Services Department to continuously encourage the public to use the system. Among the promotional activities were:

- 1) Distributing leaflets (i.e., brochures and magazines) during community events such as *Gotong Royong* and *Hari Bertemu Pelanggan*.
- 2) Uploading the same information to the council's web portal for easy reference by the public. More members of the public commented on the CiRM system, including some who sent their feedback through the portal. This in turn made the public more aware of the existence of the system.

(10) Vendor Support

The most critical issues throughout the implementation process in SEMC concerned the vendor support. Although the system developers had built good communication channels with the CiRM vendor during the earlier stages, generally they were not satisfied with the vendor's commitment, especially in providing the system support. As the Head of the System Analysts described:

"We found that the vendor was good until the system went live, but, when it came to the maintenance activity, their competency level reduced. The vendor's response to improve certain problems was very slow."

The vendor's responses to the technical aspects were not as good as they had been when the project was in the development stage. The council determined that the problem was caused by the vendor representatives who had been responsible for customising the CiRM system were no longer representing the company. Nevertheless, the council was generally satisfied with the other types of support and commitment from the vendor. This included providing product consultation and training throughout the implementation process.

(11) Managing the Resistance

At the earlier stages of the implementation process, the council faced strong resistance from those end-users and senior managers who were unfamiliar with the CiRM system. However, as the system began to develop, the resistance was found to be minor. This is because the system developers had undertaken several actions to prevent the resistance becoming a crucial issue. These actions included:

- 1) Inviting the end-users in the participating departments to be involved in the project. For example, they were invited to contribute their ideas during the meetings held to solicit requirements.
- 2) All staff, regardless of their roles were informed about the need for the implementation through an effective internal communications method.
- 3) Staff training was provided in order to address any fears about handling the new work processes in the system. The end-users were not only excited to attend the training programme but they were eager to use the system. They were interested to know how their ideas had been translated into the working system.

These strategies raised the awareness of the participating users. The users realised that the CiRM system could save their time in handling public complaints, thus the system developers were able to overcome the resistance. The resistance was found to be minor as the client's charter to reduce the time taken in dealing with public complaints had been satisfactorily addressed. After the system went live, the time taken to deal with complaints reduced drastically from ten to three working days.

(12) CiRM Post-Implementation

The system developers monitored the CiRM system continuously by checking its performance and making copies of the data. In the first strategy, the system was checked consistently to ensure it was error free. For example, it was checked to see if there was a possibility of a network problem that could have slowed the data access. Assistance from the vendor may be required if the problem could not be resolved on time. In the second strategy, the data had to be backed up weekly on hard disc and monthly on compact disc. These copies were then kept safely in the council's main branch and could be used to restore or recover the system in the case of a natural disaster or human error.

5.3.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Sepang Municipal Council

Similar to the JBTMC in the first case study, SEMC was a recent CiRM implementer in Malaysia. Through a strategic partnership, the system was implemented with vendor assistance. The vendor was selected through the government's tender process. Although there were several prospective vendors that met the requirements through the quotation approach, the council finally chose the vendor based on additional criteria that were not listed in the selection process, such as the criterion that the vendor had successfully implemented similar systems before. The capability of the vendor strengthened the confidence of the system developers in the implementation of the CiRM. As a result, they were able to make the senior management and end-users realise the benefits of the system. The project subsequently progressed smoothly and was delivered on time. The CiRM system was accepted by all levels of users and the resistance was found to be minor even though the work procedures had changed.

Nonetheless, the support from the vendor during the system's operation was not as strong as the support received during the development stage. The findings from this study suggest that although a close relationship had been established with the vendor in the early stages, the system developers could not expect to receive the same level of support from the vendor during the implementation process. This can be seen as a potential risk in vendor assistance in CiRM implementation. In the case of SEMC, only the commitment and involvement of the system developers saved the project from deficiency. Throughout the years, they successfully engaged in the implementation activities such as enhancing the system and planning for future implementation by collaborating with the relevant government agencies.

The SEMC case once again confirms that the continuous support and commitment of senior management plays an important role in the success of the implementation. Although most of the senior managers of local governments examined in this study showed their commitment, none were as conscious or as staunch in their support as the SEMC President towards implementing the CiRM system. The findings from this study suggest that the involvement of senior management is not only important when the project starts (e.g., in approving the CiRM proposal or allocating funds) or at the end of the implementation (e.g., during CiRM publicity), but that it should appear before the

CiRM project begins. In the SEMC case, this prior support was shown by inviting an external consultant to develop the long-term plan. In addition, the President acted as the ‘system champion’ at the beginning of the project and assisted the system developers to undertake the implementation activities.⁹⁴ The senior management who were committed and whose views were consistent with the President’s message about the need for success of the CiRM system would, in turn, empower the system developers to translate that message into action.

⁹⁴ The foundations for the implementation tasks were clearly defined (e.g., prioritising the services).

5.4 Case Study 4: The CiRM Implementation Process at Subang Jaya Municipal Council

The Subang Jaya Municipal Council is located in the Klang Valley, Selangor. With a total area of only 27 square miles, the council benefited from the federal plan for growth through the expansion of area's industrial, institutional, commercial and services sectors. Its location within the Malaysian Super Corridor region has also contributed to the rapid development of the ICT sector. The area is situated in metropolitan Kuala Lumpur, and all these factors have combined to attract a substantial number of residents seeking employment opportunities. In 2008, the population of the council's area was a little over 600,000.

Since 2005, the council has embarked on several CiRM implementation efforts to improve its public delivery services. It has developed and improved a CiRM system solution called 'Web Enquiry' that integrates all the public services, including online payments, applications and complaints, in one system. The system has enhanced transparency and improved the ability of the council to serve the public through the use of Internet technology. In addition, the council has set up a CiRM kiosk system to complement its online presence, thereby providing a variety of channels for the public to choose.⁹⁵ The use of multi-channels indicates that the council has recognised the ability of CiRM technology to improve its operations and service delivery.

5.4.1 Forces Leading to the CiRM Implementation Process

The success story of CiRM implementation initiative in SJMC started back in 1998 when the council offered certain services such as taxation and licences through the client-server environment. In 2000, the council moved forward to better serve the public by utilising Internet technology through the development of its corporate portal, My@MPSJ. At that time, the portal only provided one-way interaction in disseminating council information. However, the web portal was subsequently upgraded several times and now provides the public with more ways to conduct online transactions and communicate.

⁹⁵ Through this dual approach, the council could enhance the relationship and quality of interaction with the public.

The federal government’s focus on local e-Government activities also made the SJMC consider the need for one-stop gateway access to all of its public services. Consequently, in 2004, an external consultant was brought into the council to help the senior managers enhance the efficiency and cost effectiveness of services to the public. The consultant proposed a strategic plan for the period 2005 to 2010 showing how the council would improve its delivery of services by integrating all of its back-end operational systems. The decision was made to follow this plan, as there was immense demand among departmental users and the public for integrated services. Several projects were implemented in this plan, including the Integrated Revenue Management System, Integrated Financial Management System, and Office Collaboration and Productivity System. When the implementation of these back-end applications was completed, in the middle of 2008, the council then progressively implemented its front-end system, CiRM Web Enquiry. As the System Analyst explained:

“We expressed the need to centralise data integration of the back-end systems in managing the council’s data more easily and neatly. Once the back-end had been developed, it would not be a barrier to develop the front-end system.”

Table 5.7 summarises all the internal and external forces leading to the CiRM system implementation in SJMC.

Type of forces	Category
Internal forces	<ol style="list-style-type: none"> 1. Continuous commitment of the council to a citizen-centred approach 2. The need to better manage its data 3. Department demands to improve public services
External forces	<ol style="list-style-type: none"> 1. Attention from the federal government 2. Proposal from the consultant company 3. Public demand for better services

Table 5.7: Forces leading to the CiRM implementation process at SJMC

5.4.2 Main Determinants of the CiRM Implementation Process

As a result of internal and external forces, in 2005 the decision was made to integrate the back-end systems with CiRM Web Enquiry. Thirteen main determinants were identified through in-depth interviews with two system developers, namely the Head of the System Analysts and a System Analyst), as summarised in Table 5.8. The symbols “√” and “x”

indicate the presence or absence of system developer involvement in the implementation process, respectively.

Determinants	CiRM life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. Senior management support	✓	✓	✓
2. CiRM partnership	✓	✓	✓
3. Analysis of users' requirements	✓	✓	✓
4. Role of the system developers	✓	✓	✓
5. Implementation objectives and planning	✓	✓	✓
6. CiRM procurement	✓	✗	✗
7. Applications and system development	✓	✓	✓
8. Staff training	✓	✓	✓
9. Vendor support	✓	✓	✓
10. CiRM publicity	✓	✓	✓
11. Managing the resistance	✓	✓	✓
12. CiRM post-implementation	✗	✗	✓
13. Sharing the knowledge	✗	✗	✓

Table 5.8: Main determinants of the CiRM implementation process at SJMC

The determinants were then arranged to form the framework of the CiRM implementation process, as shown in Figure 5.4. The framework consisted of the senior management support (1), followed by the CiRM partnership (2), analysis of users' requirements (3), role of the system developers (4), implementation objectives and planning (5), CiRM procurement (6), applications and system development (7), staff training (8), vendor support (9), CiRM publicity (10), managing the resistance (11), CiRM post-implementation (12), and sharing the knowledge (13).

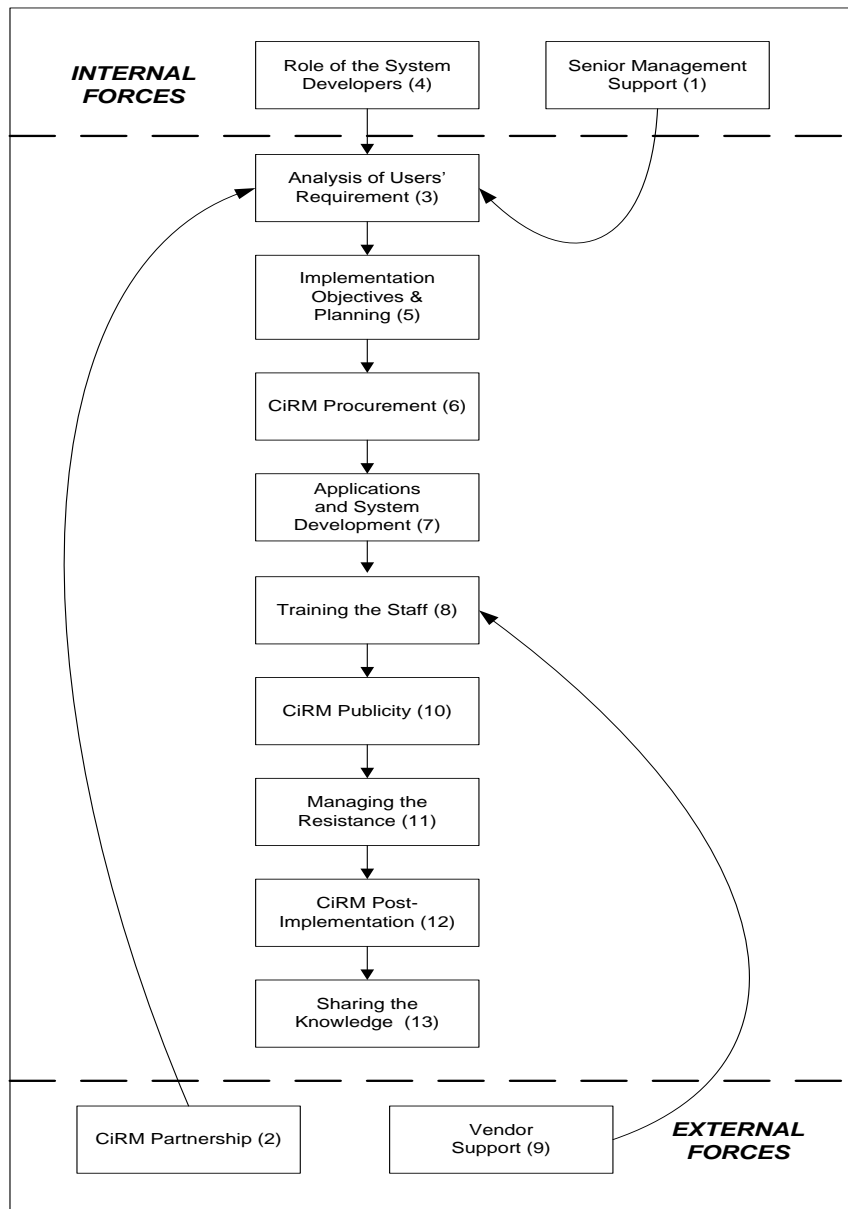


Figure 5.4: CiRM implementation process at SJMC

(1) Senior Management Support

Senior management demonstrated high levels of willingness to lead the CiRM implementation. The leadership and enthusiasm of the council’s President and senior managers drove the project’s progress. These personnel had the vision and commitment and took the actions that were consistent with the message; thus helping the system developers to translate the message into a plan of action. For example, during the earlier stages, the senior managers supported the implementation by hiring a consultant to develop a short-term and long-term plan. Their continuous support can be seen through

the acceptance of the project proposal that connected both plans. The Head of the System Analysts shared his thoughts on this point as follows:

“The project was approved immediately and they [senior managers] hoped the system could be developed successfully since there was a high demand for such a system. At that time, there were no similar projects [Web Enquiry] being developed by any other local governments in Selangor. The management felt that it was an opportunity for the council to pioneer a better public service system.”

At the more advanced stages, senior managers transformed and sustained their support for the project by allocating funding to enhance the system and by strengthening the public-private partnerships. It is believed that the senior managers’ awareness of the need for the CiRM system was enough to ensure the success of the system’s implementation.

(2) CiRM Partnership

The CiRM implementation in the council encouraged the cooperation from both the government and private sectors. The project was carried out through a partnership with the consultant, CiRM vendor and relevant government agencies including MAMPU. The partnership approach enabled the system developers to improve their technical skills and to enhance decision-making throughout the implementation process.

At the early stage, an external consultant was invited to the council to provide a clear overview of the implementation. The system developers benefited from this partnership as the consultant provided the long-term plan for seamless services, which included the determination of the system’s priorities. Additional IT infrastructures, including a high-speed broadband network and data centre, were also identified to ensure that the CiRM system was supported with advanced facilities. The council also agreed to employ the CiRM vendor as a partner. This approach allowed the system developer to place more emphasis on supporting the IT aspects rather than developing a complex system. As the CiRM system started to develop, the system developer established the vendor partnership with the purpose of obtaining good system support and technology transfer. The vendor partnership was also maintained at the more advanced stages of the implementation. The System Analyst shared his experience as follows:

“The use of open source software was a relatively new technology to me because I did not learn that programming language in the university before. Fortunately, through this project, I have learnt how to make some coding on certain functions of data manipulation and this is where the technology transfer of knowledge occurs.”

Similarly, the system developer communicated regularly with several IT officers from MAMPU, including some who were his colleagues at university, at the more advanced stages. This set of relationships was created to gain new knowledge of the CiRM system such as new guidelines, circulars or programmes.

(3) Analysis of Users' Requirements

Central to identifying the requirements for CiRM implementation in SJMC was the involvement of the end-users. The user involvement was not limited to the internal users (operational staff, senior managers, and council members) but also focused on the external users, namely, members of the public, as well.

At the early stage, the council's system developers and the consultant conducted interviews, workshops and focus groups with the end-users. The senior managers were interviewed face-to-face to obtain their thoughts and vision concerning the use of the CiRM system. Additionally, the focus group approach was taken to involve a wide section of the public. For example, through community events, representative council members could identify the needs of their constituents by inviting them to give feedback. All of these actions had a positive impact on determining and conveying the diverse requirements to the council, and thus provided a strong foundation for the implementation of the CiRM. The collected requirements were then analysed to determine the users' expectations concerning the new work processes of the system.

After the system went live, the system developers also received advice about several requirements from both staff and public end-users. Senior managers requested more ad-hoc reports in different formats, while the public asked the council to provide multipurpose payments in a single transaction. These requirements were gathered through the 'road-shows' at community events and comments from the public gathered through the service counter, e-mail and complaint systems. Additionally, more members of the public conducted transactions on CiRM Web Enquiry and some sent their feedback to the council.

In this activity, however, the system developers faced the issue of some operational users not knowing what they really needed from the system, and, in the worst cases,

some end-users were not interested in becoming involved in the project. The System Analyst recalled his experience as follows:

“They [the end-users] assumed that we were trouble makers. They thought that the development of the CiRM system was a waste of money.”

(4) Role of the System Developers

During the earlier stages of the implementation process, the Head of the System Analysts led the project by working together with a few system developers, senior managers and the consultant. They generated the idea of the implementation in accordance with the council’s vision. To establish the idea, the system developers studied how the integration between the back-end and the front-end system work had been carried out by other local governments globally.⁹⁶ Additionally, the systems of several Malaysian banks that offered online banking were also reviewed (including Maybank2U and CIMB Clicks). This strategy was used to understand factors such as what components are needed in developing the CiRM architecture, and to determine the lessons that had been learned from implementation, including the challenges faced during the process and how to overcome those issues.

When the idea was firm enough, internal support was built within the IT Department before leveraging the CiRM system to the whole organisation. To do this, the Head of the System Analysts used soft communication skills to explain the project. The System Analyst described one such instance:

“The way our Head System Analysts gave his commands was not as orders, but as a colleague and we respect him.”

At the same time, the system developers also gained commitment from other departments, ranging from the operational to the strategic level, to support the project. They communicated credibly and argued successfully for the implementation of the CiRM system. The utilisation of various methods of communication assisted the system developers to gain the necessary support. Among the popular communication methods were meetings, discussions, electronic diary and e-mail. For example, several committee meetings involving the senior management to discuss the critical decisions were held weekly or monthly to ensure continuous support during the implementation process.

⁹⁶ In their investigations, they found out that several councils in New Zealand (e.g., Wellington City Council and North Shore City Council) presented the best standards.

Moreover, the system developers communicated through the council's bulletin magazine, providing up-to-date news to 'talk up' the system's benefits to staff.

During the advanced stages, the system developers were very visible in the council. They acted as the interface between the senior management, end-users and the vendor. Any issues that arose would be discussed with the system developers, so that they could identify a practical solution. This included finding a suitable approach for transferring the old data to the CiRM system, and finding suitable strategies to promote the system. The high level of interest shown by the system developers reduced the users' negative perceptions concerning the implementation of the system. The system developers kept the CiRM implementation on schedule by showing their continuous commitment despite some issues faced by the council.

(5) Implementation Objectives and Planning

As the CiRM implementation was well accepted among the operational staff and senior managers, this provided an opportunity for the system developers to proceed confidently with the implementation plan. With the consultant's assistance, the system developers developed an Information Technology Strategic Plan for the period 2005 to 2010.⁹⁷ The plan included the intention to implement the CiRM Web Enquiry once the council back-end applications had been integrated.⁹⁸ The system developers also outlined a general objective for the CiRM implementation, which aimed to allow the public to pay all council bills through the payment gateway. The applications contained in the CiRM system were a catalyst for the council's innovation, which would minimise the conventional methods of interacting with the public.

The CiRM system was then implemented through an incremental strategy with an estimated cost of approximately RM1 million. This strategy was used as the council based its financial management on a one-year budget. Nevertheless, the strategy enabled the system developers to produce some fairly quick and measurable deliveries, such as prototype applications, for the end-users. The approach also allowed the vital work

⁹⁷ The plan was developed in accordance with the vision of the council to be a world-class local government. Several projects were identified, including the Integrated Revenue Management System, Integrated Financial Management System, Integrated Geographic Information System, SJMC Corporate Portal (My@MPSJ), Office Collaboration & Productivity System, and Web Enquiry.

⁹⁸ The implementation of the back-end systems was given high priority as the technology will help the council to organise and manage their data in an effective way.

processes such as online payments to be given priority before subsequently adding others, such as online submission of development plans. The implementation activities were then moved forward as the Head of the System Analysts acted as the Project Manager in monitoring the project's progress.

As the CiRM system went live, the council's system developers and senior managers were committed to continuously improving the public services into the future. They made several plans, which included:

- 1) Outlining the implementation of many more online services by collaborating with the government agencies. For instance, with some experts from MHLG, the council intended to develop the OSC system to improve services to consultants and housing developers who submit development plans for approval. The public would also benefit from this system, as it would assist them to check the status of their applications at any time via the Internet.
- 2) Planning to reward its loyal public by introducing a community card. They believed that a loyalty card was a way to show the council's appreciation to the public.⁹⁹ At the time of the study, the council was granted approximately RM1 million funding from the Ministry of Science Technology and Innovation to enhance the concept of the SJMC community card by exploring its functionality as a debit card as well.

(6) CiRM Procurement

Senior managers realised that the council lacked expertise to integrate various back-end applications while simultaneously developing its front-end system.¹⁰⁰ As the implementation of the CiRM system required high-technology knowledge and skills with a considerable sum of money involved, a decision was made to seek vendor expertise through open tender.

⁹⁹ The card will be used to collect points from each service that the public wanted to engage in with the council. At some point, the accumulated points would be converted into 'cash' when paying for services to the council. This concept is similar to other club-card schemes that have been offered by retailers in the Malaysian market (e.g., BonusLink, MyMesra, etc.).

¹⁰⁰ Through vendor assistance, it was expected that the council would benefit from the technology transfer (i.e., system developers would improve their skills and knowledge) during the implementation.

All capable CiRM vendors were invited to submit their proposal in accordance with the tender document, called the Request for Proposal.¹⁰¹ The tender attracted more than ten CiRM vendors. Having thoroughly conducted the reviews, the council then shortlisted three vendors to present their proposals. These three vendors were scrutinised for their financial stability, reputation and expertise. The vendor called Array Technology was then awarded the contract to implement the system because it met and fulfilled the tender requirements. Additionally, the vendor had some experience in implementing a similar system for a private sector company in Malaysia. This would provide an advantage to the council and lessen the risk of implementing an unsuccessful CiRM system.

(7) Applications and System Development

The CiRM vendor, Array Technology, was contractually responsible for developing and delivery the system. There were many discussions and meetings held at this stage between the council and the vendor developers. The council also requested the vendor developers to carry out the activities in the IT Department at the council premises. This approach was used to hasten the implementation process by facilitating the project's progress through effective communication. As the Head of the System Analysts described:

“We needed thoughtful ideas and suggestions from the Array Technology through the development scenario that this company had done with other government agencies and private companies. The communication between the vendor's technical staff with the ITD and the end-users was excellent because they were stationed at our place during the development process.”

To facilitate the standard of applications development, the vendor developers were required to use standard guidelines from MAMPU including the Malaysian Public Sector ICT Security Management Handbook and the Malaysian Government Interoperability Framework. This included the standardisation aspects of security concerns (e.g., encrypted password) and user-friendliness and graphical user interfaces (e.g., pull-down menus).

¹⁰¹ The RFP document aimed to help vendors suggest their solutions for the intended use of the council's CiRM system. It also guided the council for the selection process. Among the items included in this document were project background, timeframe of the project and the proposed solution.

During this stage, both the vendor and council system developers also paid careful attention to the translation of the user requirements into a series of system prototypes. The prototyping was created not just to test the functionality of the applications but also to understand the users' responses towards the system's work processes. It helped the internal users including senior managers and operational users to get a more detailed picture of the workflow in the real CiRM system. Encouraging the users to give responses during the demonstration sessions was one of the strategies to identify any strengths or weaknesses in the applications that were being developed. By demonstrating the recently developed applications, the system developers identified several features that were most required by the operational users, such as the simplicity and user-friendly interfaces.

(8) Staff Training

A suitable training programme was identified in the earlier stages by the senior managers and system developers. The training session was designed for member of staff that was affected by the system. During the session, the member of staff was also provided with a documentation manual for their reference.

All users from the operational and management levels were given different formal training at the council premises according to their use of the CiRM system. Operational users were trained to familiarise themselves with the work processes of the system, while the senior managers demonstrated the management of reports. The system developers also received formal training on the system workflow, system configuration and the administration functions. A longer period of training was given to operational staff than senior managers and system developers. For example, operational staff in the Finance Department were trained for three days, compared to others who only participated in the training for one day. The sessions were conducted by the vendor's certified trainer. All the sessions started one month before the expected technical deployment date of the CiRM system in the council.

Additionally, continuous informal training was given six months after the CiRM system went live with the purpose of refreshing the users' knowledge in using the system. Furthermore, continuous training was conducted if there was a small enhancement of

the system that affected the existing work process.¹⁰² The operational users were also provided with informal training by the in-house trainers upon request. They were trained by the capable system developers who had attended formal training along with the users. The training was conducted at the end-users' work stations directly.

(9) Vendor Support

Although the CiRM vendor was contractually responsible for the delivery of the system, the council had not received appropriate levels of support throughout the implementation process. However, the level of support differed slightly throughout the different stages. During the product consultation (e.g., prototype applications) and training stage, the level of support was good. Nonetheless, the level of support for the technical support was not encouraging. The system developers were generally not satisfied with the vendor commitment after the CiRM system went live. As the Head of the System Analysts noted:

“When a technical problem occurred, the vendor’s technical staff always responded slowly even though we contacted them many times.”

The system developers deemed that the support from the vendor was not good based on two factors, which included:

- 1) There was a lack of knowledge concerning technical skills among the new vendor developers, which limited their ability to provide good support to the council. For instance, it took some time for them to detect an error in the network connection.
- 2) The vendor had a shortage of expert staff. In other words, the original representatives who were responsible for the development of the CiRM system were no longer working for the vendor.

(10) CiRM Publicity

The council attempted to aggressively market its CiRM system for public usage throughout the implementation process. The system developers and senior managers believed that many people did not know of the existence of the system provided by the council as a facility they could use. Therefore, suitable promotional activities were

¹⁰² The vendor was bound contractually to the specification system agreement, which meant they had to support the council for any minor changes for a year after the system went live. Training and support for any minor changes were to be provided free, that is, no extra charges were permitted during that period.

identified from the early stage. This included road-shows, offering incentives and disseminating leaflets concerning the CiRM system to provide an accurate picture to potential users among the public.

After the CiRM system went live, the promotional activities were performed by the system developers and the Management Services Department. The public was informed about the use of this innovative delivery channel through the council web portal, My@MPSJ, and there was also a downloadable instruction manual for the public to refer to. Disseminating information and its benefits in the form of a leaflet or brochure was another activity to let the public know about the availability of the system. Additionally, several road-shows in shopping complexes or at community events were conducted to brief the public about the system on a scheduled basis. Through these events, the council's representatives also took the initiative to demonstrate how to use the services offered by the system. Moreover, offering a door-prize (e.g., small table clocks, umbrellas, note-books) or lucky draws (e.g., redemption vouchers, travel tickets for local destinations) was another activity that was carried out for several months after launching the system.

At the more advanced stages, there was also continuous promotion of CiRM to the public, which was conducted solely by the Management Services Department. Among the popular approaches was disseminating information on the CiRM and conducting road-shows. These activities were conducted continuously to boost the use of the system by the public.

(11) Managing the Resistance

The council faced the issue of end-user resistance during the early stages of the implementation process. Compared to senior managers, the resistance was strong from the operational users, as the operational users had little idea about the CiRM concept. Although they were involved in the project, some of them did not show any interest. The resistance continued to exist even though they had been given adequate training. Some users were reluctant to use the CiRM system, as they were more comfortable using the existing system. The Head of the System Analysts recalled his experience of this resistance:

“It does not mean they [the operational users] were not aware of the advantages of CiRM system, but, they tried to deny it because they were comfortable with what they were doing.”

Nevertheless, as the system developers had given a series of briefings explaining the system’s benefit, the operational users slowly showed their interest in getting more involved in the user requirements activities. Additionally, the level of resistance was reduced when the system developers enforced the use of the new system by terminating the old system one month after the CiRM went live. This meant the operational users had no other option except to use the CiRM system.

The council also faced some resistance from the public when the system went live. Although promotional activities were conducted, the public, especially senior citizens, were reluctant to use the CiRM system. This can be seen in the results of the survey of user satisfaction conducted by the Corporate Planning Department in 2008, which indicated that the members of the public aged 50 years and above were more comfortable using the counter service instead of the CiRM. They did not feel confident that online transactions were safe and were concerned that their personal information would be compromised. This shows that the system was still not well received by most of the public. To overcome the situation, the council planned to continuously promote the system and to reduce the conventional counter service in the future.

(12) CiRM Post-Implementation

When the system went live, the system developers strived for continuous maintenance of the system to ensure that it was reliable in its operation. This maintenance included:

- 1) The system was backed-up automatically (i.e., daily, weekly and monthly) in a tape medium, which was then kept safely in the council’s data centre.
- 2) The data was tightly secured by the council. Access to the system was protected through encrypted password in six-character format.
- 3) Security elements, such as a firewall, and anti-spam and anti-virus software were installed to prevent and remove any threats (e.g., malware) to the system’s configuration.

The council also conducted a post-mortem review after launching the CiRM system to determine the level of user satisfaction. The review was carried out after the launch because the system developers felt that it was difficult to directly engage the public during the earlier stages of the CiRM implementation as the user base was the entire population living within the council's area.

Information about the level of public satisfaction was gathered through the online revenue collection. The total collection through the CiRM system in 2008 was over RM32 million compared to just RM26 million in 2007. The council's total revenue through the counter system decreased from RM186 million to RM167 million during the same period. This comparison was evidence of the users' acceptance of online services, which was encouraging, and indicated that the CiRM Web Enquiry had been implemented by considering the public needs.

(13) Sharing the Knowledge

The council has received many enquiries from neighbouring local governments since the CiRM system was successfully implemented. Local governments such as the Petaling Jaya City Council, Shah Alam City Council, Johor Bahru City Council, Sepang Municipal Council and Kajang Municipal Council have visited to discuss the opportunities and challenges faced by the council. These local authorities have been eager to know the lessons learnt from the system developers and senior managers in implementing the CiRM system.

5.4.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Subang Jaya Municipal Council

SJMC was among the earliest implementers of the CiRM system in Malaysia. However, unlike the second case, AJMC, the system developers benefited from the strategic partnership with different stakeholders, namely, consultants, government agencies and vendor, throughout the implementation process. It can be said that the system developers in the council succeeded in their implementation of the CiRM system and achieved the desired results by utilising the partnership strategy effectively.

During the early stage, the partnership with the consultants enabled the council developers to determine a clear vision for the CiRM system. The system developers had

also gained a considerable advantage from the lessons learned about implementation by other councils and the private sector. These lessons enabled the system developers to determine the feasibility of the CiRM system by identifying the users' requirements, prioritising the projects, and setting the implementation objectives and planning. These foundational tasks allowed the system developers to select a capable CiRM vendor as a partner to carry out the implementation activities upfront.

As the implementation proceeded, the vendor partnership enabled the system developers to develop a CiRM system that met the users' expectations. The system was piloted, installed and tested for acceptance to facilitate the implementation process. The end-users were then trained, letting them become familiar with the system, thus easing their day-to-day tasks. In addition, the system was promoted to the public. Although there was some resistance to change, through continuous training and publicity activities conducted among the staff and public, resistance was slowly overcome by the end-users themselves.

SJMC is the only case in this study that had implemented the CiRM by focusing on their back-end applications before moving to the front-end systems. Although this path was likely to be extremely costly, the strategy enabled the system developers to produce some measurable deliveries to the public within the given timeframe, which can be seen through the public satisfaction, and the increase in council revenue as well as the request for knowledge sharing from other local governments.

5.5 Case Study 5: The CiRM Implementation Process at Kulai Municipal Council

Kulai Municipal Council is located near Johor Bahru in the State of Johor. With a total area of approximately 288 square miles, the population in the council was estimated to be more than 130,000 people in 2008. The rapid development and population increase led to municipal status being accorded to the council in 2004. The status not only created a paradigm shift in the overall administrative management of the council, but also provided an opportunity to devise the best public delivery system.

Various forms of development had been planned in the council through strategic partnerships with federal or state governments or private (vendor) entities, especially for the CiRM system. The e-services (e.g., complaints system, downloadable form, online payment), web portal and kiosk payment (i.e., Express Micro Bill Payment) were among the CiRM solutions developed with vendor assistance. The CiRM kiosk system, for example, was implemented to provide the public with the ability to review information and make payments for the council's taxes.¹⁰³ This CiRM implementation indicates that achieving excellence in public service is vital to the council.

5.5.1 Forces Leading to the CiRM Implementation Process

The proposal to implement the CiRM system can be traced to the 2006 visit by the head of the Finance Department and his colleagues to the neighbouring local governments of Johor Bahru Tengah Municipal Council and Johor Bahru City Council that had implemented the CiRM kiosk system. The visitors were impressed by the ability of the system to deliver self-service capabilities for the public when paying council taxes. Following this experience, the head of the Finance Department met the Head of the System Analysts to discuss the opportunity to implement similar technology in KUMC.

After reviewing several studies, such as the federal government's framework and guidelines for local e-Government, the Head of the System Analysts determined that the kiosk technology was one of the channels that the council should provide. Moreover, this type of CiRM system was also one of the criteria that the federal government was using in assessing the quality of local governments' delivery of services.

¹⁰³ This innovative system was also supported by the council's existing Internet-based system, e-services and the traditional channels (e.g., face-to-face at the counter).

At the same time, the council received numerous complaints regarding the inefficiency of the services offered through the counter service system during the peak seasons of January to February and July to August every year. The public was demanding an alternative channel to use. Although there was an e-payment system provided through the Internet, the level of acceptance was not encouraging. This situation put pressure on the council to search for other innovative technology, by means of the CiRM system. In 2007, a decision was made to implement the CiRM kiosk system (i.e., Express Micro Bill Payment system) by outsourcing to a vendor. Table 5.9 summarises the internal and external forces leading to the implementation of the CiRM system in the council.

Type of forces	Category
Internal forces	<ol style="list-style-type: none"> 1. Increasing demand for departmental usage 2. Senior management pressured to deliver better service 3. Inefficiency of the services offered by the counter system
External forces	<ol style="list-style-type: none"> 1. Competition from other local councils' CiRM implementation initiatives 2. Attention from the federal government

Table 5.9: Forces leading to the CiRM implementation process at KUMC

5.5.2 Main Determinants of the CiRM Implementation Process

Through the in-depth interviews with two system developers, twelve main determinants were identified as crucial for the CiRM implementation at KUMC (see Table 5.10). The symbols “√” and “x” indicate the presence or absence of system developer involvement in the implementation process, respectively. These determinants were then chronologically arranged to form the framework of the CiRM implementation process (see Figure 5.5).

The CiRM implementation process at KUMC started with the role of the system developers (1), followed by the analysis of users' requirements (2), implementation objectives and planning (3), CiRM partnership (4), senior management support (5), system development (6), installation and user acceptance test (7), staff training (8), CiRM publicity (9), managing the resistance (10), vendor support (11), and CiRM post-implementation (12).

Determinants	CiRM implementation life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. Role of the system developers	✓	✓	✓
2. Analysis of users' requirements	✓	✓	✓
3. Implementation objectives and planning	✓	✓	✓
4. CiRM partnership	✓	✓	✓
5. Senior management support	✓	✓	✓
6. System development	✓	✓	✓
7. Installation and user acceptance test	✓	✓	✓
8. Staff training	✓	✓	✓
9. CiRM publicity	✓	✓	✓
10. Managing the resistance	✓	✓	✓
11. Vendor support	✓	✓	✓
12. CiRM post-implementation	✗	✗	✓

Table 5.10: Main determinants of the CiRM implementation process at KUMC

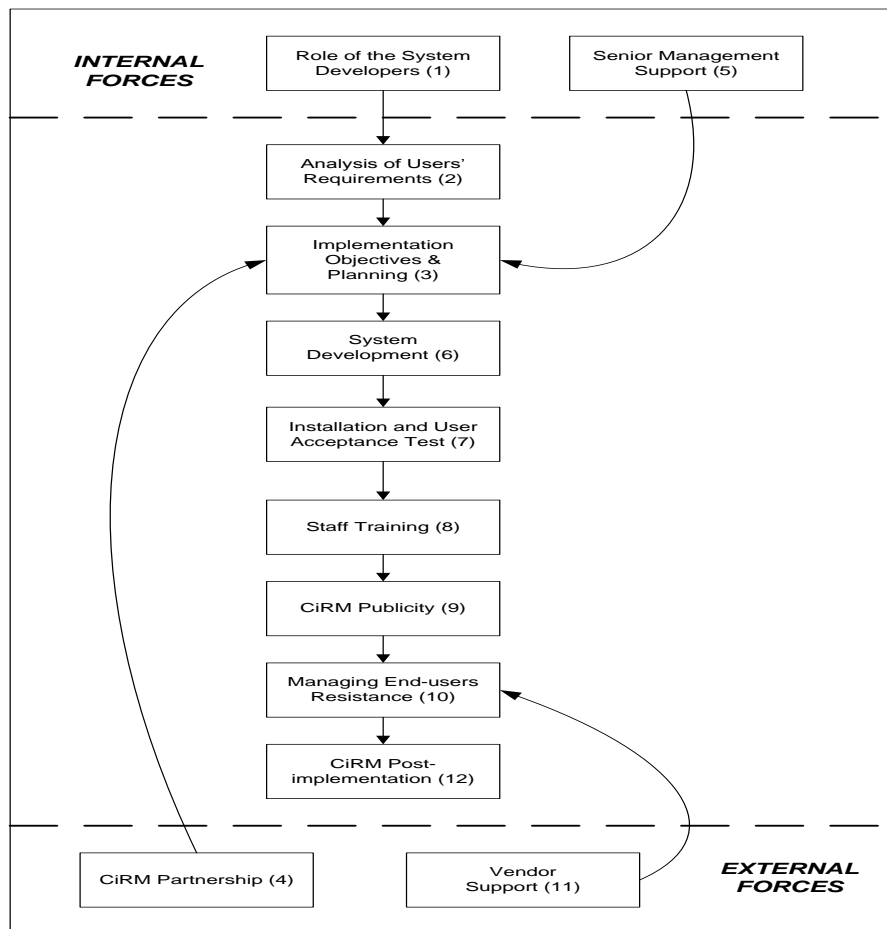


Figure 5.5: CiRM implementation process at KUMC

(1) Role of the System Developers

During the earlier stages of the implementation process, the Head of the System Analysts gained an initial understanding of the CiRM system. From the basic information that she received from the head of the Finance Department, she then contacted the relevant officers at the neighbouring councils, the Johor Bahru Tengah Municipal Council and Johor Bahru City Council, which had already implemented a similar system. This was followed by meeting the officers of both councils with the purpose of identifying how they implemented the system successfully. Additionally, a CiRM vendor who was responsible for implementing a corresponding system at both councils was contacted. Meeting the other councils and a CiRM vendor enabled the KUMC system developers to enhance their understanding of what would be involved in adopting a similar system.

The Head of the System Analysts then continued her role by ‘selling’ the implementation to the senior managers in the council. Together with the head of the Finance Department, they explained the benefits of implementation by using available communication media, which included the utilisation of e-mail and formal meetings. As both the Head of the System Analysts and the head of the Finance Department were also acting as senior managers in the council, the project was accepted albeit with a limited budget. Although the level of acceptance was not universal, it was believed that the position of the Head of the System Analysts contributed to the acceptance of the implementation. As the implementation proceeded, the system developers’ roles were largely focussed on the monitoring aspects such as reporting the project progress, attending meetings and solving any conflict between stakeholders.

(2) Analysis of Users’ Requirements

Identifying and analysing the system needs in the council were determined by the Head of the System Analysts. The requirements were gathered through the use of several approaches. Initially, public comments and complaints received from e-mail, telephone and face-to-face channels were used to identify the public needs. To develop greater understanding, the Head of the System Analysts also made observations concerning the inefficiency of the counter service systems.

Once the understanding of the public needs was accomplished, the Head of the System Analysts then moved forward to collect the internal end-users' needs. A series of interviews and discussions were held at this stage with the senior manager and several end-users in the Finance Department. The information gathered from the public and internal end-users was then combined to analyse the real requirements of the CiRM system. Continuous discussions were held between the Head of the System Analysts and the head of the Finance Department to develop a fuller understanding of the system's needs. However, the quality of the analysed information depended upon how successfully both the Head of the System Analysts and the head of the Finance Department established an understanding of the needs of the public and the internal end-users.

(3) Implementation Objectives and Planning

The implementation of the CiRM kiosk system was initiated by the joint effort of the Head of the System Analysts and the head of the Finance Department. The general objective was to overcome the problems experienced from the conventional payment method at the counter, thus reducing the number of customers waiting to be served. Additionally, the system would offer an alternative channel for members of the public who were unable to access the e-payment system. The system enabled the public to pay taxes to the council, especially outside office hours which was often a more convenient time.

The implementation was then planned on an incremental basis. In the first phase, the capability of the system was limited to accepting the taxation payments. The cost for the development and implementation was estimated at not more than RM 150,000 and the machine itself would only be capable of receiving payment in the form of cash or cheques. Most of the activities in the initial stages, such as lobbying senior management and analysing users' requirements, were conducted by the Head of the System Analysts and the head of the Finance Department. However, as the system began to be developed through UAT and publicity activities, other staff were invited to be involved.

The second phase of the implementation was scheduled to take place in 2008 and in this stage the council aimed to add other kiosk machines at strategic locations such as shopping complexes. Additionally, more methods of payment would be offered through

these machines, including credit and debit cards. The council also intended to integrate the existing back-end revenue and financial systems and to provide council information such as tourist information in the system. Through the widespread use of the CiRM kiosk system, the council aimed to minimise the use of the conventional counter system in the next five years. The system developers believed that this strategy would yield the advantages for the council in rolling out the CiRM technology: for example, administration and operation costs would decrease. For this purpose, however, the Head of the System Analysts understood that the continuous involvement of the senior management was needed, especially in approving the budgetary costs. She also knew that when the management realised the benefits of the system, only then would they agree to proceed with the second stage of the implementation. She shared her thoughts on this stage as follows:

“I have already informed the council’s management of the need to upgrade the kiosk system. However, the budget is still pending. The decision made by top-level management actually depends on the President’s support for the IT.”

(4) CiRM Partnership

Since the early stages, the Head of the System Analysts had built a relationship with the CiRM vendor as a partner in the implementation process. The relationship was built with the purpose of developing a more common understanding of the system, as the vendor had experience of implementing similar technology in other local councils. At the time of the implementation, Scan Technology was the only known provider of the CiRM kiosk system within the southern part of Peninsular Malaysia (i.e., Johor and Malacca). As a result, the council decided to work closely with this vendor to develop a viable CiRM solution. Scan Technology was then invited to demonstrate how their kiosk system would help the council deliver a better service. This was followed by regular meetings between the council and the vendor developers to openly discuss the issues faced during the implementation process, such as migration of the data.

(5) Senior Management Support

A required of support by the senior management was not encouraging throughout the implementation process. During the early stages, they had been persuaded by the Head of the System Analysts and the head of the Finance Department to agree to the implementation. Although both personnel were able to convince the senior managers

that the system would offer more benefits and would increase the quality of services, the senior management support was very minimal and extended only to the provision of a limited budget. The senior management, therefore, had not been totally convinced by the expected benefits of the system.

When the system went live, management continued to show a lack of support. The second phase of the implementation was approved but was behind schedule. No additional budget was approved for enhancing the CiRM kiosk system. It was believed that the system's benefits were only recognised by a small number of senior managers. Most of them did not really understand their role in increasing the level of implementation success.

(6) System Development

During the system development process, the Head of the System Analysts assigned another system developer (a programmer) to assist her in monitoring the vendor's progress in accomplishing the CiRM system. To facilitate the progress, both the council and vendor developers communicated with each other regularly through e-mail and telephone conversations.

The vendor's CiRM system had been customised by fulfilling the counter experience in receiving payments from the public. The system was simplified for the public by including development features such as multilingual interfaces and user touch-screen menus. These functions provided the public with the option to choose from the languages that are widely spoken in the Malaysian community (i.e., Malay, English and Chinese languages). When the language was chosen, the system would navigate them interactively by using the 11-inch capacitive touch-screen display. This screen format, however, was inexpensive touch-screen technology and had poor resolution. As a result, the developed system fell far short of its full capability. The Head of the System Analysts shared her insight into this factor as follows:

“Due to the limited budget, there was an amendment to the original proposal. The system only catered for the property tax payments. We had also asked the vendor to reduce the kiosk specification to the minimum ability for a CiRM system.”

(7) Installation and User Acceptance Test

At KUMC, besides developing the CiRM system, installing the system was another technical issue in its implementation process. The installation was performed by the vendor, Scan Technology, in a quite straightforward manner by setting up and wiring the kiosk machine to the electrical main plug, with no faults or errors in the system. The kiosk machine was installed next to the customer service counter to enable the public to find it easily. It was fitted in a booth to allow the individual user to conceal their interactions from others.

Once the kiosk was installed, the last technical task was the user acceptance test. The test was performed by inviting several staff to act in the roles of the public. The users were asked to conduct a transaction without any guidance, in order to determine whether or not the CiRM had met the needs of the public. This strategy was used to verify if the specified inputs that were entered would produce the correct outputs. For instance, if the individual entered RM100 and then loaded that amount of money onto the kiosk tray, the system would succeed if it was able to accomplish this task by printing out a record of the transaction with the correct figure.

(8) Staff Training

A suitable training course was determined by the joint effort of the Head of the System Analysts and the head of the Finance Department. Two types of training were given to the staff, namely, formal and informal training. All the training courses were conducted by a certified trainer from the vendor, Scan Technology.

In the formal training, two groups were required to attend the course, which had been designed according to the nature of the work for the particular staff. In the first group, the operational users, including the customer service staff, were trained on how to use and handle the CiRM kiosk system. A one day training session familiarised them with the kiosk machine. This would later enable them to guide the public to use it; for example, they were taught to use the touch-screen menu and its functions, and how to put banknotes and cheques on the tray. An officer from the Department of Finance was also trained on how to swap the secure full box of banknotes with an empty one, which would then be taken to the department for emptying and auditing.

In the second group, the system developers were guided through two days of training on the system backup and update procedures. For each course, all trainees were given training material that was relevant to their responsibilities. The training was conducted on the council premises. To complement the formal training, informal training was given upon request to those member staff that was still not familiar with certain aspects of the system.

(9) CiRM Publicity

Because the Head of the System Analysts and the head of the Finance Department realised that most of the public would access the CiRM kiosk system for the first time, a promotional activity was determined to attract the public to start to interact with the CiRM system. During the early stages, printed information in the form of a leaflet was distributed and a poster was displayed within the council premises. This useful information highlighted the functions provided by the system and the main facilities that were available.

As the public started to use the system, several staff from the Public Relations Division continued the promotional activities by making themselves available at the counter service. They assisted the public to use the system if any problems occurred. They also promoted the system at community events or road-shows being conducted by the council.

(10) Managing the Resistance

During the earlier stages, resistance was strong from those senior managers who were unfamiliar with the abilities of the system. Most of them were reluctant to change as the payment facility had already been provided either through the Internet or traditional counter service channels. They believed that the investment in the CiRM kiosk system would not produce any benefits to the council. Although a series of lobbying was conducted by the system developer to make senior managers aware of the system's benefits, the resistance to change was still high. As a result, at the time of this study, only one kiosk machine had been installed by the council. The addition of other machines was still pending, and this delay had affected the council's long-term plan to provide better services for the public.

The resistance to change was also detected among the customer service staff that experienced technical difficulties during the testing stage. Because the council had a single machine, the staff had no alternative when that machine was faulty such as when a banknote had become stuck in the slot machine. Consequently, the staff immediately thought that the system had failed. They even recommended the public to stay away from the system because it was not working properly. To reduce the tension, the system developer explained to the staff that the system had worked well. The staff were also given training to improve their knowledge and ability to assist the public if any problems occurred with the machine.

The council also detected resistance from the public even though the promotional activities were conducted regularly. The public were resistant to using the system for the following reasons:

- 1) The CiRM kiosk system offered limited functions. The availability of the service only focused on paying the council taxes in a stand-alone environment. For instance, when a payment was made, the system did not provide the facility to check the current balance of the taxes. Instead, the balance would only be known after three to five working days and by checking it through other channels such as the Internet or the counter service.
- 2) The system had been placed in the council premises, which was a non-strategic location. There were complaints from the public regarding the difficulty in using the system after office hours. This was because the public were not allowed to enter the council premises during those times because of safety and security reasons.
- 3) The majority of senior citizens faced difficulty in undertaking the tasks that were required by the system, such as using the touch-screen menus and loading banknotes or cheques into the machine tray.

In order to reduce the public's resistance, several actions were taken. These included:

- 1) Continuous promotion of the system to the public, which was conducted by the Public Relations Division.
- 2) Development of a plan to enhance the capability of the system as well as the installation of additional kiosk machines. The council intended to place these machines in strategic locations, outside of the council premises.

(11) Vendor Support

The system developers were generally satisfied with the vendor support provided throughout the implementation process. This satisfaction was assisted by three factors:

- 1) As the vendor developers had experience in particular aspects of the kiosk technology, the council benefited from the vendor support, especially during the critical stage of the implementation (system development). The vendor precisely informed the council developers about its product capability.
- 2) There was a series of training sessions conducted by the vendor for various levels of users. The training sessions enabled the users to overcome their anxieties about the system, thus enhancing their confidence in working with the system.
- 3) The same vendor developers who were responsible for the development and installation of the system came personally to do the maintenance work. Therefore, the problems were always solved immediately.

(12) CiRM Post-Implementation

When the CiRM system went live, the system was consistently checked to ensure that it worked properly. In particular, the kiosk machine was checked periodically to determine whether there was any error in the system's reading of the data. Additionally, since the system was not connected to any back-end system, the data contained in the machine needed to be updated daily via external devices such as a CD-ROM or pen-drive. Any error would be reported and resolved immediately by the system developers or by the vendor if the system developers could not identify a solution.

5.5.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Kulai Municipal Council

Along with the JBTMC (case study one) and the SEMC (case study three), KUMC was a recent implementer of a CiRM system in Malaysia. The system developers benefited from the early CiRM implementers such as the neighbouring Johor Bahru City Council. The lessons that had been learned enabled the KUMC system developers to quickly develop their initial understanding of the CiRM technology. This permitted the system developers to make a good decision by choosing the vendor who had implemented similar technology in other councils as a partner. The vendor relationship held many

potential advantages and permitted the system developers to develop a greater understanding and a collective plan for the CiRM implementation. As a result, the vendor partnership and the commitment shown by the system developers enabled the project to be delivered on time.

The findings from this case study suggest that the system developers' anxiety regarding the success of the CiRM implementation was not enough to counter the threats to implementation. In the years since the system was launched, the system developers have only been engaged with the implementation process at a minimal level and have been focused on maintaining the system. Progress in enhancing the system was made at a very slow rate. It was felt that the support provided by the senior management was inadequate and the CiRM implementation was not as successful as expected. Although there was the necessary support shown during the early stages (by approving funding, albeit with a limited budget), the support from the senior managers was not continuous. It did not, for example, extend to the support of system enhancement. Senior managers had not played their critical roles in the implementation process, which resulted in the developed system being far behind its full capability and being under-utilised.

5.6 Case Study 6: The CiRM Implementation Process at Batu Pahat Municipal Council

Batu Pahat Municipal Council is located in the northern part of Johor State. The administration area of the council is approximately 758 square miles, which encompasses an eastern and western district. In 2001, the federal government awarded municipal status to BPMC due to the rapid development and population increment within these two districts. It was estimated that in 2009, more than 205,000 people were living within this council's area and 60% of them were living in rural areas and small towns.

The annually increasing population forced the council to provide the public with the necessary services. The implementation of the CiRM system was one such strategy. In 2007, the council implemented a simple CiRM system to provide the public the ability to check taxation and download forms through the Internet. The system was, however, not well integrated with the back-end systems. For example, when the public checked their taxes, they would be connected to several major Internets banking websites for paying those taxes instead of going through the council CiRM system. Nevertheless, the system was supported by the traditional face-to-face interaction at the counter. The council used the in-house development approach to implement this system.

5.6.1 Forces Leading to the CiRM Implementation Process

The interest in CiRM implementation in BPMC came from the success of the IT Division in implementing the council's web portal in 2006 without involving any assistance from a vendor. The champion behind this effort was the system analyst who became the CiRM system developer himself. For the web portal initiative, the council received an award of recognition from the state government. As a result, the system developer was excited about the council's technical skills and was confident of enhancing the portal through a citizen-centred approach.

The system developer realised that since the council had received its municipal status, building a relationship with the citizens through innovative channels was not placed high on the council's agenda. For almost five years, the management had felt comfortable with the existing counter systems to provide the public services. Most of the council delivery systems such as revenue (e.g., taxes, licences) were still based on

the operating system on the mainframe computers.¹⁰⁴ As a result, the public could not engage with the council in a convenient way through advanced technology such as the Internet. Instead, they must make a trip to the council premises to pay taxes, purchase licences or request various information or forms. There were many complaints from the public that better services should be provided by means of technology. The council, therefore, was not efficient in facilitating its services and not accountable in communicating to the public whenever they so wanted. These factors forced the council to proceed to CiRM implementation. Table 5.11 summarises the internal and external forces that led to the implementation of the CiRM system in the council.

Type of forces	Category
Internal forces	1. Commitment from the system developer 2. Inefficiency in delivering the public services
External forces	1. Public expectation of better services provided by the council

Table 5.11: Forces leading to the CiRM implementation process at BPMC

5.6.2 Main Determinants of the CiRM Implementation Process

As a result of both internal and external forces, in 2007 the council began to concentrate on implementing a CiRM system. Nine main determinants were identified through in-depth interviews held with one system developer, as summarised in Table 5.12. The symbols “√” and “x” indicate the presence or absence of system developer involvement in the implementation process, respectively. An arrangement was then applied to these determinants to form the framework of the CiRM implementation process (see Figure 5.6).

The implementation process consisted of the role of the system developer (1), followed by the analysis of the users’ requirements (2), implementation of objectives and planning (3), senior management support (4), system development (5), staff training (6), CiRM publicity (7), users’ resistance to change (8), and CiRM post-implementation (9).

¹⁰⁴ The system was located in the host servers that connected to the mainframe.

Determinants	CiRM implementation life cycle adapted from the Lewin Change Model (Zand and Sorensen, 1975)		
	Stage 1: Unfreezing	Stage 2: Moving	Stage 3: Refreezing
1. Role of the system developers	✓	✓	✓
2. Users' requirements	✓	✓	✓
3. Implementation objectives and planning	✓	✓	✓
4. Senior management support	✓	✓	✓
5. System development	✓	✓	✓
6. Staff training	✓	✓	✓
7. CiRM publicity	✓	✓	✓
8. Users' resistance to change	✓	✓	✓
9. CiRM post-implementation	x	x	✓

Table 5.12: Main determinants of the CiRM implementation process at BPMC

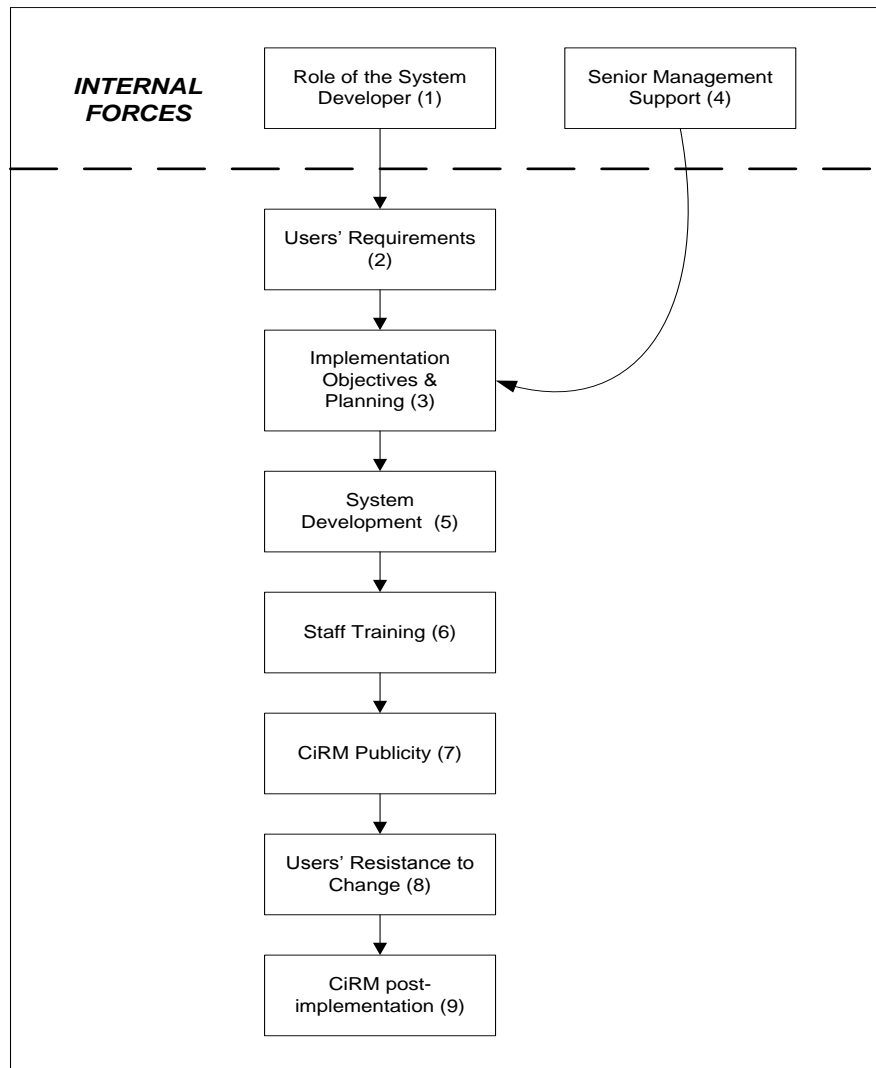


Figure 5.6: CiRM implementation process at BPMC

(1) Roles of the System Developer

The CiRM system was solely performed by the system developer, who utilised the system for a definite task such as checks for council taxes and licences. The system developer shared his thoughts on this point:

“My role during this project was trying to highlight the advantages of the information technology itself to the council’s staff and management. I am the one who took the risk because it was only me in the IT division at that time.”

The system developer himself was the only one who had an interest in pushing the implementation activities forward. He generated the idea of CiRM implementation after successfully implementing the council’s portal system. His commitment to accomplishing the implementation activities was maintained even though the project did not receive sufficient funds from the senior management. This can be seen through his efforts in performing the sub-implementation tasks and maintaining the system.

(2) Users’ Requirements

Identifying the requirements is critical to the overall success of the CiRM implementation. When it is conducted thoroughly, it will give the end-users a clear understanding of what can be expected from the system implementation. However, no interaction between the system developer and the end-users occurred during this process at BPMC. The CiRM requirement was poorly conducted by the system developer. Neither the internal users nor the local public were invited to become involved directly with the project. The system developer himself acted as the public who wanted to check the current balance of the tax owed to the council. Additionally, he had no idea of who would be the prospective users of the internal system. The system developer shared one such instance as follows:

“It’s all up to me. I have made assumptions that I was one of the public who intended to obtain a service from the council, checking the current total of compound and tax payable without having to go the council premises. So, any staff could act and use the system too.”

The system developer only referred to the existing operational system, namely the revenue system developed in the mainframe environment, to understand the system’s work processes and its structure. It was clear that the system developer was only focused on the database aspect, and did not adequately understand the requirements of the users concerning the CiRM system.

(3) Implementation Objectives and Planning

The general plan of the implementation was to improve the public delivery system through the use of a CiRM system. The system would allow the public to quickly gather their council tax information through the Internet technology. The system developer hoped that the use of the system would reduce the overcrowding that occurred when the public waited to be served in the council premises through the conventional counter system. However, no plan was established by the system developer to implement the CiRM system. The system developer shared his experience of this as follows:

“I did not plan it out. I just made it happen, to provide evidence that the system would offer some benefits to us [the management and staff].”

The CiRM implementation then moved forward despite the system developer not planning it properly. He himself managed to run the implementation activities upfront, such as performing the CiRM technical tasks and promoting the system. The system then went live four months behind the expected schedule.

For the long-term plan, the system developer intended to implement an Internet-based help desk and CiRM kiosk payment. The implementation of the help desk system, for example, would help the council to solve public enquiries by using an ‘automatic agent’; that is, it would act as a single point of contact. However, to ensure that the solutions function smoothly and meet the requirements of the council, the system developer felt that the existing ICT infrastructure would also need to be improved. As he explained:

“This plan could not succeed if we lag behind the ICT infrastructure such as a broadband network to meet the higher number of users and the data centre requirements to support all the necessary applications.”

The system developer also believed that the commitment of senior managers was necessary to support this complex plan. Their role in allocating adequate funds and hiring IT staff were necessary to successfully implement the CiRM system.

(4) Senior Management Support

At BPMC, lobbying the senior management was done solely by the system developer. However, he faced a challenge whereby the support from the senior management was critical in the CiRM implementation. The interview revealed that none of the senior managers from the council’s departments, nor the council members or the President,

were interested in developing the system. They were interested in gaining the system's outcomes, by having the system itself or attracting recognition from other government agencies. As the system developer explained:

“The senior management here is less sensitive about the function of IT in providing the quality of service to public.”

He then further described:

“I did not receive the commitment from the council's management. For example, in the BPMC's web portal case, once the website had been awarded the best local governments' portal in Johor, only then did the senior management realise its benefits. A similar situation happened here in this project [CiRM system].”

Although the senior managers were persuaded to give their support to completing the CiRM project, they did not give their full commitment. They only agreed to upgrade the hardware specification for minimum server requirements. Overall, the senior management was not receptive to the idea of the CiRM implementation, and did not realise the benefits that the system could offer.

(5) System Development

During this stage, the system developer carried out the development process by himself. His commitment towards accomplishing these tasks was high, despite certain challenges such as the lack of equipment and inadequate knowledge of open source software. The CiRM system was developed using open source software, PHP. Since the system had not manipulated any public data, no complex database structure had been built. Instead, the system developer created a simple scripting SQL syntax for retrieving the public data from the revenue system. To complete the development task, however, the system developer faced two issues:

- 1) He had difficulties in using the PHP programming language as the knowledge to run the language was insufficient.
- 2) The structure of the revenue system had to be thoroughly analysed to determine which particular 'fields' would be used in the CiRM system.

(6) CiRM Training

At BPMC, the significance of sufficient training was also overlooked. The system developer felt that user training did not have any impact on the level of success of CiRM implementation. As he explained:

“The scope of this system was simple, providing the services [check the council taxes and licences through the Internet] and did not deal with the internal users. I did not see the need for training ... just a notification and a demonstration with the council’s department members [senior managers or their representatives] at a meeting.”

As there was no specification of the users’ needs at the introductory stage, no formal training sessions were conducted by the system developer either. Instead, the end-users and senior managers were only informed about the system’s abilities through the council meetings.

(7) CiRM Publicity

The promotion of the system for public usage was performed independently by the system developer. The public was informed of the CiRM system through the announcement of its service on the council’s web portal. However, no step-by-step instruction manual on how to use the system was available. Instead, the public had to explore the system by themselves, to discover its functionalities and obtain experience. As a result, the number of individual members of the public who engaged interactively with this system was not encouraging. The system developer explained this point as follows:

“I have received a lot of complaints from the public to provide them with the facility for retrieving their current tax assessments. Instead, that service is already provided through our portal. They are not aware of the latest information we had located on this website.”

(8) Resistance to Change

The council faced strong resistance from the end-users throughout the implementation process. This indicates that there was a lack of user acceptance concerning the CiRM system. The interview revealed that several issues had originated from the end-users’ resistance to change, from both the internal users and the public:

- 1) No comprehensive soliciting of requirements was conducted with either of the end-user groups during the early stage. As a result, they did not have any idea concerning the concept of the CiRM or the process being followed for services offered by the system.
- 2) The staff were not informed about the system’s project and its progress. Although several communication methods, such as bulletins and e-mail, were readily available for use, they were not fully utilised by the system developer.

- 3) The system developer was unable to perform all the required activities alone in the CiRM implementation. For example, although he had made an effort to promote the system, the public were not aware and were not interested in taking advantage of the facility. Participation from other departments, such as the customer service division, was therefore needed to roll out the promotional activities necessary to engage the support and commitment of the public and the council's senior management.

(9) CiRM Post-Implementation

The system developer continuously maintained the operation of the CiRM system once it went live for usage. The purpose was to make sure the system would deal with the public enquiries correctly. For example, the network connection between the CiRM and the revenue systems was consistently checked to ensure there was no fault or error in its connectivity. The system developer also made a simple enhancement one year after the CiRM system had been operating. This was because the public had requested a search facility using the national identity number, as the search function in the existing system was limited to the council's account number.

Nonetheless, one important aspect that the council had likely overlooked at this stage was coordinating the balance of the CiRM and the back-end revenue systems. Although the system developer had already set up the configuration works from the CiRM to the existing public data in the revenue system located on the mainframe server, there was a problem with the response time. Sometimes, the back-end operation did not resolve the CiRM system enquiry in an effective way. As a result, the resolution time for the public in retrieving their information was not encouraging. The interview revealed that the system developer was excited to implement and enhance the CiRM system, but had neglected to fix the appropriate back-end support system. He had upgraded the server ability for the CiRM system, but not for the mainframe server.

5.6.3 The Roles of System Developers and Their Influence on the CiRM Implementation Process at Batu Pahat Municipal Council

Successful implementation of the CiRM system requires a competent system developer; however, the implementation can be hindered if he or she alone is responsible for performing all the required tasks. BPMC was one such case that was solely dependent

on one system developer. Although the council was one of the recent implementers of the CiRM system in Malaysia, the system developer had not reviewed or gained the benefits from other local governments that had experience in implementing the system.

The CiRM project was eventually completed because of the active role played by the system developer. He had developed the system and led the implementation until its completion despite facing numerous difficulties, which included lack of full support by the senior management, lack of equipment, and inadequate knowledge of open source software.

Because of these issues, the implementation in the council resulted in very slow progress. The developed CiRM system was under-utilised, with only a few of its capabilities exploited. It was limited to providing the public with a review of some council transactions such as taxes and licences through the Internet. Although the system had been upgraded during the implementation process, it was still not being employed to its full capability.

BPMC is the only case in this study that implemented the CiRM system through in-house development. This in-house development was poorly planned. During the earlier stages of the implementation process, the benefits of CiRM were only realised by the system developer, and not by the senior management and users in the council. The support provided by the senior managers was very limited in respect of the provision of funds, which were insufficient, and this lack of support was believed to have endangered the implementation of the system. The senior management had not played their critical roles in the CiRM implementation, as they were not interested in developing the system and just wanted to have the system's outcomes.

The planning of the requirements of the CiRM system was poorly conducted by the system developer in charge. He did not clearly understand the requirements of the users of the system and neglected their involvement during the implementation of the system, which caused resistance to change. When the system went live, the system developer overlooked the significance of CiRM training. As a result, only a small number of users among the internal staff and public had realised the capabilities that were offered by the CiRM system.

5.7 Summary

This chapter presents the system developers' experience in implementing the CiRM system in six local governments (with municipal status) in Malaysia. The findings confirm that the responsibilities of the system developers in implementing the CiRM system are onerous. They are involved with the various activities during the *unfreezing*, *moving* and *refreezing* stages of the implementation process. In this respect, it can be concluded that the CiRM implementation determinants are subject to where and how the initiative has been managed and implemented by the system developers responsible. These determinants also vary according to the nature of CiRM applications as well as the number of system developers involved in the project.

One important finding that was similar across all the cases, as well as the pilot studies is the importance of the organisational determinants concerning the implementation of the CiRM system. Amongst the determinants are the supports from the senior management, implementation objectives and planning, training, vendor support, promoting the CiRM system to the public, and managing the resistance. In addition, new determinants that were not identified in the literature review or the pilot studies have emerged during the primary fieldwork. These determinants include the partnership strategies between the local governments, vendors, consultants and public agencies, and CiRM post-implementation. Therefore, it can be concluded that CiRM implementation in local government relies heavily on the connection between the organisational and technical determinants in forming a complete sequence of the implementation process.

The cases have developed a greater understanding of the process of CiRM implementation in local governments. The understanding was developed through the encapsulation of the process of CiRM implementation in all six cases of local governments. In addition, the proposed theoretical framework has permitted the study to identify the similarities and differences between the cases. To progress this aspect, the following chapter compares the case studies of the six local governments' CiRM implementation processes.

Chapter 6

The Malaysian Local Government Citizen Relationship Management Implementation Process Framework

This chapter presents the framework of CiRM implementation process in Malaysian local governments. The framework encapsulated the experience of system developers in implementing CiRM system. It was developed based on the emerging theory of CiRM implementation process. From this theory, a set of organisational determinant (twelve of them) that crucial in the process of CiRM implementation has been identified. The determination of these determinants was gone through the cross-analyse between all six local governments case studies. The similarities and differences between these organisations enable a general understanding of the CiRM implementation process in Malaysian local government to be developed.

The chapter is structured as follows. The first part summarises the emerging core and sub categories that have emerged from the analysis. The second section presents the forces (i.e., internal and external factors) that lead to CiRM implementation for all six case studies. The third section addresses the comparison of the core determinants across the local governments during the *unfreezing*, *moving* and *refreezing* stages of the CiRM implementation process. The comparison was sought to understand the phenomena of the CiRM implementation process through the common determinants that have occurred in all cases. This comparison then led to the development of the theory on the CiRM implementation process in Malaysian local government as described in part four. Finally, the fifth part summarises the chapter's main points in developing this CiRM implementation process theory in local governments in Malaysia.

6.1 The Emerging Core and Sub Categories of the In-Depth Cross Case Analyses

Moving from the within-case analysis (as presented in Chapter 5), the data analysis process continues with Phase 3, cross-case analysis. Several core and sub categories have emerged from this phase through the employment of the Straussian GTA (Strauss and Corbin, 1998), as summarised in Table 6.1 (see also Appendix VI). The symbol “√” and “x” indicates the presence or absence of system developer involvement in the implementation process, respectively. Tables 6.2 until 6.6 summarises the relationship between the core and sub-categories which was structured based upon the Lewin’s model (Zand and Sorensen, 1975).

6.2 Internal and External Forces of the CiRM implementation

The analysis starts with developing the category of ‘forces’ that have influenced the CiRM implementation (see Table 6.3). The main internal forces were caused by the commitment from the local governments to the citizen approach, as well as departmental demand in delivering good services to the public. Both forces were pressured senior management to deliver excellent services by means of building the relationship with the public. These three internal forces were more dominant in JBTMC, AJMC and SJMC (i.e., there was a need to encourage and improve the public participation). In addition, there were also two other internal forces that shaped the CiRM implementation:

- 1) Poorly managed public data with no integration between the back-end and the front-end systems; and
- 2) Inefficiency in delivering services to the public.

The case studies showed that the internal forces were developed as a result of complaints and suggestions from the public. The public was not only increasingly demanding for a variety of the service delivery channels, but also demanded for the services to be efficient. In addition, additional external forces are:

- 1) The intention and direction from the federal and (or) state government concerning CiRM, particularly in achieving the local e-Government target;
- 2) Proposal from the consultant company; and
- 3) Competition from other local governments CiRM implementation initiatives.

No.	Core Categories	Sub Categories	Primary Case Studies in Malaysia					
			JBTMC	AJMC	SJMC	SEMC	KUMC	BPMC
1.	Organisational context	Year of municipal status granted	✓	✓	✓	✓	✓	✓
		Location	✓	✓	✓	✓	✓	✓
		Year of implementation	✓	✓	✓	✓	✓	✓
2.	CiRM lifecycle	Prior to CiRM	✓	✓	✓	✓	✓	✓
		Current CiRM employed	✓	✓	✓	✓	✓	✓
3.	Forces towards CiRM implementation	Internal forces	✓	✓	✓	✓	✓	✓
		External forces	✓	✓	✓	✓	✓	✓
4.	Determinants during the <i>Preparing</i> emphasis (Stage 1 – Unfreezing)	Role of the system developers	✓	✓	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓	✓	✓
		Implementation objectives	✓	✓	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓	✓	✓
		Users' requirement analysis	✓	✓	✓	✓	✓	✓
		CiRM partnership	✓	✓	✓	✓	✓	✗
		CiRM procurement	✓	✓	✓	✓	✗	✗
		System development	✓	✓	✓	✓	✓	✓
		Staff training	✓	✓	✓	✓	✓	✓
		Manage the resistance	✓	✓	✓	✓	✓	✓
		Vendor management	✓	✓	✓	✓	✓	✗
CiRM publicity	✓	✓	✓	✓	✓	✓		
5.	Determinants during the <i>Learning</i> emphasis (Stage 2 – Moving)	Role of the system developers	✓	✓	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓	✓	✓
		Users' requirement analysis	✓	✓	✓	✓	✓	✓
		CiRM partnership	✓	✓	✓	✓	✓	✗
		System development	✓	✓	✓	✓	✓	✓
		Staff training	✓	✓	✓	✓	✓	✓
		Manage the resistance	✓	✓	✓	✓	✓	✓
		Vendor management	✓	✓	✓	✓	✓	✗
		CiRM publicity	✓	✓	✓	✓	✓	✓
6.	Determinants during the <i>Stabilising</i> emphasis (Stage 3 – Refreezing)	Role of the system developers	✓	✓	✓	✓	✓	✓
		Senior management support	✓	✓	✓	✓	✓	✓
		Implementation planning	✓	✓	✓	✓	✓	✓
		Users' requirement analysis	✓	✓	✓	✓	✓	✓
		System development	✓	✓	✓	✓	✓	✓
		Installation	✓	✓	✗	✗	✓	✗
		Staff training	✓	✓	✓	✓	✓	✓
		Manage the resistance	✓	✓	✓	✓	✓	✓
		CiRM partnership	✓	✓	✓	✓	✓	✗
		Vendor management	✓	✓	✓	✓	✓	✗
		CiRM publicity	✓	✓	✓	✓	✓	✓
CiRM post-implementation	✓	✓	✓	✓	✓	✓		
7.	Implementation outcome	-	✓	✓	✓	✓	✓	

Table 6.1: Summary of the emerging core and sub categories of the cross case analyses.

Core categories	Sub-categories	Primary Case Studies					
		Johor Bahru Tengah Municipal Council (JBTMC)	Ampang Jaya Municipal Council (AJMC)	Sepang Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
Organisational context	Year of receiving Municipal status	2001	1992	2005	1997	2004	2001
	Location	Skudai, JOHOR (city area)	Ampang, SELANGOR (city area)	Sepang, SELANGOR (rural area)	Subang Jaya, SELANGOR (city area)	Kulai, JOHOR (rural area)	Batu Pahat, JOHOR (rural area)
	Year of implementation	2005 – 2009	2008	2007	2008	2008	2007
CiRM lifecycle	Prior to CiRM	Non-integrated public system through the traditional channels (i.e., conventional counter system, telephone, e-mail, mail).	Non-integrated public system through the traditional channels (i.e., conventional counter system, telephone, e-mail, mail).	Non-integrated public complaints.	Several back-end applications (i.e., Integrated Revenue Management Systems, Integrated Financial Management Systems), had been developed but, not for their front-ends.	Had implemented the e-Services (i.e., paying the taxes, compounds and licences through the Internet)	Non-integrated public services through the traditional channels (i.e., conventional counter system, telephone, electronic mails, mail).
	Current CiRM employed	A CiRM system, which contains several applications (e.g., complaints, payment and tax review) in single database. The system was also connected to the council portal, which was developed by different vendors.	CiRM system, which contains several services (e.g., complaints, taxes) integrated by GW Intech. The system can be accessed through the Internet	E-Complaints system by VSO Sdn Bhd that integrated the channels of Internet, telephone, fax, written letter or electronic mail.	A complex CiRM system with an integrated database by Array Technology that connects to the council portal (i.e., Web Enquiry).	A simple CiRM with no real-time integration with its back applications (i.e., Kiosk payment system), by Scan Technology.	A simple CiRM with limited integration with its back-end applications by in-house development.

Table 6.2: The organisational context and lifecycle of the CiRM implementation

Category	Sub-Category	Primary Case Studies					
		Johor Bahru Tengah Municipal Council (JBTCM)	Ampang Jaya Municipal Council (AJMC)	Selangor Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
<i>Forces towards CiRM implementation</i>	<i>Internal forces</i>	Senior management was pressured into delivering better services	Departmental demand for better improvement	Commitment of the council towards citizen centric approach	Commitment of the council towards citizen centric approach	Increasing demand from the department	Commitment from the system developer towards citizen centric approach
		Increasing demand for departmental usage	No data integration between the systems	Irresponsive communication for users	The need to better manage its public data	Senior management was pressured into delivering better service	Inefficiency of delivering the public services
		No data integration between the systems	Senior management was pressured into delivering better services	Inefficient complaint handling	Department demands to improve public services		
	<i>External forces</i>	Citizen demand for better services	Attention and direction from the central government	Attention and direction from the state and federal government	Attention and direction from the federal government	Competition from other local governments CiRM implementation initiatives	Public demand for better services
		Attention from the federal government	Citizen demand for better services	Public demand for better services	Proposal from the consultant company	Attention and direction from the state and federal government	
		Competition from other local governments CiRM implementation initiatives			Public demand for better services	Public demand for better services	

Table 6.3: The forces towards the CiRM implementation process in the local government

Categories	Primary Case Studies					
	Johor Bahru Tengah Municipal Council (JBTCM)	Ampang Jaya Municipal Council (AJMC)	Selangor Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
<i>Role of the system developers</i>	The Head of the System Analysts led the project by working together with other system developers and a few senior managers. She and her team then visited and reviewed several local governments which had implemented a similar CiRM technology	The Head of the System Analysts and several senior managers worked together with two government agencies (i.e., MAMPU and MHLG) for the initiative. He also led the system implementation by gaining the internal support within the IT department.	The Head of the System Analysts was amazed with the top management vision. He led the system implementation by working together with the consultant and project team members.	The Head of the System Analysts led the system implementation by working together with a few developers, senior managers and consultant for the initiative. He and his team have searched for the best practice on how the integration between the back-end and front-end applications and its work processes are carried out by other earlier implementers (e.g., several councils, private sector).	The Head of the System Analysts led the system implementation by working together with the Head of Finance Department for the initiative. Both have reviewed, discussed and met with several local governments and their vendors that have already implemented a similar system.	The programmer led the system implementation, but was unable to perform the activities required on his own.
<i>Senior Management Support</i>	Insufficient senior management support. CiRM benefits were only realised by a small number of senior managers.	Insufficient senior management support in the early stage due to the managers' department not realising the benefits of CiRM.	The role played by the President in supporting the project was seen as the key sponsor of the implementation. Support from other senior managers, however, was not universal.	Senior management was aware of the CiRM and the implementation was given a priority. The support was excellent and their commitment was presented, e.g., regular meetings for the initiative	Inadequate senior management support. The support was very minimal and the provision of funds was limited.	Insufficient senior management support. They were not interested in developing the system, e.g., no funding allocated
<i>Implementation Objectives</i>	The objectives were to improve the public service through the use of the Internet, enhance the efficiency of data management, and to educate the public and staff by providing them with the latest technology.	The objectives were to build public services with state-of-the-art technology (i.e., Internet, kiosk), to create a friendly government through a centralised database, and to align the council's administration with the federal government IT policy.	The objectives were to integrate all complaint mediums into a single access channel (i.e., Internet).	The objectives were to provide better services, develop a user friendly system, implement data shared, and educate all level of staff and public with state-of-the-art technology (i.e., Internet and kiosk).	The system was to overcome the conventional system's counter problem, thus, would offer alternative channel options for the public (i.e., kiosk).	The objective was to improve the public delivery system through the Internet.
<i>Implementation Planning</i>	Planning was initiated by the system developers	Planning was initiated by the MAMPU and MHLG towards a standard local e-government. AJMC was chosen as the blueprint for Selangor's local government.	Planning was initiated by the Head of the System Analysts who was assisted by a consultant.	CiRM planning was initiated by a consultant and system developers. The plan was to implement the CiRM system once the council back-end applications had been integrated. IT infrastructure was also included in this plan.	Planning was initiated by the Head of the System Analysts and Head of Finance Department.	There was no plan established in implementing the system.

<i>Users' Requirements Analysis</i>	User requirements were determined by system developers through a series of interviews with the end-users and by collecting public complaints.	There were no user needs conducted. The system developers decided to use the requirements provided by the government agencies	User needs were identified by the system developers through a series of interviews with the end-users and by collecting public comments.	User requirements were identified by system developers and consultants through interviews, workshops and focus groups.	System needs were determined by the Head of the System Analysts through the use of public comments.	Not much work on system requirements has occurred. The system developer only identified a new work process based on the existing system.
<i>CiRM Partnership</i>	Due to the insufficient knowledge and skills on the CiRM system, the Head of the System Analysts and senior managers made decision to ask vendor to be a partner. They have also engaged with several local governments to gain their experience in implementing a similar system.	The MAMPU and MHLG forced the council to implement a CiRM system with vendor assistance. The vendor was already appointed by these government agencies.	The top management invited federal officer to investigate the MSC audit of the council. Several vendors were also contacted based on their previous partnership with the council.	A capable consultant was invited to the council to give a clear direction of the implementation (i.e., long-term plan). The management also agreed to employ a vendor (i.e., open tender) with the aim of increasing the council's productivity, improving the system developers' skills and knowledge, and accelerating the implementation within one year.	The Head of the System Analysts and Head of the Finance Department asked several CiRM vendors to present their proposal on the system.	-
<i>CiRM Procurement</i>	The vendor was chosen based on their reputation (e.g., had successfully implemented a similar system in other local councils), ability (had expert staff, and system's features (i.e., fulfil the user requirements).	Since the federal government had already appointed a vendor, there was no selection criteria set-up at the council level.	Through the quotation approach, the CiRM vendor was chosen because they had performed excellently on their previous project, attractive total price quoted and had experienced in developing a similar system in other councils.	Through the open-tender, the vendor was chosen based on the criteria of financial stability, reputation and expertise.	-	-
<i>System Development</i>	A MAMPU guideline was used to create the system's standard	The MAMPU and MHLG ordered the vendor to use the federal guideline (i.e., MAMPU)	The system developers had set specific requirements for vendors to follow, which includes the use of open source language for cost saving and MGPWA criteria for responsive design.	A MAMPU guideline was used to create the system's standard. The vendor developers had carried out the development process at the council premises	Development strategy was based on the counters experience in handling the public interaction. A vendor experienced in developing similar technology was also used to develop some basic applications.	Not much work on development has occurred. Hardware (i.e., server capacity) was not upgraded

Staff training	The system developers ensured that anyone whose work was affected by CiRM was properly trained to make them familiar with its operation.	Training strategies were determined by the joint effort between the system developers and the government agencies (i.e., MAMPU and MHLG) for those affected by the system.	Training strategies were determined by the Head of the System Analysts and managers from participating departments.	Training strategies were identified by the senior managers and developers	Training strategies were determined by the Head of the System Analysts and Head of Finance Department	No training strategies were identified.
Vendor Management	Several prototype applications were developed and training courses were provided by the vendor.	Training courses were given for various levels of users.	Product consultation was given in customising the CiRM system. It has also conducted training courses for various levels of user.	Several prototype applications were developed and training courses were provided by the vendor.	Product consultation was given in customising the CiRM system. It has also conducted training courses for various levels of user.	–
Manage the Resistance	Resistance was strong from the users who were unfamiliar with the ability of the system.	Resistance was strong from the users and senior managers. They did not have any idea about the CiRM concept.	Resistance was strong from the end users due to they were forced to use the system and the introduction of many work processes in the system.	Resistance was strong from the users. They did not have any idea about the CiRM concept.	Resistance was strong from those senior managers who were unfamiliar with the ability of the CiRM.	The degree of resistance to change was high (i.e., the system requirements were poorly conducted, the staff were not informed about the project)
CiRM Publicity	Several promotional activities were identified by the Department of Management Services (i.e., through the council's portal, text information, staff assistance, attractive incentives and a combination of these methods).	The MAMPU and MHLG identified several promotional activities, which included the council's portal, brochures, bulletin and magazine.	System developers and managers identified campaign activities, which included the road shows, and disseminating incentives and leaflets concerning the system to the public.	System developers and managers identified campaign activities, which included road shows, offering incentives and disseminating leaflets concerning the system to the public.	The Head of the System Analysts and Head of Finance Department determined several campaign activities through the 'introductory information' in a form of printed information and assistance from the customer service staff.	There was no promotion activity established by the council.

Table 6.4: Cross-case comparison of the emerging determinants during the *Unfreezing* stage of the CiRM implementation

Categories	Primary Case Studies					
	Johor Bahru Tengah Municipal Council (JBTCM)	Ampang Jaya Municipal Council (AJMC)	Selangor Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
<i>Role of the system developers</i>	The Head of the System Analysts utilised a communication medium to keep the end-users well informed of the system benefits. This included the use of electronic mail, bulletin and briefing method.	The Head of the System Analysts communicated to end-users and senior managers through the use of bulletins, electronic mail and internal portal to involve them and make them understand its implementation. Soft communication skills were also used in explaining to them about the system's benefits.	System developers made effective communication of methods to staff (e.g., Friday morning session, e-mail) and senior managers (e.g., monthly meetings) in explaining the system's benefit.	System developers communicated (i.e., meetings, electronic mail and bulletins) to the end-users and senior managers in selling the idea of CiRM implementation. The Head of the System Analysts was also involved in the steering committee.	The Head of the System Analysts communicated to senior managers through the use of electronic and formal meetings to explain the system's benefits.	The system developer was the only person who was interested in the implementation.
<i>Senior Management Support</i>	The responsiveness and commitment (e.g., allocating funding and upgrading the hardware) was granted when the senior managers were successfully persuaded by the system developers through the explanation and justification of the need for the system.	The role played by the President was seen as the key advocate of the implementation. He influenced all staff from the operational to the senior management level to become involved in the project (e.g., endorsed a memo).	The implementation proceeded smoothly once the senior managers realised the benefits of the system (e.g., monitoring the project's progress).	Senior management support was responsive and supportive throughout this period.	CiRM benefits were realised by a few senior managers. Senior management support was limited; they were just interested in having the project's outcome.	Senior managers were not interested in developing the system
<i>Implementation Planning</i>	The implementation activities were carried out by joint effort between the system developers and project team (i.e., end-users, and senior managers from the participating departments). To minimise any failure, the system was planned on incremental basis (i.e., one year time frame).	The system was planned on incremental over three years. The implementation activities were carried out by structuring the steering committee, which consisted of senior managers from participating departments and the system developers	The system was developed on an incremental basis with a predetermined timeframe for each task. The implementation activities were carried out by structuring the project team which included several end-users. The Head of the System Analysts acted as the project manager in this team while the other system developers carried out the implementation tasks (e.g., analysing the user needs)	CiRM planning was developed in a phased implementation by focusing on some essential areas. The implementation activities were carried out by the project team. The Head of the System Analysts acted as the project manager in this team	CiRM planning was developed on an incremental basis. The implementation tasks were carried out by the system developers and the Head of Finance Department.	There was no plan for implementation of the system.

<i>Users' Requirement Analysis</i>	Several meetings and workshops were conducted with senior managers and end-users in getting a clearer picture of the system's requirements.	Several discussion sessions were conducted between the council and vendor developers to understand the system's work process.	Several discussion sessions were conducted between the system developers and end-users to understand the new work process of the system.	An analysis was carried out by system developers and consultants on users' expectations concerning the new work process of the CiRM system.	Observations were made by Head of the System Analysts on the inefficiency of the counter services. A series of discussions were held with the Head of Finance Department.	The system developer had not understood the needs of the users system. No further analysis conducted.
<i>CiRM Partnership</i>	The system developers established the relationship with the chosen CiRM vendor.	The senior managers and system developers recognised the government agencies and vendor expertise as the faster way to implement the CiRM system. The Head of the System Analysts mediated the relationships between both external stakeholders.	The system developers established the relationships with the chosen CiRM vendor and consultant. The Head of the System Analysts mediated the relationships between both external stakeholders.	The system developers established the relationship with the chosen CiRM vendor.	The system developers established the relationship with the chosen CiRM vendor.	–
<i>System Development</i>	System developers and vendor paid careful attention to the translation of the user requirements into a visual design (i.e., prototype) before developing the real working systems. Integrating all separated data into a centralised database was also conducted at this stage.	Neither the system developers nor the vendor has proposed a proper migration plan.	System customisation was based on the Corporate Planning Division's experience in handling public complaints. Application prototypes were then created by the vendor and presented to the internal users (i.e., previous comments were used to further improve for the next session).	Application prototypes were created several times before developing the real working systems.	The vendor had customised the CiRM system that catered for and fulfilled the council's needs.	The system developer had developed the system (i.e., in-house development), but, it was not employed to its full capability.
<i>Staff training</i>	Formal and non-formal training were conducted by the vendor's certified trainer.	Formal and non-formal training were conducted by the vendor's certified trainer. The trainees were provided with manual documentation before starting their session.	A schedule of formal training sessions were conducted by the vendor's certified trainers. A simpler version of the instruction manual was also provided to the users for their future reference.	Formal and non-formal training were conducted by the CiRM vendor with proper materials.	A full day formal training session was conducted by the vendor	No training activity was conducted by the system developer. He felt that user training would not have any impact on the success of the CiRM system.

<i>Vendor Management</i>	Product and training support were provided through a series of regular visits.	Collaborations were established between both AJMC and GW Intech in system training.	Product and training support were provided through a series of regular visits. Collaboration was established with both SMC and VSO Sdn Bhd.	Product and training support were provided through a series of regular visits. Collaboration was established with both SJMC and Array Technology.	Collaboration was established with both KUMC and Scan Technology (i.e., product support).	–
<i>Manage the Resistance</i>	Resistance from the internal users was found to be minor through the support (e.g., training) and strategies (e.g., communicating) that were conducted by the system developers. However, there was high resistance to change from the public. Aggressive publicity was required.	Resistance to change from end-users was found to be essential due to the parallel operation and the introduction of new procedures in the CiRM. Through the management and system developers' support, the resistance was slowly overcome by the users themselves.	Resistance was found to be minor as the Head of the System Analysts had encountered several strategies (i.e., paying extra allowances, management enforcement and giving one-to-one personal training)	Resistance to change from the internal users and public was found to be minor. To overcome the situation, the council planned to continuously promote the system and reduce the conventional counter systems.	Resistance to change from the public was found to be essential due to the limited functionalities and 'unfriendly' location of the CiRM technology. In addition, the majority of senior citizens faced problems in using the system due to the complex tasks that were offered by the system.	The degree of resistance to change was still high. The system developer was unable to perform all the required activities alone in the CiRM implementation.
<i>CiRM Publicity</i>	The public was persuaded to use the CiRM system through the promotion activities (e.g., road shows and community events), which were conducted by the Management Service Department.	The government agencies (i.e., MAMPU and MHLG) actively promoted the system to the public and there was collaboration between the Divisions of Public Relations and IT.	Active promotion of the system to the public was conducted by the Management Service Department and IT Division.	Active promotion of the system to the public was conducted by the Management Service Department and IT Department	Several staff from the Public Relation Division promoted the CiRM for public usage.	The promotion activity was performed independently by the system developer through the council's portal. However, there was no instruction manual on how the public can use the system.

Table 6.5: Cross-case comparison of the emerging determinants during the *Moving* stage of the CiRM implementation

Categories	Primary Case Studies					
	Johor Bahru Tengah Municipal Council (JBTCM)	Ampang Jaya Municipal Council (AJMC)	Selangor Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
<i>Role of the system developers</i>	They acted as a 'liaison' between the senior managers, end-users and vendor.	They acted as 'middleware' between both the internal (i.e., senior managers, end-users) and external (i.e., public, government agencies, vendor) stakeholders.	They acted as interface between the senior management, end-users and vendor.	They acted as interface between the senior management, end-users and vendor. Some local governments had referred to them to discuss lessons learnt while they were implementing the CiRM.	Actively persuaded senior managers to commit to the idea of adding some CiRM kiosk machines.	The system developer had not enabled to overcome the implementation threats throughout this period
<i>Senior Management Support</i>	Senior management recognised that CiRM had brought some benefits to the council. The system has been continuously employed by the council in delivering quality service to the public.	Various types of support can be seen (e.g., monthly meetings, allocating a work room for the vendor's technical staff in the council). The system has been continuously employed by the council in delivering quality service to the public.	Senior management support was responsive and supportive throughout this period (e.g., monitoring the project's progress, meeting with government agencies).	Various types of support provided, i.e., built a data centre, allocated funding to enhance the system. CiRM has been continuously employed by the council in building a citizen-centric approach.	Due to insufficient budget, the level of support to add the required number of CiRM kiosks was still not encouraging.	Senior managers were still not interested in developing the CiRM system.
<i>Implementation Planning</i>	System developers and senior managers had determined the council's long-term plan (i.e., five years plan), which highlighted several applications for future implementation. One of the plans was to add an analytical CiRM application with the same vendor.	Senior managers and developers had drafted the council's ITSP (i.e. short and long-term plans of IT utilisation in local e-Government), which targeted to implement more CiRM systems in future. There was a plan to enhance the system by adding a bazaar seller module with the same vendor. The module is needed to avoid the bad image that would affect the council's revenue.	Senior managers are committed to developing a culture of continuous improvement through the development of ITSP by becoming fully e-enabled by the end of 2013. There was also a plan to link the state system into the CiRM.	The plan was to add more applications to the CiRM system by collaborating with the federal government agencies. They also planned to reward the council's loyal public (i.e., through a community card) to show some appreciation to them. With vendor assistance, the system was enhanced by producing more ad hoc reports and search information. There was also a plan to implement multipurpose payments in a single transaction.	There was a plan to add another kiosk machine for the CiRM system. Minimising the conventional counter systems was also one of the plans.	The system developer intended to implement the help desk and kiosk payment CiRM systems. In addition, he felt that the council's existing infrastructure would also need to be improved.
<i>Users' Requirement Analysis</i>	Continuous discussions were made by system developers and senior managers on the system.	Continuous discussions were made between the council and vendor developers on the user expectations.	Continuous discussions were held between the system developers and senior managers on the system. Reference was also made with experts	Continuous discussions were made by system developers and senior managers on the CiRM system	Continuous discussions were held between the system developer and the Head of Finance Department.	No further analysis was conducted.

<i>CiRM Partnership</i>	System developers kept regular communication to strengthen the relationship with the CiRM vendors and build a new relationship with interested parties (e.g., neighbouring local councils and institutions of higher learning).	System developers communicated regularly with the representatives from MAMPU, MHLG and vendor to overcome any technical issues.	System developers and senior management proactively engaged with several government agencies by means of forming and strengthening a partnership approach for the next CiRM implementations.	The Head of the System Analysts continuously strengthened the public-private partnership by communicating frequently with the vendor's representatives. A new relationship with MAMPU's officers was also created to gain new knowledge of the CiRM system.	Close relationship with CiRM vendor had been established.	–
<i>System Development</i>	Comments from the end users were taken for the prototype's improvement.	System developers faced an issue of inconsistency between the structure and the data format from the old systems to the new CiRM.	The handling of data migration activity was performed jointly by the system developers and the vendor.	The prototyping was created to test the system's flexibility and to understand the user's responses towards the system's processes.	The developed system was far behind its full capability.	The system developer had inadequate knowledge and skills to develop the system.
<i>Installation</i>	<i>Big Bang</i> method was used in converting the old system to the new CiRM.	<i>Parallel operation</i> was used to make the end users comfortable with the new work processes. The installation of the system was performed by the system developers and vendor.	–	–	The installation by the vendor was quite straightforward (i.e., set-up and wiring of the CiRM technology to the electrical point).	–
<i>Staff training</i>	Continuous informal training was given to those interested, which was conducted by the vendor's trainer	Continuous informal training was given to those interested, which was conducted by the vendor's trainer. Proper compilation of training materials was organised for future use.	Continuous informal training was given to those interested, which was conducted by the vendor's trainer.	Continuous informal training was given to those interested, which was conducted by the developers	Continuous informal training was given to the end-users and system developers upon request by the vendor	No training activity was conducted.
<i>Vendor Management</i>	Primary function was to maintain the system's operation and provide continuous training.	Primary function was to maintain the system's operation and provide continuous training.	Primary function was to maintain the system's operation and provide continuous training.	Primary function was to help SJMC in maintaining its operation.	Primary function was to maintain the system's operation and provide continuous training.	–

<i>Manage the Resistance</i>	Resistance was overcome by the end-users and public themselves, through the support provided (e.g., continuous training and publicity). The public expectations towards the CiRM operation were gathered through the citizen satisfaction survey and statistics (e.g., the volume of complaints from the system).	Resistance was overcome by the end-users themselves, through the support provided (e.g., continuous training).	Resistance was overcome by the users themselves, through the support provided (e.g., continuous training).	Resistance was overcome by the users and public themselves, through the support (e.g., continuous training and publicity). They had gained confidence with the system. Public satisfaction was gathered through the use of indicators from the total revenue collection and public feedback.	Resistance was slowly being overcome by public users themselves, through the support provided (e.g., continuous promotional activities). The system developers observed that the number of public using the CiRM had increased.	CiRM system was still not widely used.
<i>CiRM Post-Implementation</i>	System developers emphasised keeping the modifications to the system's source code (e.g., SQL scripting for generating ad-hoc reports).	System developers and vendor were proactively checking the data of public transactions in both systems (i.e., the old and the CiRM systems), ensuring its consistency (i.e., for almost one month until the CiRM system was considered reliable for use).	System developers monitored the CiRM consistently by checking its performance and making copies (i.e., backed-up) of public data.	The system developers had strived for continuous maintenance by developing a strong back-up plan, using an encryption procedure and security aspect for ensuring the stability of the system's operation.	System developers checked the system consistently to ensure it working properly and had updated the data constantly to provide public with reliable information.	The system developer had overlooked the coordination of balancing between the CiRM system and the back end operation. As a result, there was a response time problem for the public to retrieve their data.
<i>CiRM Publicity</i>	Continuous promotion of CiRM to the public, which was conducted by the Management Service Department and IT Division.	Continuous promotion of CiRM to the public, which was conducted by the government agencies (i.e., MAMPU and MHLG) and the Public Relation Division	Continuous promotion of CiRM to the public, which was conducted by the Management Service Department and IT Division.	Continuous promotion of CiRM to the public, which was conducted by the Management Service Department	Continuous promotion of CiRM to the public, which was conducted by Public Relation Division.	The promotion activity was continuously performed independently by the system developer.

Table 6.6: Cross-case comparison of the emerging determinants during the *Refreezing* stage of the CiRM implementation

6.3 The Emerging Determinants of the CiRM Implementation Process

As a consequence of both the forces identified in Section 6.2, the process of CiRM implementation was developed. The CiRM implementation processes in all six case studies were cross-analysed to identify the similar determinants (see Appendix VII). As a result, several common determinants emerged (see Tables 6.4, 6.5 and 6.6). By presenting these determinants side-by-side, the similarities and differences between the councils can be easily identified as explained in the following sub sections.

6.3.1 Role of the System Developers

Apart from the BPMC, system developers in other local governments were tirelessly moving forward with the implementation activities by working together with other implementation team members. Most of them were senior managers (i.e., from the participating departments who requested or needed the system). In the early stage, they worked together closely to seek an initial understanding of the CiRM system. Many discussions between the project team and external parties (e.g., CiRM officers from neighbouring local governments) were held at this stage. However, there were slight variations between these organisations on how system developers approached their implementation initiative.

At JBTMC and KUMC, the experience gained by the project team members while they were visiting and reviewing several neighbouring local governments was employed to enhance their knowledge of adopting a similar system. SJMC, however, reviewed some of the earliest CiRM/CRM implementers, locally and abroad. Meeting a vendor, who is experienced in implementing a corresponding CiRM system in another council, was done at KUMC. Meanwhile, with some help from the government agencies (i.e., at AJMC) or consultant (i.e., at SEMC and SJMC), the system developers formed the CiRM 'info-structure' (e.g., priority of the system, building a long-term plan). Through gathering the information, they developed their own initial understanding of the system. When they had gained adequate knowledge and confidence, the system developers then moved forward with other tasks.

The system developers at JBTMC, AJMC, SEMC, SJMC and KUMC continued their roles by selling the idea of the implementation throughout the entire organisation.

Various mediums of communication, verbal (i.e., meetings, briefings) and non-verbal (i.e., e-Mail, bulletins, and internal portals) were used to keep the senior managers and end-users well informed of the system's benefits. For instance, at SJMC, the Head of the System Analysts first built an internal support within the IT department by using soft communication skills before leveraging the implementation within the council.

Furthermore, the Head of the System Analysts, who was also acting as the project manager (i.e., JBTMC, SEMC) and the senior managers in the IT Department (i.e., JBTMC, AJMC, SJMC, SEMC and KUMC), contributed to the wide acceptance of the implementation (e.g., justifying the needs of the system). They also kept senior managers from other departments aware of their involvement in supporting the project. Moreover, at SJMC, the involvement of the Head of the System Analysts as a key player in the steering committee has enabled the implementation activities to progress smoothly. His position in the steering committee allowed him to overcome the internal bureaucracy (e.g., securing funding, transparency in selecting CiRM vendor), which can threaten the implementation process. The high level of interest shown by the Head of the System Analysts in SJMC reduced the users' negative perception towards the CiRM system.

As the implementation progressed, the system developers at JBTMC, AJMC, SEMC and SJMC acted as 'intermediaries' between the end-users, senior managers and vendor. They played their roles by reporting the project's progress to the senior managers and participating in the CiRM technical parts (e.g., system development, database administration) with the vendor. Several end-users were also identified and invited to the implementation activities (e.g., system training, user acceptance test). In addition, at AJMC, the system developers had driven the CiRM system implementation by holding a series of meetings with some representatives from the government agencies (i.e., MAMPU and MHLG). Attention was given to handling the issues that arose during the implementation process. Moreover, at SJMC, once the CiRM system was successfully implemented, the system developers received numerous enquiries from government agencies (e.g., MAMPU, Petaling Jaya City Council). These agencies were eager to know the lessons learnt from the council in implementing the system. This indicates that the system developers' roles and capabilities in implementing the CiRM system had been recognised.

However, at BPMC, the system developer experienced a different story, as he was unable to perform the implementation activities on his own. Although his commitment towards accomplishing the project was excellent, the CiRM system was not the success originally envisaged (i.e., only a small number of users had realised the capability that was offered by the system). He was unable to resolve the implementation problems. The senior management did not buy the idea of the implementation, and the system was poorly designed and developed due to his insufficient knowledge.

6.3.2 Senior Management Support

In the early stages of the implementation process, apart from for the case of SJMC, the senior managers in other local governments did not realise the benefits of the system. The leaders at AJMC and SEMC were seen as the key advocates to the implementation initiative (i.e., endorsing memos to make their senior managers aware of the implementation initiative), while the action of the system developers at JBTMC and KUMC enabled the project to be treated as a priority (e.g., allocating funding, upgrading the hardware, etc.). Both the leaders and the system developers influenced the senior managers to accept the idea of CiRM implementation through a concrete business case. However, the business case presented was different in each case.

At JBTMC, the Head of the System Analysts convinced the senior management that the system would offer more benefits by preparing and presenting the RFP (i.e., Request for Proposal). AJMC's President also highlighted to the senior managers that they could save on the fiscal budget as the Federal government was sponsoring the cost of the development. Whilst at SEMC, the President made the CiRM implementation a driver for achieving e-enabled to all the council's services by 2013. The KUMC argument concerned the importance of the system to increase the quality of services to the public and saved the project through the management support even though it was not universal. The extent of the senior management support in these local governments increased as the CiRM system started to develop.

Nonetheless, unlike JBTMC, AJMC and SEMC, there was no continuous commitment and support from the senior managers (e.g., monitoring the project progress and enhancing the system) at KUMC. The senior management support was minimal—only a minor provision of the fund as the budget was limited. They had not played their roles in

implementing the system (e.g., no ambitious plan, no initiative to enhance the system), and were only interested in the system's outcome (e.g., the system itself). At BPMC, the senior management support was crucial throughout the implementation process even though they had been persuaded by the system developer. The benefits of the CiRM system were only recognised by a small number of senior managers in the council. It was believed that the low commitment of senior managers had resulted in underutilisation of the system that had been developed (e.g., not much integration between the data, the system and its back-end applications).

Meanwhile, at SJMC, the departmental senior managers were very supportive throughout the implementation process. In the early stages, the senior management's leadership was demonstrated through the employment of a consultant to identify a priority CiRM system. The management support is evident via the allocation of a budget for every accepted system proposal connected to the council's ITSP. At more advanced stages, the senior managers managed to sustain their support for the project (e.g., providing the data centre with high end equipment and enhancing the system). They had the same vision (i.e., to be a world class local government) and commitment, which was consistent in the implementation and helped the system developers translate both factors into an action plan (e.g., conducting regular meetings with them, assessing the public satisfaction). It was believed that senior management support at SJMC was sufficient for the success of CiRM implementation.

6.3.3 Implementation Objectives and Planning

Providing a high quality of service through a multi-channel approach was the general implementation objective that was found to be similar across the six local governments. It was hoped that the CiRM system would provide a friendly government by developing and offering the public different channel options. The system enabled the organisations to achieve this goal through several means, such as the Internet and kiosks. It is believed that the objective was identified as a result of the problems that the local governments had experienced in using a non-centralised citizen approach.

Apart from the BPMC case, most of the implementation activities at other local governments were usually initiated and developed by the Head of the System Analysts with assistance by other system developers. A few senior managers and end-users from

the participating departments (i.e., one or more departments that may have requested or needed the system) were also invited to participate in the implementation tasks. In addition, the strategic partnership with government agencies at AJMC, as well as a consultant at SEMC and SJMC, had enabled the sequence of actions to progress smoothly. In strengthening the plan, most of these local governments developed and implemented their CiRM in a systematic manner, not as a radical change.

The CiRM implementation at JBTMC, AJMC, SEMC and KUMC, which was planned on an incremental basic, had given ample time for system developers to adjust the complexities of the system in accordance with the needs of the users and the public. Furthermore, the implementation phase at SJMC allowed this council to implement the vital work process before subsequently adding other facilities. Nevertheless, it was revealed that these local governments had produced some measurable deliveries within ascertain time duration. For instance, at JBTMC, two months were spent for the preliminary study and process definition. Whilst at SJMC, all informal training sessions were conducted in no longer than three days. The approach was also in line with the one-year budget plan practised by the local governments involved. However, at BPMC, the system developer proceeded with the implementation activities without planning it properly. It was believed that the system was developed based on one-man's vision, using a trial and error approach.

As the CiRM system went live, the system developers were committed to continuously improve its capability. The plan was to add several applications through drafting the short- and long-term plan for subsequent years, for instance, at AJMC, the CiRM system would be enhanced by incorporating a data-mining tool, thereby enhancing its analytical function. At SJMC, the next implementation was to utilise a public loyalty card that could be integrated with the CiRM system's function. Such a card is one way of showing appreciation to the public. In addition, at KUMC, the conventional counter systems would be minimised. The plan would provide the council with an advantage in rolling out the use of the CiRM system.

6.3.4 Analysis of Users' Requirements

Most of the local governments spent their time in learning about the users' system requirements to be able to better understand their demand. Apart from BPMC, the users' involvement in other local governments was not limited to the internal users, but also focused on the public. The requirements were gathered using different approaches (e.g., interviews, surveys, and public complaints) to identify the needs and interests in terms of which services were most desirable.

Because it was impossible to engage all citizens in the project, most of the local governments preferred to use the focus group approach. Through the community events (e.g., *Gerak Tumpu*, *Hari Bertemu Pelanggan* or *Gotong Royong* programmes), the council members who represented each zone in the residential area identified the public requirements through their feedback. The public needs were also gathered directly from their complaints through the channels of e-mail, telephone, counter and Internet system. In addition, at KUMC, observation of the inefficiency of the counter systems was made in determining the public needs. The data collected through these strategies were combined to capture the diverse requirements of the CiRM system.

As the public requirements were collected, the system developers at JBTMC, SEMC, SJMC and KUMC moved on to analyse the internal requirements. The main purpose of conducting the end-users needs was not only to get their ideas, but also to clearly understand their daily routine. The most common approach, which was found to be similar across these local governments, was the in-person interview. A continuous discussion with the end-users was occasionally held at this stage. In addition, at JBTMC and SJMC, several workshops were conducted to get a clearer picture of the new work processes for the CiRM system. The system developers at SJMC also asked their consultant to help them in analysing the user's needs. As CiRM started to develop, further discussions with end-users were held by system developers on a regular basis.

However, at AJMC, there were no users' requirements conducted by the system developers. Instead, the requirements were already prepared by the government agencies

(i.e., MAMPU and MHLG) through the appointed vendor.¹⁰⁵ This approach was used since these agencies possessed a better understanding of the local government work processes. In contrast, at BPMC, fruitful interactions between the system developer and users did not take place. Neither the public nor the end-users were invited to be involved directly with the system requirements. The system developer followed his own interests and only referred to the existing system to understand the CiRM work processes.¹⁰⁶ It was clear that BPMC focused on the database aspect; however, he did not adequately understand the requirements of the system.

6.3.5 CiRM Partnership

Apart from BPMC, seeking help from experienced and qualified experts and engaging them as the local governments' partners was seen as one of the recurring determinants in the CiRM implementation. The local governments of JBTMC, AJMC, SJMC and KUMC built several types of partnership in their efforts to implement the system. The projects were carried out through a partnership with consultants, CiRM vendors, government agencies and institutions of higher learning.

At the early stage, these local governments built a relationship with their respective CiRM vendors. The councils realised that their system developers were lacking the knowledge and technical skills required to develop the CiRM system (e.g., developing the citizen-centric system, integrating segregated data). There was no other viable solution than to invite vendors in to implement the system. For instance, at SJMC, the vendor partnership was built thereby allowing them to place more emphasis on supporting the ICT aspect rather than developing a complex system. Part of the vendor partnership was also in line with the local government's intention to accelerate each project for public usage within a short time. In addition, at SEMC and SJMC, a capable consultant was invited to the council to build a foundation for the system implementation (e.g., prioritise crucial services, develop short- and long-term plan). Both the vendor and consultant partnerships proved to be equally significant to increase the chances of the local governments in implementing a successful CiRM system.

¹⁰⁵ AJMC had been forced by the federal government to be one of the pilot projects for implementing the CiRM initiative where all the necessary resources (e.g., system requirements, budget and manpower) were supplied through the appointed vendor.

¹⁰⁶ He was acting as a member of the public and an end-user that wanted to use the system instead of consulting with them to identify their respective requirements.

In building the vendor and consultant partnership, there were two strategies that were found to be similar among the local governments – strategic nature and enforcement. The JBTMC, SEMC, SJMC and KUMC encouraged the system developers to use the ‘natural partnership’.¹⁰⁷ Whilst at AJMC, the government agencies forced the fostering of the partnership by making the council engage with a CiRM vendor who had already been selected. Nonetheless, once the partnership started to develop, there was an agreement, which made the CiRM vendor contractually responsible for delivering the system. This agreement was strengthened by the transparency of both parties. The local government was transparent about the problems with the CiRM system while the vendor was transparent about their capabilities to develop the system. The transparency came from close and frequent communication between the council and the vendor developers. The Head of the System Analysts acted as a mediator between both parties to resolve any issues that occurred. In addition, at SEMC and SJMC, there was a continuous discussion with the consultants’ representatives. Both local governments benefited from the consultant relationships in aligning the project in accordance with their original CiRM implementation objectives.

At more advanced stages, the system developers at JBTMC, SEMC and SJMC developed a new relationship with the interested stakeholders by updating and increasing their knowledge concerning the CiRM system. For instance, at JBTMC, the Head of the System Analysts had proactive discussions with certain professionals from neighbouring local governments and institutions of higher learning to gather advice on how to improve the public delivery services. The availability of communication methods (e.g., e-mail, telephone) was fully utilised to obtain professional advice. Similarly, at SJMC, the system developers benefited from the strategic partnership with MAMPU in adopting the framework that would fit the council’s business process. The SEMC was also engaged with the representatives of MAMPU in integrating its back-end and front-end applications. The system developers realised that they did not have the ability to cope with the fast technological changes. Through such partnerships, these local governments hoped that their system developers would acquire the technical and management skills.

¹⁰⁷ These four local governments (i.e., JBTMC, SEMC, SJMC and KUMC) encouraged the system developers to select any vendors and consultant based on the strategic nature. The partnership is developed once the vendor has been chosen (during the procurement activity) and the consultant has been invited to be involved in the implementation process. It can be said that the ‘natural partnership’ allows local governments’ system developers to freely choose vendors and consultants that capable to help them in implementing a successful CiRM system.

This not only enabled them to enhance the ability of the existing CiRM system, but to also implement a new system.

6.3.6 CiRM Procurement

The CiRM procurement was developed naturally by going through the government's tender process. Most of the strategies were initiated by the system developers' experience from their understanding of the system while gathering the initial sources of information.¹⁰⁸ However, it was also evident that not all the local governments were involved in the procurement process. At AJMC, the federal government had already appointed the vendor before the implementation started, and, therefore, the selection process did not occur. Only JBTMC, SEMC, and SJMC went through the process.

Vendors may be chosen in two different ways: 1) open and 2) closed tender approach. There was no limitation in the participation of the various vendors. At SJMC, as the project required high-technology knowledge and skills with a considerable sum of money being involved in the implementation, the open tender approach was used. In contrast, at JBTMC and SEMC, a quotation approach was employed due to budget constraints as well as to immediately foster the development stage (i.e., without waiting for a longer tendering process). Nonetheless, only those vendors who met the requirements (i.e., complied with the document Request for Proposal) set by these local governments were short-listed, regardless of whether the tender was open or selected. The CiRM vendors were then invited for an interview and presentation session. One was finally chosen to be the partner in the project, hence, enhancing the vendor relationship.

The final decision in choosing the CiRM vendor was usually based on additional criteria, which were not listed in the selection process. Among the criteria that were found to be similar across the local governments were the vendors' reputation (e.g., had successful implemented similar system) and ability (e.g., expert staff). In addition, additional criteria such as attractive total price quoted in the SEMC and the vendor's financial stability in the SJMC were also used. It was believed that through the use of such criteria, these two local governments had lessened the risk of implementing an unsuccessful system.

¹⁰⁸ For instance, reviewing and visiting other councils that had implemented a similar system.

6.3.7 System Development

Since most of the local governments' system developers lacked CiRM technical skills, the joint effort with the vendor's system developers was seen as significant. The analysis revealed that in meeting the standard of the system, applications development and data migration were among the technical issues encountered during the implementation process. The local governments were seen to place full emphasis on most of these issues to enable the implementation to make progress. Apart from BPMC, other local governments had made strong communication with the vendor developers, senior managers and end-users to discuss the CiRM issues transparently. In addition, at AJMC, regular meetings were conducted with the government agencies' representatives.

The most crucial technical issue in CiRM implementation was possibly the applications development. There were several 'pressure issues' faced by the local governments in facilitating the development of the system. At JBTMC, SEMC and SJMC, system developers from both the council and vendors paid careful attention to the translation of the user needs into a number of prototype applications. The CiRM system was developed based on the system requirements (i.e., Request for Proposal), as well as incorporating the user's feedback. All comments from the users were taken into account until they were satisfied with the prototype's improvement. Furthermore, at SEMC and KUMC, vendor's who were experienced in implementing similar systems were brought into the council. Although this strategy can provide the basic work process for the intended system, at KUMC, too much customising caused the developed system to fall far short of its full capability (e.g., limited functions, poor screen resolution).¹⁰⁹ The system developed was also underutilised in the BPMC due to the system developer's inadequate skills (i.e., limited programming and database skills) in developing the system. Although CiRM had been recognised to strengthen the relationship with the public, the user's feedback was neglected.

The second technical issue of the CiRM implementation process may require transferring the data from the old into the CiRM system. It was the responsibility of the system developers to provide a proper migration plan, especially when the structure and

¹⁰⁹ The system was developed according to the limited budget.

the data format seem to be different between these two systems. This was seen in the JBTMC and SJMC, where the system developers had made an effort to properly integrate the scattered data into a single database. Prior to the CiRM system, there were many separate databases, which were mostly stored in different formats. Through the council's long-term plan, they had developed back-office applications before deciding to implement the CiRM system. A new, relevant composition that was associated with the integration structure was created in the system by the previous vendor. As a result, the CiRM vendor was able to implement the system in a real-time manner; thereby enabling the public to achieve their latest information, proceed with the transactions, and receive updates of the current status without any problems. Moreover, at SEMC, the data migration was quite straight forward and did not present any problems as both systems were developed by using the same database structure. However, at AJMC, neither the council developer nor the vendor proposed a migration plan. As a result, the CiRM implementation process faced issues of data inconsistency. In order to overcome this problem, the system developers spent a longer period on this stage, and, consequently, the system was not delivered on time.

The CiRM implementation process in the local government may have also been involved in meeting the standard of the system. Most of the system developers employed a standard guideline for their respective vendor to use. At JBTMC, AJMC and SJMC, the CiRM vendor was asked to use the Malaysian Public Sector ICT Security Management Handbook.¹¹⁰ The guideline was useful for these local governments as more than one system was developed at different times (i.e., through several CiRM vendors). In addition, at SEMC, the vendor was ordered to use the Malaysian Government Portals and Website Assessment criteria in developing the CiRM system, which incorporated a responsive design.¹¹¹ Such guidelines would offer the system developers control over the standard of CiRM system developed by the vendor.

¹¹⁰ The handbook covers the main implementation areas, such as menu layout, graphical user interfaces, programming language, security and system platform.

¹¹¹ The guideline offers a list of criteria that are recognised as good practice by the Malaysian government. This includes the use of web site personalisation, cookie sessions, feedback responses and multilingual text.

6.3.8 Staff Training

Since most of the local governments were familiar with the CiRM vendors, one aspect that was mentioned in the contract was staff training. The training was structured at the early stage of the implementation process not only to help the end-users to understand the purpose of the implementation, but also to help them in using the system. However, the identification of the strategy and the organisation of the training modes were different between the local governments.

At JBTMC and SEMC, training strategies were determined by the Head of the System Analysts to ensure that those involved in the system were properly trained. Whilst at KUMC, the strategy was identified by the Head of the System Analysts and the Head of Finance Department. At SJMC, CiRM training was mostly decided by the joint effort between the system developers for all the end-users involved in the project. While at AJMC, the strategies were determined with assistance from the government agencies (i.e., MAMPU and MHLG).

Once the CiRM system was installed, the local governments then started to conduct training courses for those who were affected by the new work process. At JBTMC, SEMC, SJMC and KUMC, the end-users were given a series of in-house formal training sessions. Whilst at AJMC, a combination of in-house and off-site formal training was practised. All the training sessions at these local governments were conducted by certified trainers from the vendor with proper training materials (e.g., manual documentation). The training materials functioned as their future reference if they were still uncomfortable with the functions of the system. To complement the formal training, non-formal training sessions were conducted upon their request. There was also continuous informal training given to those staff who were interested. For instance, at SJMC, the continuous informal training was conducted six months after the CiRM system went live, as well as when a small enhancement of the system influenced the system work flow.

The findings also suggested that training courses be organised according to the various roles of the users. The emphasis of the training was to familiarise the staff with the CiRM system. The system developers at JBTMC, AJMC, SEMC, SJMC and KUMC received a technical training session to introduce the administration of the system. For

the end-users, they received training on the usage of the CiRM system. When the end-users were properly trained, it enabled them to be familiar with the new procedures being introduced by the system. The training also contributed towards reducing their fear and anxiety of the CiRM system. However, at BPMC, no system training was conducted. The system developer felt that the training course would not have any impact on the level of success of the CiRM system.

6.3.9 Manage the Resistance

User resistance to change was another recurring theme that most of the system developers in the local governments faced while implementing the CiRM system. The resistance to change was caused not only from the internal users but also from the public. At JBTMC, SEMC and SJMC, the resistance occurred during the initial stage of the implementation, which was mainly due to the unfamiliarity faced by the end-users. At AJMC and KUMC, the level of resistance at this stage was also strong from the senior management. The senior managers and end-users were reluctant to change because they did not have any idea about the concept of the CiRM system.

CiRM implementation was even more crucial during the transitional period from the old to the new system. At AJMC, the level of resistance was strong due to the internal users being forced (i.e., the parallel approach caused the operational staff to suffer and feel stressed) into operating the CiRM system. As a result, there was an appearance of 'dishonest' attitude from them (i.e., in entering and updating data only once, either in the old or the new system). The introduction of many new work-processes in the CiRM system also contributed to the resistance to change in this council. The end-users felt that there were many steps to accomplish compared to the old system. In addition, at JBTMC and KUMC, the resistance to change from the public was found to be essential at this stage. This was basically due to the CiRM system being developed far behind its full capability (e.g., limited functions) or located at a non-strategic location (i.e., CiRM kiosk was located in the council premises).

Since the causes for the resistance varied, the approach employed to reduce the level of resistance also differed between the local governments. In the JBTMC and KUMC, the training of the system, which was conducted by the vendor, helped the staff become confident and familiar with all the work processes contained in the CiRM system.

Moreover, at AJMC, the introduction of an incentive scheme (i.e., in the form of extra allowance) as well as the management enforcement also reduced the level of resistance. These strategies made the end-users more aware of their daily routine work for the success in operating the system. The continuous CiRM promotion activities in the JBTMC and KUMC were also another approach to reduce the public's resistance to change. Nonetheless, the role played by system developers in facilitating and supporting all these approaches was needed to overcome the causes of resistance.

It was also evident that the capability of the system developers in facilitating the end-users' awareness of the implementation process as the CiRM system started to develop further reduced the resistance to change. At SEMC and SJMC, the system developers had made their staff aware of the technological change by communicating (e.g., through e-Mail, bulletins, and mini presentations) and involving (e.g., in the needs' analysis, developing the application prototypes) them in the process. Once the staff realised the system's benefits and gained their confidence, eventually they overcame resistance on their own. However, at BPMC, the degree of resistance from the end-users and public was strong throughout the implementation process. The public was reluctant to use the CiRM system due to the system not being developed to its full potential. There was also resistance to change within the council. The end-users had not been invited to be involved in the system implementation, which caused the level of resistance to be high.

6.3.10 Vendor Management

Since most of the local governments were already liaising with the CiRM vendor at the early stage, they benefited from their collaboration. It was evident that the local governments received appropriate product consultation, training and technical support from the vendor throughout the implementation process. The level of support was basically encouraging due to the councils (i.e., JBTMC, SEMC, SJMC and KUMC) and government agencies (i.e., AJMC only) efforts to make the CiRM vendor contractually responsible for the delivery of the system.

At JBTMC, SEMC, SJMC and KUMC, once the tender was awarded to the vendor, the system developers were supplied with product consultation (i.e., that met the users' needs). There was a need for full consensus and confirmation between these local governments and the vendor in establishing the requirements of the system. This strategy

enabled the vendor to develop or customise a suitable CiRM system that fitted with the council's business process. However, at AJMC, there was no support or product consultation. This is because the council eventually received a CiRM package that had already been developed in accordance with the government agencies' requirements (i.e., MHLG and MAMPU).

As the implementation proceeded, the key vendors provided a one off-site (i.e., AJMC only) and a series of on-site formal training sessions (i.e., JBTMC, AJMC, SEMC, SJMC and KUMC). To complement the courses, non-formal training was also conducted with the end-users upon their request. The courses were conducted by a certified trainer with high quality materials (e.g., system administration for developers and system documentation for the end-users). Moreover, the experience of the system developers at these local governments' indicates that the idea of establishing a good relationship with the vendor was to have technical support in operating the CiRM system. They proactively built this approach due to the lack of their own CiRM technical skills.

Even though the relationship with the vendor had been established in the early stages, the system developers did not expect to receive the same level of support from the vendor in the CiRM lifecycle. The system developers at AJMC, SEMC and SJMC felt that the support from the technical operation was not sufficient and not as strong as what they had received during the product consultation and training (i.e., slow responsiveness in solving any technical problems that occurred). The similar case between these three councils was due to the vendor's representatives, who were responsible for the development and installation of the system, no longer solving the problems in the system operation. This was seen as a potential risk of vendor support in the local governments.

6.3.11 CiRM Publicity

All local governments undertook promotional activities to boost the use of CiRM systems by the public with most of the programmes being initiated by the system developers. At the more advanced stages, continuous promotional activities were conducted by the promotional team (i.e., collaboration between the departments of IT and Management Service or Public Relations). Moreover, at AJMC, the team collaborated with several government agencies (i.e., MAMPU and MHLG) to attract the

public to engage with and use the system. This would contribute towards reducing the public resistance to change.

The most common promotional strategy that was similar between the local governments was the printing of the system's information, which included leaflets (e.g., brochures, booklets), posters, magazines or bulletins. On a periodic basis, the printed information was distributed during promotional activities, such as in road shows and community events. Such activities would increase the awareness of the public and encourage them to use the CiRM system when available. The same form of information was also uploaded (i.e., the soft-copy format) in the councils' web-portal, enabling the public to find it easily. Moreover, at AJMC, the promotional activity was made through some form of media release by writing news about the system benefits and usage in the local newspaper. Such a strategy was a practical solution to inform the public (e.g., what the system provides).

Other promotional strategies, such as staff assistance, attractive incentive scheme and a combination of these, were rarely used by the local governments. Only JBTMC and KUMC actively used these types of publicity approaches, for instance, once staff were no longer assigned after the end of the 'staff assistance' period, there were some leaflets at the information counter desk. A banner was hung behind the kiosk of the CiRM system for the public to look at. Moreover, at SJMC, the public were persuaded to use the system by offering them several incentives, such as lucky draw prizes and door-gifts for a couple of months after the system were launched. Such incentives were believed to capture the awareness of the public, thus, encouraging the utilisation of the CiRM system.

However, at BPMC, little emphasis was given to promoting CiRM. The system was promoted independently by the system developer through the council's web portal, however, only a small number of the public engaged interactively with the system. He was unable to perform the publicity alone (i.e., participation from the senior managers was also required).

6.3.12 Post CiRM Implementation

With vendor assistance (i.e., if the technical problem was not solved), the local governments' system developers strived for continuous maintenance of the CiRM system. By maintaining the system, they hoped the system would be reliable in its operation. The failure of the CiRM system operation might lead to the failure of providing users, particularly the public, with effective delivery of services.

At JBTMC, just a few months after the CiRM system went live; it underwent a small modification to its reporting facility. The system developers were trained in SQL scripting, thus they can modify this effortlessly. In addition, at AJMC, SEMC and KUMC, the CiRM system was consistently checked to ensure it was error free (e.g., the network and Internet connectivity can slow the data access, and public data was consistently updated for each transaction) to increase its performance. Assistance from the vendor was needed if the system developers could not identify a solution.

Moreover, at SEMC, SJMC and KUMC, the public data was backed-up regularly (i.e., either automatically by the system or manually by the system developers) in several storage media, such as in pen-drives and external hard disks. These copies were kept safely in the councils' data centre (i.e., SJMC only) or branches. The SJMC also actively protected the data from unauthorised access (i.e., through encrypting passwords and installing security software) as part of maintaining the system. It was believed that such consistent maintenance efforts enabled the CiRM system to be operated efficiently. This would offer a high level of confidence and trust for the public to use the system continuously.

6.4 The Emerging Theory of the CiRM Implementation Process in Malaysian Local Government

A framework of the CiRM implementation process is proposed based upon the determinants which have emerged from cross-case studies (see Figure 6.1). The framework contains the crucial implementation activities identified in Malaysian local government (as summarised in Table 6.7).

The framework was recursive (rather than linear), incorporating twelve common CiRM implementation determinants.¹¹² The sequence of these determinants can be arranged that approximately follows the life cycle of the CiRM implementation process. However, some of them will need to be managed concurrently and depend very much on how well the system developers work together.

The proposed framework also requires effective communication between the stakeholders involved. The system developers are required to keep both the end-users and senior managers well informed and make them aware of their involvement. Explaining to the staff concerning the system benefits and how they would contribute in the implementation process should be conducted. As the implementation proceeds, up-to-date news on the project evolution and all issues faced can be discussed transparently. The availability of the communication channels (e.g., meetings, electronic mail and bulletins) within the council should be continuously and widely utilised to make end-users, senior managers and the public realise the benefits of the system.

The level of efficiency in implementing the CiRM system can be increased by identifying a system developer who is capable of carrying out and managing the enduring implementation processes (see Stage 1). At the early stage, he or she must acquire an initial understanding of the CiRM system. Reviewing and visiting other neighbouring councils who have implemented similar CiRM system successfully are among the strategies which can be used. The framework suggests that the Head of the System Analysts who is involved in the council's decision making (i.e., one of the

¹¹² 'User acceptance testing and installation' activity has been combined under the 'system development' as its characteristic is related with the technical issues encountered during the development activity. In addition, 'sharing the knowledge' has been dropped from the framework as it only appeared in one local government (i.e., SJMC) and weakened on its characteristic.

senior managers) should be responsible to lead the project. Their position can enable the CiRM initiative to be sold easily within the entire organisation.

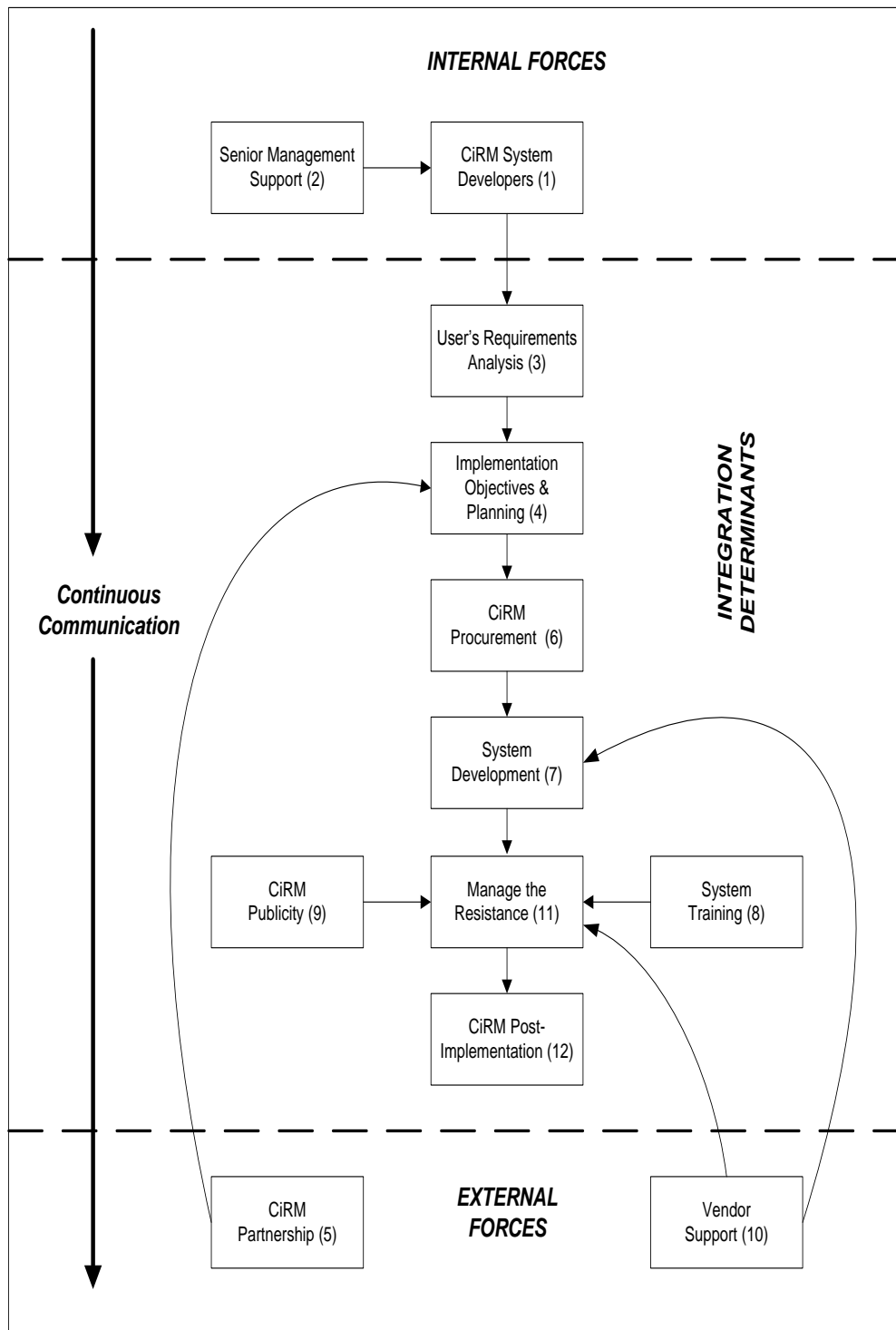


Figure 6.1: The emerging framework of the CiRM implementation process in Malaysian Local Government

Step	Primary Case Studies					
	Johor Bahru Tengah Municipal Council (JBTCM)	Ampang Jaya Municipal Council (AJMC)	Sepang Municipal Council (SEMC)	Subang Jaya Municipal Council (SJMC)	Kulai Municipal Council (KUMC)	Batu Pahat Municipal Council (BPMC)
1	Role of the system developers	Role of the system developers	Senior management support	Senior management support	Role of the system developers	Role of the system developer
2	Implementation objectives and planning	CiRM partnership	Role of the system developers	CiRM partnership	Analyse of Users' requirement	Analyse of Users' requirement
3	Analyse of Users' requirement	Senior management support	Analyse of Users' requirement	Analyse of Users' requirement	Implementation objectives and planning	Implementation objectives and planning
4	Senior management support	Implementation objectives and planning	CiRM partnership	Role of the system developers	CiRM partnership	Senior management support
5	CiRM partnership	Analyse of Users' requirement	Implementation objectives and planning	Implementation objectives and planning	Senior management support	System development
6	CiRM procurement	System development	CiRM procurement	CiRM procurement	System development	Staff training
7	Applications and system development	User acceptance testing and Installation	Applications and system development	Applications and system development	User acceptance testing and Installation	CiRM publicity
8	User acceptance testing and Installation	Staff training	Staff training	Staff training	Staff training	Users' resistance to change
9	Staff training	Manage the resistance	CiRM publicity	Vendor support	CiRM publicity	CiRM post-implementation
10	CiRM publicity	Vendor support	Vendor support	CiRM publicity	Manage the resistance	-
11	Manage the resistance	CiRM publicity	Manage the resistance	Manage the resistance	Vendor support	-
12	Vendor support	CiRM post-implementation	CiRM post-implementation	CiRM post-implementation	CiRM post-implementation	-
13	CiRM post-implementation	-	-	Sharing the knowledge	-	-

Table 6.7: Comparisons of the local governments emerging determinants of the CiRM implementation process

It can also be argued that the system developers cannot carry out the CiRM implementation process themselves. They should work closely with other stakeholders (i.e., acting as the ‘intermediary’) to discuss transparently any unclear issues. The joint effort with senior managers (i.e., from participating departments) will enable the benefits of the system to be leveraged for the entire organisation. Consultants can also be brought into the implementation team to build the priorities of the CiRM systems.

Stage (2) involves the responsiveness of the support from the senior management, which is crucial to all the local governments. System developers should prepare a strong business case to win over the senior managers in continuing to accept the CiRM system. This can be done by presenting a well-prepared proposal (i.e., Request for Proposal) and arguing the benefits that will arise from the implementation (e.g., cost savings, increase the quality of services). When the management realises these benefits, the project will be given top priority (e.g., budget allocation). This is because their support can provide a long-term strategic vision and commitment to create a positive environment for the CiRM initiative (e.g., upgrading the hardware, enhancing the CiRM system and planning for future implementation).

Stage (3) involves the analysis of user needs. System developers should keep in mind that the targeted users of the CiRM system are the public who need to use high quality service as well as operational staff who are responsible for operating the system. Although local governments may be forced by the federal government to use the agency’s requirements in implementing the system, it is imperative that the system developers know their end-users and the tasks they perform. This is because the key to understanding the end-users demand is through spending time to learn about their expectations. This can be done by using different approaches (e.g., interviews, surveys, workshops) to identify the end-user's needs and public interests in terms of which services will be most desirable.

Stage (4) is setting the implementation objectives and planning. The CiRM system in the local government should be implemented by offering the public high-quality services through innovative channels. In achieving this aim, however, system developers should consider that people in a rural area can access services just as effectively as people living in cities. The implementation of a CiRM kiosk machine, for

instance, may be the best method of communicating interactively with the public in the rural areas.¹¹³ Whilst the complex CiRM that was integrated with various back-end applications may be suitable for the urban councils, the council's management also considered maintaining the conventional channels (e.g., counter systems, telephone), which allowed public (i.e., mostly for the senior citizens) who have difficulty accessing the services in a convenient way. Therefore, system developers must be flexible in outlining the system's objectives that makes it accessible to the public.

When there is a clear implementation objective, the efficiency of the implementation process can be extended through a formal agreement and proper planning. The system developers should have a comprehensive plan to steer the direction of the CiRM project. Here, the formal implementation planning means the need to develop a course of action to implement this system by following the progressing development strategy. Although there are many development strategies, implementing the CiRM system in an orderly manner, especially through the incremental basis, is seen as suitable in the local government. This strategy allows the system developers to adjust the complexities of the system according to the end-user needs. By conducting the tasks step-by-step rather than making radical change, some fairly quick and measurable progress (e.g., prototype applications) can be produced within the time frame given.

Stage (5) involves the CiRM partnership. The framework suggests that local government's system developers should build a relationship with their partners during the earlier stages of the implementation. The alliance partnership is significant as most of the system developers lacked the necessary skills concerning the CiRM aspects (e.g., integrating the scattered data into a single database). Besides the vendor and consultant, the local governments might enter into partnership with government agencies and academia to increase the chance of CiRM system success. The government agencies partnership should be built on updating the knowledge concerning the government's circular such as guidelines in integrating the back-end with its-front-end applications. In addition, the system developers can gain new knowledge concerning the latest CiRM technology with some experts from the local universities.

¹¹³ As the Internet access in the local authority building may not be possible.

Most of the local governments invite all capable vendors to be their implementation partner through the tendering process (see Stage 6). The selection of the qualified vendors of CiRM systems is not only driven by the system requirements, but also through additional criteria that are not listed in the selection process (i.e., the vendors' reputation, ability, attractive total price quoted and financial stability). When selecting CiRM vendors, the experience possessed by the vendors is the most important criterion. Those vendors who have experience, and proven successful in the local governments and those who have survived in the long term, are most trustworthy. Moreover, the ability of vendors to communicate well, respond rapidly to the requests and requirements of the council and provide good support once the CiRM goes live are factors to be considered during selection. At the same time, local governments are advised not to overlook the necessary training and technical support provided by CiRM vendors. System developers and internal users need to work together in analysing the potential vendors that meet all these criteria, ranking them according to the order number. The greater the effort they put into the selection process, the greater the chance of success.

Stage (7) involves the system development tasks in the implementation process, which refers to the joint effort between the system developers and the vendor. To facilitate this activity, many discussions and meetings should be conducted between these two parties in ensuring the standard of the CiRM system, developing the prototype applications, and handling the data migration. These sub-activities are interconnected with each other during the implementation process. In this respect, the CiRM system should be developed by using the available guidelines provided by the Malaysian government (e.g., Malaysian Public Sector ICT Security Management Handbook). System developers should use these guidelines to control the standard of the CiRM system developed by the vendor. The CiRM standard can also be achieved through the development of prototype applications. System developers are advised to use the end-users feedback to improve the prototype until they are satisfied with the working CiRM system. Moreover, they also suggested preparing a proper migration plan for transferring the data from the old to the CiRM systems. The plan is necessary as the CiRM system may use a different format from the original systems. Only when these issues have been scrutinised can the system developers proceed with the installation of the CiRM system.

When the CiRM system has no faulty error in its technical part, the council's system developers can proceed with training the users (see Stage 8). This can be done through the formal and non-formal training provided by the vendor's certified trainer. For most people, new technologies represent a daunting learning curve and possible downsizing of their jobs. The senior developers have to ensure that a proper training programme be in place for anyone whose work is affected by the CiRM system. This refers to specific knowledge that encompasses a level of training for the end-users and system developers. A series of well-structured training sessions which includes system workflow will help the users to understand how the system will change the business process, while for system developers; CiRM training should be concentrated on administering the system. When the end-users and system developers are well trained, they can apply the system's objective to their operational activities.

Stage (9) is the promotion activity, which is significant in the implementation process to boost the usage of the CiRM system. Many people do not know of the existence of CiRM as one of their local council's facilities that can be used (e.g., fixed mindset concerning security problems, unwillingness to change) after implementation of the system. This has not been helped by a lack of local government enforcement behind the advertising campaign towards the benefits of CiRM as a system of delivery to the public. In this respect, a promotional team should be formed to create greater awareness among the public to encourage use of the system. Distributing the printed information, providing the staff assistance and giving attractive incentives are some promotional strategies that can be used to give the right picture to potential users of the system. The printed information (e.g., leaflets, posters and bulletins) can be used at the councils' events such as road shows and community activities while the same version can be uploaded in the portal. Consideration should also be given to media releases describing the system benefits in a few major local newspapers to better inform the public. At the same time, staff assistance, who allows the public to use the innovations of the CiRM system (e.g., kiosk payment) with their guidance, can be equally important when necessary. The public can also be encouraged to make the transactions through CiRM systems by rewards, for example, vouchers or lucky draw prizes.

At Stage (10), resistance to change may occur during the initial and transitional stages of the CiRM lifecycle. The causes and the level of resistance can also vary between these

two stages as most of the end-users (i.e. staff and public) are still unfamiliar with the CiRM technology. The findings highlight the level of resistance to change from staff may be strong at both stages while the public will possibly refuse to use the system when it is operational. The causes, such as the lack of staff involvement in determining system requirements, as well as the use of a parallel approach and the introduction of new work processes in CiRM may contribute to the high level of resistance by the internal users. In addition, CiRM may not be greatly accepted by the public if the system developed is underutilised or located in non-strategic places (i.e., for kiosk system). The public may also be reluctant to use the system if the council overlooks the power of publicity.

Therefore, it is essential to the system developers to employ several approaches to reduce the end-users anxiety in managing the resistance to change. Involving the participating departments' users, for instance, during the determination of system needs and the development of prototypes are good approach to manage the resistance. Explanation sessions should be conducted to brief them on the potential benefits of the implementation. The users are supposed to be primarily involved in developing the prototypes and their feedback towards the system's process (e.g., user-friendly, simple but efficient) are valuable to ensure the chance of implementation success. Moreover, the local governments should strongly consider providing CiRM training for users who are affected by the system as well as to introduce incentive allowance for them if the parallel approach is the option in operating the system. In addition, continuous promotional campaigns should always be in the councils' calendar of activities to attract more public to use the CiRM system. Once the internal users and public realise the system benefits and gain their confidence, eventually they will overcome the resistance on their own.

Stage (11) in the framework involves the support provided by the vendors. Implementing the CiRM system in local governments is likely to involve three types of vendor assistance throughout the process – consultancy, training and technical operation. CiRM vendors are contractually responsible for delivering these three types of support. Whilst consultancy and the training aspect has been explained in the earlier stages (see Stages 7 and 8, respectively), system support is also essential to meet users' needs after the CiRM system goes live. Strong support from the vendor may be costly, but with the skills that they have it can enable a cost reduction concerning maintenance, unless the

local governments are confident that they can employ the required technical staff. The framework also suggests that although the vendor relationship was established from the initiation of the contract, the local authority cannot secure the same level of support throughout the implementation process. The vendor's representatives, who are responsible for implementing the CiRM, but no longer provide support, may be a major factor in the slow response.

Stage (12) involves with the CiRM post-implementation. System developers should incessantly maintain the CiRM system after its implementation. The failure to maintain the system may lead to the failure in delivery the public with the services. System developers should also enhance the CiRM system if there is a request made by public. Other maintenance tasks such as checking the system's performance and duplication of the public's data in different mediums are also required to make the public develop trust in the system's capabilities.

6.5 Summary

This chapter explains the proposed theoretical framework of the CiRM implementation process in Malaysian local governments. The framework was developed by employing the Straussian-based grounded theory approach. The approach was appropriate in generating a set of determinants in the CiRM implementation process. The employment of this approach has also encapsulated the system developers' experience and their efforts in implementing the system, which had been overlooked in the existing CiRM implementation literature.

The development of the CiRM implementation process framework was not a series of cross-case studies. The framework was developed from the issues that were found to be similar across the six local governments throughout the country. Comparing the determinants across these case organisations has enabled the validity of the data to be enhanced. As these twelve determinants were derived from the fieldwork, they were highly related to the actual CiRM implementation process. In short, this chapter not only covers the CiRM implementation processes, but also the activities and forces that lie within the processes. By recognising these interrelated elements (i.e., issues, activities and forces), the system developers can better understand their roles and responsibilities (i.e., commit) for efficient implementation of the CiRM system.

The following chapter will present the contributions of this study and its limitations. In addition, a conclusion from the research (i.e., implications and direction of the future research) will also be presented.

Chapter 7

Conclusion

This thesis explores the process of CiRM implementation in Malaysian local governments from the system developers' perspective. It highlights the background of the problem, which leads to the research question and objectives of the study, as presented in Chapter 1.

The Chapter 7 is structured as follows. The first part describes the outcomes of this research. The second part presents the methodological conclusion that was utilised in conducting the study. The third part addresses the theoretical and practical contributions of the study. The fourth part discusses the limitations of the study. In the fifth part, the implications of the study, both theoretical and practical are discussed. Finally, the sixth part discusses future work arising from the study.

7.1 Findings

This section summarises the findings of the study by reflecting on the main research question **“How do local governments in Malaysia implement their CiRM system?”** To answer this research question, as well as to show its objectives have been met (see Sections 1.2 and 1.3 in Chapter 1), the following sub-section describes two major findings.

7.1.1 The Emerging CiRM Implementation Determinants

The main findings of the study are the identification of the twelve CiRM implementation determinants that are crucial in the CiRM implementation process from

the perspective of system developers.¹¹⁴ The determinants are in line with other IS implementation studies, which suggests that organisational determinants are more likely to influence the implementation of the system. This can be seen through the findings of similar IS implementation literature either globally (e.g., Beaumaster, 2002; Ko et al., 2008; Tseng et al., 2008; Rose and Grant, 2010) or in the Malaysian context (Hashim et al., 2007; Hussein, Abdul-Karim, Mohamed, and Ahlan, 2007; Hashim 2010).

Table 7.1 summarises the characteristics of the CiRM implementation determinants of the study; the symbol ‘-’ indicates an absence of the involvement of system developers in the implementation process.

It is apparent that CiRM implementation determinants change throughout the implementation process. Ten of them were found recurrently in the *unfreezing*, *moving* and *refreezing* stages. These include the role of the system developers, senior management support, implementation objectives and planning, CiRM partnership, system development, staff training, managing end-user’s resistance and vendor management (i.e., appear crucial to the effectiveness of the CiRM implementation process). The other two determinants are only relevant to one particular stage – CiRM procurement, which occurs during the *unfreezing* stage and CiRM post-implementation, which arises in the *refreezing stage*. All twelve determinants are nevertheless mutually connected with one another to form the complete cycle of CiRM system implementation.

A comparison was also conducted with the existing IS implementation studies (e.g., DSS, CRM, CiRM/e-Government, ERP), and the fieldwork in the UK (pilot studies data) to fully understand the characteristics of the CiRM implementation process. The discussion of the twelve emerging CiRM implementation determinants is as follows:

¹¹⁴ There are twelve common determinants between all local governments. Determinant of ‘user acceptance testing and installation’ was combined under the ‘system development’ as its characteristic was related with the technical issues encountered during the development activity while ‘sharing the knowledge’ was dropped from the framework as this activity was weak in terms of its characteristics (only appeared in one case).

CiRM implementation determinants	CiRM implementation life cycle adapted from the Lewin's Change Model (Zand and Sorensen, 1975)					
	Stage 1: Unfreezing		Stage 2: Moving		Stage 3: Refreezing	
	UK	Malaysia	UK	Malaysia	UK	Malaysia
1. Role of the system developers	Initiating and spreading the news for the implementation to senior managers	Leading the project by working together with other team members	Communicating and working together with council members for the implementation	Selling the idea of implementation within the entire organisation	Continuous discussions with senior managers to understand the system's benefits and monitoring the project's progress	Acting as 'intermediaries' between the stakeholders involved in the project
2. Senior management support	Not receiving universal support from the senior management	Persuading senior management	Persuading senior managers for CiRM implementation	Justifying to senior management	Receiving continuous support and sustaining communications with senior managers for the implementation.	Sustaining justification for the implementation
3. Users' requirement analysis	Determining the end-user needs	Determining the end-user needs	Getting a clear picture of system's requirements	Getting a clear picture of system's requirements	Discussing with team members and senior managers on the CiRM structure	Carrying out on analysing end-user requirements
4. Implementation of objectives and planning	Reviewing the possibility of partnership with other councils and setting the implementation objectives	Setting the implementation objectives	Carrying out implementation activities within a scheduled timeframe	Carrying out implementation activities within a scheduled timeframe	Developing a plan for future CiRM implementation	Developing a 'culture' of continuous improvement for CiRM implementation
5. CiRM partnership	No discussion	Forming a partnership approach with suitable external stakeholders	No discussion	Establishing the partnership approach	No discussion	Strengthening the partnership approach
6. CiRM procurement	Choosing a suitable CiRM vendor	Choosing a suitable CiRM vendor	-	-	-	-
7. System development	No discussion	Ensuring government guideline is honoured	No discussion	Developing prototypes of applications and migrating data from legacy to CiRM system	No discussion	Testing and installing the CiRM system

8. Staff training	Determining the training programme according to the roles of users	Determining the training programme for those affected by the system	Certified vendor conducting formal and non-formal training	Certified vendor conducting formal and non-formal training	Conducting continuous informal training	Conducting continuous informal training
9. CiRM publicity	No discussion	Identifying the suitability of promotional activities	No discussion	Conducting promotion of the system	No discussion	Sustaining continuous promotion of the system
10. Manage the resistance	Managing change anxiety	Managing change anxiety	Managing turmoil	Managing turmoil	Managing adjustment anxiety	Managing adjustment anxiety
11. Vendor management	Making CiRM vendor contractually responsible for delivering product, training and technical support	Making CiRM vendor contractually responsible for delivering product, training and technical support	Establishing a good relationship with the vendor	Establishing a good relationship with the vendor	Strengthening the relationship with the CiRM vendor	Strengthening the relationship with the CiRM vendor
12. CiRM post implementation	-	-	-	-	No discussion	Monitoring and maintaining the system's operation

Table 7.1: A comparison of the emerging CiRM implementation determinants throughout the implementation process between the UK and Malaysian local governments

(1) Role of the System Developers

A system developer is someone who is committed to being actively involved in all the activities throughout the CiRM system implementation life cycle (e.g., studying optimum practices from other CiRM implementers, such as neighbouring councils, engaging with consultants to find out the best solution for implementing the system, etc.). As compared to Malaysia, system developers in the UK have more responsibilities in the implementation process as they have to initiate the CiRM system in the early stage. It is revealed that they rolled-out the news of the CiRM benefits to several senior managers (within their local government organisations). Nonetheless, in both countries, their role is important as “champion” as they tirelessly embark on the implementation activities for moving forward despite facing some implementation hurdles (e.g., did not receive full support from their senior managers).¹¹⁵ The CiRM project is always their top priority and their commitment to complete the project is high.

The strong commitment from the system developer in the CiRM implementation process is also in line with what has been proposed by Reddick (2007) who has suggested that it was essential for local government to choose the right person in managing the CiRM project. If the chosen system developers can manage the interested stakeholders (e.g., senior managers, end-users, vendors) to effectively work together, the chances of CiRM implementation success can be increased. As the CiRM implementation cannot succeed without the sustainable commitment from the system developers involved (as proven in all the case studies), their knowledge in a project management is seen as one of the crucial criteria that local government need to be considered. This is proven in both countries where the system developers’ skill as “intermediaries” is required to participate in the regular discussions with the vendor. Therefore, it can be argued that choosing the right full-time system developers is central to the implementation success.

The study also reveals that system developers (e.g., Head of ICT Department or the Head of the System Analysts), who at the same time were acting as senior managers, would find it much easier to overcome the internal bureaucracy (e.g., securing funding, transparency in selecting CiRM vendors) in the implementation process. This can be

¹¹⁵ Champion is a highly respected individual who maintains momentum and commitment to change, often taking personal risks in the process (Kanter, 1983).

seen in most of the Malaysian cases where this position contributed to the wide acceptance of the implementation for all the local government organisations (e.g., justifying the needs of the system, reducing the users' negative perception towards the CiRM system, etc.). It seems that the system developers' position in the decision making (management level) contributed to the acceptance of the implementation within the local government organisations.

However, system developers cannot carry out the CiRM implementation processes by themselves. In the early stages, the system developers in Malaysia tended to work together with other team members – internal (senior managers, operational staff) and external (consultant, vendor, neighbouring local governments, institution of higher learning, government agencies) stakeholders. Their peers in the UK local government also practised the same approach. Both internal (e.g., senior managers, end-users) and external stakeholders (e.g., vendor, other local governments) are needed to assist the system developers for the CiRM implementation success. By working in a team, the system developers can develop their necessary skills, both business and technical knowledge for the CiRM system. This approach is in line with other IS implementation studies (e.g., Linton, 2002; Kim et al., 2007; Mendoza et al., 2007; Tesch, Sobol, Klein and Jiang, 2009) that have suggested that by working in a team, different perspectives, problems and alternative options can be reached for the success of implementation. The key determinant in achieving the approach is by communicating (e.g., meetings, discussions, etc.) with those stakeholders effectively.

(2) Senior Management Support

Winning senior management support for IS implementation has been recognised in the literature (e.g., Thomas, Delisle, Jugdev and Buckle, 2002; Fernandez and Rainey, 2006). Besides the active communications, effective written communication can be used to convince senior managers of the need to change. The same is likely true in this study where the system developers in the UK and Malaysian local governments are aggressively selling the idea of CiRM implementation to their management.¹¹⁶ Senior managers should make aware of the system implementation if they are provided strong justifications (e.g., tender documentation, request for proposal document, etc.) for the

¹¹⁶ As proven in the early stages of the project, most of the senior managers did not realise the benefits of the CiRM system, so they need to be persuaded about the CiRM implementation.

implementation.¹¹⁷ The management awareness (as proven in all cases) can be seen by providing financial resources and giving moral commitment for initiating a CiRM project.

However, senior management support per se does not ensure successful CiRM implementation; rather it is the extent of their commitment to continuous support and involvement in the implementation process. Continuous senior management support is essential to keep the motivation and morale for system developers in completing the CiRM project successfully. The greater the senior management support, the easier it is for system developers to overcome the organisational issues encountered in the implementation process. This condition is likely true in the UK cases where the CiRM project received continuous commitment and support from the senior managers (e.g., budget allocation for future implementation). The same is clearly illustrated in four of the cases in Malaysian local governments (i.e., PGMC, JBTMC, AJMC and SJMC). As the senior managers at these local governments were concerned about wasting their capital resources, they gave continuous commitment and support for the implementation success (e.g., took part in critical decision making, fully participated in the progress review etc.). This is in line with Sabherwal et al. (2006) who argued that when top management support is highly supportive, it enables circumstances in which better systems are developed. Therefore, senior management support is a crucial determinant for the success of CiRM implementation. It is needed to avoid uncertainty in putting CiRM projects in place.

(3) User's Requirement Analysis

It is broadly known that errors that originate in the user requirement stage may remain undetected when they reach other stages, thereby causing faults that might have sombre consequences (Davis and Venkatesh, 2004; Kujala, 2007). Most of the major cause of the errors is because of the gap exists between the users and the implementation process. The same is likely true in this study where the system developers in one of the Malaysian cases neglected the need of user requirements. As they just simply used the "package requirements" which had already been developed by other government

¹¹⁷ The justification should include a cost-benefit and service improvements analyses.

agencies, the implementation exceeded the scheduled timeframe.¹¹⁸ In contrast, if the system developers spend their time in learning about the user's requirements in-depth, they are able to understand their demands. With a good understanding of user requirements, system developers know what to build while users know what to expect from the CiRM system.

The findings of the study also recommend that the user requirements for the CiRM system should be gathered not only from the operational staff, but also focus upon the public. This is because both the staff and public have different values concerning their needs. Therefore, they must be involved together in the requirement stage. This is in line with several studies on IS implementation in e-Government that suggest for system developers to be active in gathering the needs directly from the public (e.g., Fleming, 2008; Rose and Grant, 2010).

In addition, strategies for data collection, such as focus group and observations are promising approaches that can be used to capture the public needs of the CiRM system. Both approaches are likely suitable in the local government environment as it is impossible to engage all the citizens in the CiRM projects.

(4) Implementation Objectives and Planning

CiRM implementation is likely to be a difficult process involving both technical and organisational aspects. Any system developer in local government, who wants to implement a CiRM system in the future, should bear in mind that the tasks of technology design and organisation are closely interrelated (as evident in the UK and Malaysian cases). As the public demands for CiRM systems increase, knowing the potential implementation difficulties is essential for the success of implementation (Gilbert and Balestrini, 2004; Rose and Grant, 2010).

The findings of this study indicate the significance of flexibility in outlining the implementation objectives and planning for successful CiRM implementation. As a CiRM system should be developed to make it accessible to the public, system developers have to choose the most appropriate effective delivery channel in outlining

¹¹⁸ The system developers took almost three months to find a solution in customising the CiRM package that suits the council's needs.

the system's objectives. This can be done by constantly evaluating the potential channels that are available. In other words, they must justify which public channel should be used (*unfreezing stage*) and how well the public are using those channels that they have chosen (*refreezing stage*). In this regard, for the success of CiRM implementation, it is important for system developers to formulate the implementation objectives before any procurement process.

Once there is a clear implementation objective, the efficiency of the implementation process can be extended through proper strategic planning. The significance of strategic planning has also been highlighted by several IS implementation studies (e.g., Beaumaster, 2002; Heier et al., 2008).¹¹⁹ Moreover, the findings of the case studies in Malaysia indicate that system developers should implement CiRM systems in a systematic manner (e.g., incremental or phase implementation).¹²⁰ This approach has also been recognised as the appropriate strategy for implementing e-Government initiatives as it gives ample time for system developers to adjust with the complexities of the system (e.g., Fleming, 2008; Santana, 2009). Conducting meetings with stakeholders involved in the project, for instance, is a good practise for monitoring the progress of the CiRM project. The more regular the meeting is, the more a shared understanding of the issues rose can be developed (e.g., financial resources problems). Achievements should also be measured against the implementation objectives (i.e., meaningful result in a reasonable time-frame).

(5) CiRM Partnership

The findings of the study demonstrate that system developers in Malaysian local governments encourage strong collaboration with external stakeholders, such as the consultant, vendor and other government agencies, to lessen the risk of implementing unsuccessful CiRM system. Such collaboration has been secured with a legal agreement to make those parties contractually responsible for delivering the system. The importance of the relationship with external stakeholders is also in line with several studies in IS implementation (e.g., Tan et al., 2005; Evans and Yen, 2006; Bertot et al.,

¹¹⁹ For instance, Beaumaster (2002) claimed that strategic planning is the primary key to the effectiveness of the whole implementation process in e-Government initiatives.

¹²⁰ Setting milestones and targets, which are important to keep track of project progress, should be included in the planning process.

2008; Hodges and Grubnic, 2010).¹²¹ By choosing to work together with several parties, council system developers can create a win-win situation in which they can easily implement technological solutions (e.g., the system can be developed within the given time frame). This means that CiRM implementation success does not only rely upon the system developer's knowledge but also on the knowledge of other external stakeholders. As evident in this study, where most of the system developers in the Malaysian cases were lacking in IT skills, the CiRM partnership approach is significant for them to continue to meet the demand for the public by providing them with the state-of-the-art CiRM technologies. From the initial stage of the implementation process, system developers need to map out an operational relationship that can foster the effectiveness of collaborative partnership. A combination of public-public sector and public-private sector collaboration should further be exploited among the system developers to ensure the success of the CiRM initiative, as suggested by other studies, such as Harper et al. (2004) and Tan et al. (2005).

(6) CiRM Procurement

It is apparent that the system developers in the UK and Malaysian local governments were going through the standard public procurement process as practised by their own governments. The pre-tender, specification and award stages and execution of the contract are several activities that are included in the procurement process. To identify a qualified vendor, it is significant for system developers to first understand their local government strategy concerning the CiRM system (which is identified during the user's requirement analysis) before moving to identify a vendor to meet those needs. Not identifying this issue may cause a problem later in the procurement stage. This is in line with several studies, such as Beaumaster (2002) and the Sustainable Procurement Task Force (DEFRA, 2006) that noted that the key to IS procurement in local government is a solid strategic plan. As long as the plan fully considers the financial issues, the procurement process should not be problematic.

Additionally, it is essential for system developers to focus on which functions of the CiRM system will provide benefits to the council rather than pursuing the senior

¹²¹ For instance, Hodges and Grubnic (2010) reported that the partnership working has been adopted by the majority of local governments in the UK in meeting the nation's e-Government agenda. However, there are no further discussions concerning this issue during the pilot studies in the UK local governments.

management for big software packages to blindly keep up with the trend. Employing selection criteria (e.g., vendor's reputation and ability) to all vendors who participate in the procurement process is a good practice. When selecting vendors, system developers should not select strong names indiscriminately. They should consider after sales service, training and technical support. The greater the effort involved in the procurement process, the greater the chance of implementing a successful CiRM system. The significance of determining the capability of CiRM vendors during the procurement process is also in line with the IS implementation literature (Ernst, Kamrad and Ord, 2007).

(7) System Development

Compared to the UK, the findings of the study indicate that system developers in the Malaysia found it more stressful to develop a CiRM system as there are no appropriate CiRM packages available in the Malaysian market. Therefore, system developers in Malaysia have to ensure that activities, such as meeting the standard of the CiRM system, developing a series of prototype applications and integrating the old with the new CiRM systems are among the development issues that need to be given adequate consideration for the implementation to be successful.

The findings of the study indicate that the design of a useable system that meets the standard of a CiRM system is taking place in Malaysia. The basis for meeting this standard is through employing the guideline from the Malaysian government sources, such as the Malaysian Public Sector ICT Security Management Handbook and the Malaysian Government Portals and Website Assessment criteria. As local governments may implement more than one CiRM systems at different times, these guidelines can help the system developers to control the standard of the CiRM system developed by the vendors. Moreover, to achieve the CiRM standard, the approach of user-centred design, as claimed to be important by IS implementation studies (e.g., Abras, Maloney-Krichmar and Peece, 2004; Mao, Vredenburg, Smith, 2005; Bertot et al., 2008), should be employed to overcome the changes proposed by the users (staff and citizens).

However, when developing a CiRM system, the system developers should bear in mind that most users may not be able to allocate a lot of time or fully participate (particularly the public) in the development process. It is also interesting to note that due to its

complexity, implementing a CiRM system involves a significant amount of change. As a result, the CiRM projects should closely address the users' needs and expectations as well as to fulfil the required changes; prototyping is seen as a suitable approach that can be used (as proven in the JBTMC, SEMC and SJMC cases). This is in line with other studies in IS implementation for the significant use of prototypes (e.g., Ahituv, Neumann and Zviran, 2002; Coughlan, Suri and Canales, 2007; Kendall and Kendall, 2011). It seems likely that the development of traditional systems, which involves a detailed analysis during the development process, as being practised by many government agencies (Tsai et al., 2009), will not work with a CiRM system. Instead of spending a lot of time producing very detailed specifications, system developers should only find out generally what the users want from the system. This can be achieved through the development of a series prototype application where each prototype need not contain all the essential features that the final system, but should be an example for system developers to garner the user interests and needs. After taking into account all the feedback from the users (until they are satisfied with the improvement of the prototype), a detailed work process for the real working CiRM system can be developed.

The findings of the study also indicate that the quality of data in the CiRM system is another issue during the development process. Through the CiRM implementation, most of the Malaysian local governments hope to integrate 'silos' of data sources in the back-end systems for advanced usage in the CiRM system. However, many data issues within the back-end systems are not discovered until that data is populated and queried in the new system (Watson, Abraham, Chen, Preston and Thomas, 2004). This is likely to be true in this study where one of the cases (AJMC) neglected a migration plan to transfer the data from the old to the CiRM system. As a result, the implementation process at this local government faced issues of data inconsistency. Thus, it can be said that CiRM data can only be fully integrated and exploited for public usage once its quality and integrity are assured.

(8) Training the Staff

The significance of training the staff to facilitate the implementation process is well documented in the IS implementation studies (e.g., Sabherwal et al., 2006; Heier et al., 2008; Sharma and Yetton, 2008; Tesch et al., 2009). End-user training is considered

crucial to support the successful implementation of new IS in an organisation. Several studies have often argued that if the organisation staff are not well trained in using the systems' application, it will result in resistance to change (e.g., Tseng et al., 2008; Rose and Grant, 2010). For this reason, IS implementation typically comes with substantial investment in training programmes. Likewise, providing staff for training in the CiRM implementation process must be addressed to achieve the benefits of a CiRM system, as proven in most of the case studies in the UK and Malaysia. A suitable training programme should be conducted for all staff that are affected by the system, not just the operational users, to achieve a successful CiRM implementation. This includes formal training provided by the certified trainers from CiRM vendors as well as in-house training provided by the system developers.

In addition, training the staff should also not come as an afterthought (i.e., it should be conducted immediately after the system installation). The sooner training begins, the sooner the council's staff realise they are part of the implementation process and the quicker they can realise the benefits of the CiRM system. Nonetheless, to upgrade the staff skill requires the development of proper training programmes. It is suggested that whoever delivers the training should not simply focus on demonstrating how to use the system's application and its functionality. Instead, the staff should be trained in how the new CiRM processes and the system itself will help their organisation deliver better services for the public.

(9) CiRM Publicity

In many developing countries, the implementation of e-Government initiatives have either totally overlooked the need to promote the developed systems or at most attributed little emphasis to it (Kumar and Best, 2006). Appreciating the importance of CiRM publicity, most of the case studies in Malaysia have undertaken several promotional activities during the implementation process. It seems likely that system developers in Malaysian local governments are aware of the importance of an advertising campaign to boost the use of CiRM systems by the public. As many people may not know of the existence of the CiRM system that is offered by the local government, the CiRM publicity should not be neglected as a crucial determinant for the implementation success. This is in line with several e-Government implementation

studies that argued the importance of promotional activities for the success of implementation (e.g., Kumar and Best, 2006; Chan et al., 2008).

Given the related diversity (e.g., budget) among the local government organisations, the CiRM publicity activities may have to vary from one to another. The study reveals the four strategies that have been utilised by system developers in the CiRM implementation process, including in a form of printed system's information, staff assistance, attractive incentives and a combination of these. To create awareness, the printed information (e.g., leaflets, posters, magazines) and the introduction of various incentives schemes (e.g., lucky draw, door gift) is likely to be significant in encouraging the public to use the CiRM system. While the staff assistance strategy seems suitable to close the chasm of the digital divide through enhancing IT literacy, the combination of these strategies may be appropriate to make sure the public continuously use the CiRM system in future. To do this, a promotional team that encompasses members from cross-departments function should be formed where the system developers can act as intermediaries to smooth the activity.

(10) Manage the Resistance

No matter how carefully IS changes are introduced to an organisation, resistance will always be problematic in the implementation process (Beaumaster, 2002). The reasons for user resistance to IS have been widely explained by many researchers (e.g., Ndou, 2004; Kotter and Schlesinger, 2008). The findings of the study indicate that the end-users in both countries – UK and Malaysia – are unenthusiastic about the implementation of the CiRM during the initial (e.g., lack of staff involvement in determining the system requirements) and transitional (e.g., the use of parallel approach, the introduction of new work processes) stages while the public refuse to use the system when it is operational (e.g., the CiRM solution is located in non-strategic location). This finding is in line with other studies in IS implementation who argue that resistance to change may occur at any stage in its process (e.g., Evans and Yeh, 2005; Ebbers and Dijk, 2007). If the end-users are unsure of how change may affect them, the change is more likely to be resisted.

There are several tactics that have been discussed in the literature to reduce the user's resistance to change (e.g., Fernandez and Rainey, 2006; Kotter and Schlesinger, 2008).

This includes the importance of the end-users involvement, the effective communication and training efforts. The same is likely true in this study where the end-users involvement in both countries is directly related to the implementation process. For instance, in Malaysian local governments, the council staff are likely to be invited to be involved in numerous implementation activities (e.g., in requirement analysis and prototypes development) while several explanation sessions would be conducted concerning the system's benefits to reduce their anxiety to change. Additionally, training programmes are also conducted to give the local government staff a chance to take ownership of the CiRM system being developed. It is also significant to involve the public in certain activities, such as in user requirements and publicity, to reduce their anxiety to change. Therefore, system developers should employ a wide-range of user involvement during the CiRM implementation process to reduce the level of resistance. This is also in line with Rose and Grant (2009) who discuss the importance of broad-based participation in the e-Government project.

(11) Vendor Management

The study reveals that the system developers' decision to use qualified vendors in developing the CiRM system proved to be useful. The strategy of collaborating with the vendor at the early stage has contributed to the local governments receiving good support (i.e., product consultation, training and technical support) in the implementation life cycle. However, a strong relationship with the vendor does not mean the system developers receive the same level of support from them throughout the process of implementation. Although three case studies in Malaysia (AJMC, SEMC and SJMC) received good support during the product consultation and training, the service response time from the vendor when the system was operational was not sufficient. This is in line with Zhang, Lee, Zhang and Banerjee (2003) who claimed that the quality of vendor management must include the response time, knowledge ability and the involvement of the vendor in the implementation process. If the system developers can manage these issues effectively, a CiRM system can be implemented in a successful manner.

It is also interesting to note that different vendors may be involved in different projects at the same time throughout the process of the CiRM implementation. Two case studies in the Malaysian local governments (JBTMC and SJMC) exercised caution in sourcing the required expertise at the right time to ensure that the CiRM system was delivered on

time. There are some studies that address how to manage the vendor relationship efficiently (e.g., Dibbern, Goles, Hirschheim and Jayatilaka, 2004; Lacity, Khan and Willcocks, 2009) in the IS implementation. Since a high degree of managing the implementation process is necessary if multiple stakeholders are involved (Tan et al., 2005; Wong et al., 2007; Kamal et al., 2011), an effective coordination of multiple vendors is crucial for the success of the CiRM implementation.

(12) Post CiRM Implementation

As a CiRM system is a way of engaging public participation in a long-term period, a lifelong commitment from the system developers is needed throughout the implementation process. In other words, the role of the system developers does not end when the system goes live to the public. Indeed, their role should also include maintaining the system's operation after its implementation.¹²² To do this, the local government system developers should continuously be capable of providing the reliability of the CiRM system (e.g., error free, public data are regularly updated) for the public usage. Failure to ensure this aspect can seriously affect the reputation of the local government organisations and their capability to effectively deliver services to the public (based on the public expectations).¹²³

As shown in this study, the system developers in the UK and Malaysian local governments are dependent on the vendors' expertise to develop the CiRM system; thus, the technical assistance from them in maintaining the system (e.g., system updates) seems to be crucial for the success of the CiRM implementation. This assistance is needed for system developers to equip the CiRM system with cutting edge technologies (to extend the system's capabilities of producing more benefits). To have the support, keeping a good CiRM relationship with the vendor is essential as the vendor can offer the system developers with professional advice concerning the technical issues of the implementation. Besides maintaining the CiRM system, it is suggested for system developers to spend their time on the system improvement. This is in line with Yu (2005) who proposed the need to maintain the fit between the system and the

¹²² At the *post*-implementation stage, an organisation cares much about the effectiveness of using the system's application, which complies with the organisation's expectation to adopt such a system (Al-Mashari, Al-Mudimigh and Zairi, 2003).

¹²³ This is in line with DaSilva and Batista (2007) who pointed out the potentialities of CiRM in building the reputation of the government.

organisational needs during the post-implementation for the implementation success. One way to improve the CiRM system is through determining a level of user satisfaction, as pointed-out by Sabherwal et al. (2006). This can be achieved by conducting ‘public feedback’, which will prove beneficial in improving the CiRM system.

7.1.2 The Emerging Framework for the CiRM Implementation Process

The emergent CiRM determinants have enabled the study to achieve one of the research aims, that is, to develop a framework for the CiRM implementation process in the Malaysian local governments. The framework was developed by dealing with five main rounds of iterations. The purpose for having these multiple rounds of iterations was to develop a broader picture, and, therefore, reach a general description of the CiRM implementation process (see Chapter 6).

The first phase of the framework was developed as a result of the review of the literature (see Section 2.3.4). This framework was strengthened with the pilot cases, which were conducted in the UK, thus, producing a second framework (see Section 4.5.1). The second phase of the framework was further strengthened with the pilot cases in Malaysia, thus, producing the third phase of the framework (see Section 4.5.2). The fourth phase of the framework was developed as a result of the cross-case analysis between the pilot case studies in the UK and Malaysia (see Section 4.5.3). The final phase of the framework was developed by refining the fourth framework with the primary cases that were conducted in Malaysia (see Chapters 5 and 6).

The framework developed covers not only the CiRM implementation process, but, also the activities and forces that lie within the process. These elements are connected with each other throughout the system implementation life cycle. Following Lucas et al. (2007), the ‘picture’ of the implementation process was achieved by narrating the system developers’ activities towards implementing the CiRM system. Through the identification of each activity in the *unfreezing*, *moving* and *refreezing* stages, the characteristic of the CiRM implementation process is explored.¹²⁴ As the determinants, activities and forces were derived from the data, the concepts and relations asserted in

¹²⁴ The *unfreezing* stage includes activities that the system developer raised during the introduction of the CiRM implementation. The *moving* stage consists of activities pre-determined in the middle of the implementation while *refreezing* stage comprises activities that are specified to stabilise the CiRM system.

the framework of CiRM implementation process are also related to the actual implementation life cycle. This is in line with Becker et al. (2009) who advocated that the successful implementation comes from the interactions between the activities that are involved in the process. For this reason, the developed framework is believed to be sufficient in understanding how the process of CiRM implementation is conducted in the Malaysian local governments (see Appendixes VIII and IX for the framework validation).

7.2 Methodological Conclusion

Through the phenomenological viewpoint (as a research paradigm), three out of six primary case studies were considered successful implementers (i.e., JBTMC, SEMC and SJMC). The advantage of this view is that it allows the study to explain the system developers' experiences concerning the CiRM implementation process that combines the organisational and technical aspects. The explanation came from the different meanings that system developers place upon the implementation process. If they had faced numerous obstacles and had no capability to manage these issues efficiently, it would mean that the CiRM implementation process could be considered as a failure.

Additionally, through the employment of Straussian GTA (Strauss and Corbin, 1998; Goulding, 2002), a theory of CiRM implementation process was developed based upon a comparison of the successful/unsuccessful CiRM implementation process for each of the local government studied. The comparison was also conducted with the existing studies on IS implementation (e.g., DSS, CRM, CiRM/e-Government, ERP) to further strengthen the theory building process. Therefore, the theory of CiRM implementation process was not generated from the existing theory; instead, it was grounded on the collected data (i.e., patterns found in the interview data).

Although there has been some arguments that the Straussian GTA is too rigid (i.e., forced the data), it allowed the study to explore the relationship of each category, and, thus, aided in understanding the connection between them (i.e., the developed codes, concepts and categories could be merged together). Additionally, the Straussian GTA worked well when combined with the Lewin's Change Model in facilitating the development of the crucial determinants (e.g., categories and its sub-categories), which are associated with different stages throughout the CiRM implementation life cycle.

The study also presented how case study research approach was applied to understand the CiRM implementation phenomenon. The most challenging part of using this method was to find local government organisations that were willing to participate in the study. Some organisations that had been approached, in either the UK or Malaysia, had not allowed access on their resources. Although permission was granted with some local governments, it was still difficult to convince the system developers who had experience concerning CiRM systems to agree for a meeting. It was time consuming and a tense activities.

7.3 Contributions of the Study

This study provides insights regarding the characteristics of the CiRM implementation process in Malaysian local governments. The study has expanded the boundary of existing literature as it had investigated the role of system developers in implementing CiRM systems. By integrating the knowledge of CiRM systems and the IS implementation process, this study contributes to both academia and practitioners.

The study represents one of the very few practical studies investigating CiRM implementation in public organisations. Past studies have mainly focused on CRM in private sector organisations (e.g., Anderson et al., 2007; Minami and Dawson, 2007; Richards and Jones, 2008; Becker et al., 2009; Xiaohui and Yong, 2009), and lesser focus was given to the public sector (e.g., hospitals, universities and local governments), thus raising the issues of applicability of the findings to the public sector. As discussed in some of the IS implementation studies (e.g., Cottam et al., 2004; Pan et al., 2006; Pollard et al., 2006), public sector organisations have their own unique characteristics that must be considered by researchers (e.g., the dynamism of customers is unique to the context of the public sector).

Although the issues underlying successful CiRM implementation are believed to be similar to those determinants that might have influenced the success of CRM implementation in the private sector, one cannot simply accept this belief prior to conducting an empirical study. Following this action may lead to implementation failure as both sectors have different implementation characteristics. The study of the CiRM implementation process in local government could therefore be considered as an attempt to add some empirical knowledge in respect of this issue.

This study also deals with the CiRM implementation process in local governments in Malaysia. Despite the growing awareness of the importance of researching issues on CiRM implementation in developed (e.g., the UK, USA) and developing countries (e.g., India, Malaysia), not many studies have been conducted that explicitly address the process of CiRM implementation. The CiRM literature has only focused on establishing the public-centric approach (e.g., Teo et al., 2006; Schellong and Langenberg, 2007; Ong and Wang, 2009; Reddick, 2009; 2010; 2011), integrating CiRM with its back-office systems (e.g., Larsen and Milakovich, 2005; Schellong, 2005; Reddick, 2010; 2011) or developing the system's application (e.g., Pollard, Young and Gregg, 2006; Teoh et al., 2006; Kavanagh, 2007) with little guidance concerning how local governments should actually implement a CiRM system successfully. Although a number of prior implementation determinants have been identified from these studies, such as senior management support, system champion, implementation planning, user requirements, resistance to change, system training and vendor support (see Chapter 2), a description of how they fit together and occur throughout the whole implementation life cycle is still lacking. The study contributes to filling this gap by encapsulating the process of implementing the CiRM system in a form of a framework. The framework of the CiRM implementation process explains the characteristics of various determinants (i.e., twelve of them) without the forced separation of determinants that contribute to the success of the implementation. It also explains the tasks and forces that lie within the implementation process. This study, therefore, contributes to the characteristic of the success or failure of the CiRM implementation process experienced by Malaysian local governments through which other local governments can benefit.

Additionally, this study contributes to the literature by exploring the characteristics of the CiRM implementation process from the system developers' perspective. Previous IS implementation studies (i.e., as discussed in Chapter 2) have only been concerned with other perspectives, such as managers and users, but neglect the role of system developers towards the successful outcome. It appears that the emphasis of literature concerning the system developer pertains to the technical part (e.g., system development, data management and installation) with little guidance on how they could deal with social issues. As discussed in the findings of the study (i.e., Chapter 6), the success of CiRM implementation is more dependent upon numerous organisational determinants, such as the support of the senior management, managing end-users'

resistance and promoting the CiRM system to the public. Therefore, failure to consider these subjective elements in the CiRM implementation process, that is, in understanding system developers' involvement along with the major determinants, may lead to the failure of the CiRM implementation. Instead, the determinants were merged together to form a complete CiRM implementation process.

Practically, the twelve major CiRM implementation determinants (see Table 7.1) that emerged from this study provide guidance for the existing and potential system developers in developing a CiRM system in their local government organisations. The guidance refers to the characteristics (i.e., activities) of these determinants in which system developers must understand them clearly in the implementation process. Some of them (e.g., user's requirement analysis, managing end-users' resistance) require full commitment from system developers to manage them carefully while others (e.g., CiRM publicity) need contribution and support from the stakeholders (e.g., vendor, consultant, senior managers, council users) that are involved in the project. The study, therefore, suggests that the effective use of CiRM can be increased by tackling all twelve determinants. The experience and insights shared by six local governments in Malaysia (i.e., three of them are successful implementers while the others failed) indicate that these are amongst the required 'ingredients' for implementing a successful CiRM system.

In all cases, the system developer is the key individual in the IT department who is actively involved in the implementation process. They diligently embark on the activities for moving forward by working together with the CiRM experts (i.e., consultant, vendor). Seeking help from an experienced and qualified consultant is one way to fully understand what a CiRM system could offer (i.e., in the form of system benefits, which are written in a document of Request for Proposal). Their significant roles should not be neglected by senior managers in local governments to successfully implement a CiRM system.

Adequate support from senior managers is crucial throughout the implementation process to motivate system developers to be more effective in their roles. The support should not just be providing adequate funds, but also in facilitating all the activities in the implementation process. Senior managers should also consider sustaining their

support throughout the process. This is because their continuous support can create a positive environment for the successful implementation of the CiRM system.

The implementation of the CiRM system should be tailored to its user needs expectation. Spending time to learn about the operational staff and public concerning their needs and interests is the key to understanding their demand. System developers can use several tactics to increase the understanding of the new work processes for the CiRM system, such as interviews, workshops and surveys.

Once the requirements are collected and analysed, they can be translated into implementation objectives. System developers should consider the existing technologies of their organisation before deciding which CiRM system they would like to develop. They must be flexible in outlining the system's objectives in order to produce a comprehensive plan to steer the direction of the project. The existence of senior management support and a consultant (if any) should produce better implementation planning. Furthermore, a strategic partnership with a suitable CiRM vendor, government agency or academia should be established at an early stage to increase the chance of system success. This alliance partnership is crucial if the local governments' system developers are lacking CiRM skills (e.g., how to merge the necessary data from the decentralised into a centralised database, and how to integrate some back-end applications with the front-end CiRM system).

In addition, system developers should pay careful attention in choosing a qualified vendor to assist them in developing the CiRM system. Besides the system requirements, a set of useful criteria (e.g., vendors' ability and reputation) includes those factors that should be considered during this process. The ability of the selected vendor could reduce the stress of system developers in developing the CiRM system. Nevertheless, many discussions and meetings should be conducted between these two parties to facilitate the applications development, data migration, standardisation aspect, and system testing and installation.

As the introduction of a CiRM system would involve some changes to the council's work processes, system developers should not overlook for a suitable user training programme once the system is installed in the council. The council's end-users should be trained with the provision of hardware and software skills to enable them to interact

with the system effectively. Additionally, the public should be informed of the existence of the CiRM system as being innovation technology they can use (i.e., to engage with the council). Aggressive promotional activities, such as distributing printed information, providing staff assistance and introducing attractive incentives are some strategies to boost the usage of the system.

Effective user training and campaign activities should be able to minimise the level of resistance from the end-users and public in using the developed CiRM system, respectively. However, this effort can only reduce resistance to change during the transitional stages of the CiRM life cycle. As resistance to change may occur throughout the process, involving the participating departments' users from the early stages (e.g., system needs and applications development) should also be considered to overcome the resistance.

Although CiRM vendors are contractually responsible for delivering these services, system developers should always remember that local governments cannot secure the same level of support throughout the implementation process (i.e., different vendor developers who are involved in providing the service could slow the project progress). It is suggested for system developers to continue maintaining the CiRM system to make it reliable for operation, thus, reducing the possibility of system failure, which requires technical support from the vendor.

7.4 Limitations of the Study

The six Malaysian local governments' studied (i.e., primary-cases) cannot be considered as representative for the other countries local governments'. As a result, generalising from this study is not possible. The emerging twelve determinants in the CiRM implementation process represent the experiences that were novel and unique from system developers in local governments in Malaysia. The study may even have been just 'lucky' in obtaining the sample (i.e., through the theoretical sampling). It also acknowledges that if there were more than twenty system developers from these organisations, the study may derive different concepts and categories which may require the development of a different CiRM determinant of implementation process. This is because some of the system developers may want to show only the positive aspects of the implementation, which occur potential bias. Through exploring the experiences from

the twenty system developers, this study, therefore, offers the best explanation of CiRM implementation process in Malaysian local governments.

7.5 The Implications of the Study

This study has several academic and practical implications. The following sub-sections will describe how the outcomes of the study can be used widely by academician and Malaysian local governments' system developers.

7.5.1 The Implications of the Study to Academician

The study has several academicism implications. Firstly, it encapsulates the process of CiRM implementation through the identification of the determinants for the implementation success. The encapsulation has been achieved by fitting the organisational determinants in the form of a framework that occurred during the *unfreezing, moving and refreezing* stages of the implementation. This indicates that the employment of Lewin's Change Model has enabled the study to encapsulate the complete picture of CiRM implementation process. As presented in Chapter 6, the CiRM implementation framework contains twelve determinants that are essential throughout the implementation process. The comparison made with the existing IS implementation studies suggest that system developers should have these determinants for their implementation effort to be successful.

Secondly, the framework of the CiRM implementation process addresses the importance of organisational determinants in the implementation process (e.g., senior management support, partnership, staff training, managing end-users' resistance, vendor management). A number of organisational determinants play important roles during the CiRM implementation process with no particular determinants identified as being more prominent than another.

Both organisational and technical determinants are merged tightly in forming a complete framework for the CiRM implementation process. Therefore, it can be argued that the organisational determinants should be treated as being equally crucial in the success of the system's implementation. The study provides clear indication that organisational determinants are indeed highly significant in ensuring successful CiRM

implementation, particularly in the context of the public sector. The emerging determinant of senior management support reaffirms those studies concerning the importance of organisational determinants in a similar sector either in Malaysia (e.g., Hashim et al., 2007) or worldwide (e.g., e.g., Kannabiran et al., 2004; Moon and Norris, 2005; Schellong, and Langenberg, 2007; Tseng et al., 2008; Santana, 2009; Chu, 2010; Reddick, 2010; Kamal et al., 2011).

Additionally, some crucial determinants, such as user's requirement analysis, training the staff, and managing end-users' resistance were found to be similar to the previous studies on the implementation process (e.g., Richter et al., 2004; Chan et al., 2008; Fleming, 2008; Tseng et al., 2008; Velsen et al., 2009; Hung et al., 2010; Rose and Grant, 2010). The determinant of CiRM publicity, which is rarely discussed in the IS implementation studies has also emerged in this study. The system developers in Malaysian local governments are likely to understand that even with the most sophisticated CiRM system, the widespread use of the system cannot be assured. They realised that it was insufficient for CiRM implementation to exclude the significance of CiRM publicity in the implementation process. As citizens may not know of the existence of the CiRM system being offered by the local government, the promotional activities should be conducted wisely for the success of the implementation (Kumar and Best, 2004; Chan et al., 2008).

7.5.2 The Implications of the Study to Malaysian Local Governments' System Developers

This study also has some practical implications, particularly for system developers in Malaysian local governments. The findings of the study indicate that most of the local governments' system developers in the country had inadequate skills for developing the CiRM system (i.e., at the beginning of the implementation process). Seeking help from an experienced neighbouring local government, qualified consultant or vendor is one way to develop their own initial understanding. Discussions with professionals, academia or government agencies on how to improve the public delivering services can also be used. Malaysian local governments' system developers should continuously engage with these external parties as their partners in implementing the system. They are even more effective if they receive satisfactory support from the senior management, as the senior managers' action (i.e., in facilitating all activities) will

motivate them (e.g., when there is adequate funding, implementation activity can move to the procurement process of the CiRM system). Their effectiveness can also be increased by providing adequate human resources to participate in the project. Therefore, it can be argued that system developer (s) in Malaysian local governments need the support and (or) involvement from other players (i.e., project team, consultant, neighbouring local governments, senior managers, end-users, CiRM vendor, government agencies or institutions of higher learning) to implement the system successfully.

The ability of the system developers in Malaysian local governments to move the implementation activities forward throughout the implementation process will also determine the success of the CiRM system. As the implementation determinants change throughout the CiRM implementation life cycle (see Table 7.1), system developers have to give different emphasis to different stages of the implementation. Initially (*unfreezing* stage), emphasis should be given to preparing for the introduction of the system, and then, in the middle of the implementation (*moving* stage), emphasis should be centred on learning and incorporating the pattern of issues from the introduction of the system. As progress continues, emphasis should be given to stabilising such issues (*refreezing* stage). Therefore, it can be argued that system developers in Malaysian local governments are responsible for ensuring that the implementation issues (i.e., that came from the key players in the implementation process) are managed in an effective manner.

Although the CiRM implementation process framework was derived from the six primary cases in Malaysia, system developers in other local governments in the country (or even in other countries) can use this framework as a tool to facilitate their planning and manage their implementation process. They will have to face and manage a similar pattern of issues faced by this study. For those local governments that have already embarked on their CiRM implementation efforts, the framework provides a guideline to organise and coordinate the implementation in an integrative manner. By applying the framework, system developers can identify any weak link in their existing project. A fine-tune of the appropriate determinant (s) can then be made accordingly to ensure the process is on the right path for the success of the implementation.

7.6 Direction for Future Research

Based upon the system developer's perspective, this study offers a minor step towards deriving a better understanding of the CiRM implementation process in local governments (in particular, Malaysian local governments). The characteristics of the CiRM implementation process are heavily dependent on how effectively they deal with the implementation issues.

The findings indicate that there is an interaction among all the implementation determinants that seem to influence the CiRM implementation process. For this reason, future studies may want to improve the proposed framework, which examines the behaviour (Kim and Pan, 2006) of each of the twelve emerging determinants (i.e., relationships among the determinants and their consequences in the implementation process). The study can also be extended to a quantitative model by identifying potential contingency determinants and potential dependent determinants (e.g., Love and Irani, 2004; Bandara, 2007) to measure the success of CiRM implementation. The twelve CiRM implementation determinants can also be used as input to construct operationalisation for a survey intended to validate the extended CiRM implementation success model; results of which will also yield insights on the relative importance of the success factors.

Given that system developers' experience will change over time, future studies shall extend the framework of the CiRM implementation process at all level of local governments (which include a district and city councils status). The extent to which the framework is applicable to these types of local governments needs to be tested before it can be adapted successfully. The testing will enable the CiRM researchers to identify the generalisability of the framework to other local governments. In the process, the similar and dissimilar determinants will be uncovered. The similarities and differences would provide guidance to local governments' system developers on their CiRM implementation effort. Additionally, the replication of the study (Creswell, 2003) in other different country could also be conducted.¹²⁵ Any similarities and differences

¹²⁵ The activities involved in the CiRM implementation process in Malaysia may different to those in other countries. For instance, compared to the UK (i.e., in the pilot study), the system developers in Malaysian local governments were more stressed from developing the CiRM system, as there was no CiRM package available (i.e., both developers from the local government and vendor had to build the system from scratch).

being practiced in other countries will improve this initial effort to increase the knowledge of the CiRM implementation process.

Future work is also suggested to use the other IS models of implementation process to study the phenomena of CiRM implementation (see Chapter 2). The Kolb-Frohman (Ginzberg, 1981), the Cooper and Zmud (Cooper and Zmud, 1990), the Kotter (Kotter, 1995) and the Garvin and Roberto (Garvin and Roberto, 2005) models of change can be applied as an alternative to Lewin's Change Model. Although these models were not selected as the study's framework (because their inability to encapsulate the CiRM implementation process better than the Lewin's model), however, their inclusion for future study is necessary to know how well the Lewin's Change Model encapsulates the system's implementation process.

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Appendix I

School's Nomination for the AMCIS 2010 Doctoral Consortium

School of Information Systems, Computing and Mathematics

Head of School:

Professor David Gilbert

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5 March 2010

Dear Professor Marakas,

Reference: Mahadi Bahari

I write to strongly recommend Mahadi Bahari to you as a nominee for the AMCIS2010 Doctoral Consortium.

Mr Bahari is a third year full-time PhD student at this school, supervised by Dr Syed Nasirin and Professor David Avison. He has been working on the Citizenship Relationship Management (CiRM) implementation process in both the UK and Malaysian local governments for the last 30 months.

The work should facilitate some new development in the field of public sector CiRM implementation, particularly in the developing nations. He uses a combination of grounded theory approach and case study research as his main research design to encapsulate the needed data and most of his primary fieldwork has been completed. My belief is that Mahadi should be able to complete his PhD by mid 2011. He has so far demonstrated excellent qualities that should be of great value in his future career as an academic. I have every expectation that this record of high performance will continue beyond his program of study.

I am pleased to provide this testimony on the excellent record achieved by Mahadi Bahari in our PhD program. I would be most grateful if you could let him join the Doctoral Consortium, from which he will no doubt benefit a great deal.

Sincerely,

Professor X Liu, PhD, CEng, FBCS, CITP
Doctoral Programme Director

Appendix II

Interviews conducted in the study

Table II.1 illustrates the total number of interviews (i.e. twenty) conducted in the study. These include five pilot interviews (two in the UK and three in Malaysia) and fifteen primary interviews. Two local governments from each country, in the UK and Malaysia were involved for pilot-studies while six Malaysian local governments participated as primary-cases.

Position/ Country		Pilot Interviews				Primary Fieldwork						TOTAL
		UK		Malaysia		Malaysia						
Local Governments		SDC	HCC	PGMC	MUMC	JBTMC	AJMC	SEMC	SJMC	KUMC	BPMC	
System Developer's Position	Head of System Analysts	0	0	1	0	1	1	1	1	1	0	6
	System Analysts	1	1	1	0	1	1	0	1	0	1	7
	Programmer	0	0	0	1	1	1	3	0	1	0	7
Number of Interview (s)		1	1	2	1	3	3	4	2	2	1	20
Quality of interview (s)		H	H	H	H	H	H	H	H	H	L	

*H – Total High Quality Interviews – 19; L – Total Low Quality Interviews – 1; Total Pilot Interviews – 5; Total Primary Interviews – 15; and Total Interviews – 20.

Table II.1: The interviews conducted and the quality of those interviewed

The symbol of “H” and “L” indicates the quality of those interviewed. *High (H) Quality Interviews* can be defined as interviews which helped to generate solid core categories, sub-categories and their dimensions (describe the salient conditions, consequences, events and experiences of the participants). The interviews guided the subsequent interviews, allowing the process of collecting, analysing and coding the data to become more targeted.

Low (L) Quality Interview can be defined as interviews which could be considered unhelpful in generating additional categories, sub-categories and their dimensions (i.e., no additional data were collected or found to add or develop to the set of categories and sub-categories). The study has reached this level after theoretically sampling and

analysing twenty system developers that experienced on CiRM implementation process - five during pilot studies (see Chapter 4) and fifteen during primary fieldworks (see Chapter 5).

Appendix III

Information Systems Implementation Defined for CiRM

Different scholars in IS implementation have tried to address the problem of implementation in different ways (e.g., Cooper and Zmud, 1990; Munkvold, 1999; Lucas and Spitler, 2000; Heier, Borgman and Hofbauer, 2008). It is a complex phenomenon that can be found in many different disciplines, such as management science, manufacturing operations, social sciences and information technology (Nash, Childe and Maull, 2001). As a result, there have been three differences of explanation regarding the definition of IS implementation from these studies.

Viewed from the first group, IS implementation is described as one of the steps in the development life cycle (e.g., Avison and Fitzgerald, 2003; Kendall and Kendall, 2011). It refers to all the activities involved in introducing IS to an organisation in the final stage in the system life cycle (Klein, Conn, Sorra, 2001; Marble, 2003). This view, however, separates between the technical aspect of implementation (e.g., installation and maintenance), and the organisational aspect of implementation (e.g., senior management support, managing end-user's resistance). Kendall and Kendall (2011) define implementation as:

“This phase involves training users to handle the system. The system developers need to plan for a smooth conversion from the old to the new one. This process includes converting files from old formats to new ones, or building a database, installing equipment, and bringing the new system into production”

Viewed from a technological diffusion perspective, the second group, implementation is described as the entire innovation diffusion (e.g., Premkumar and Ramamurthy, 1999; Linton, 2002; Weerakkody, El-Haddadeh and Al-Shafi, 2011). Similar to the first group, this view has also restricted the definition of IS to one of the steps in the system life cycle, that is, the diffusion stage (i.e., the early stages of implementation). Kwon and Zmud (1987) defined this view as an organisational effort to diffuse an appropriate IT within a user community. They argued that the implementation process has become an important managerial concern focusing on the effective diffusion of IT into an organisation. Indeed, implementation involves all the activities that occur between making an adoption commitment and the time that an innovation becomes routine or is abandoned (Linton, 2002). According to Klein and Sorra (1996), implementation is referred to as:

“The transition period during which targeted organisational members ideally become increasingly, skilful, consistent and committed in their use of innovation.”

Unlike the first and the second group, the third group tended to define IS implementation as being part of all the stages of the system development life cycle. According to Zmud and Cox (1979), IS implementation should be referred to as the process that involves a series of related activities in which each activity is referred to the implementation stage, which involves different tasks and specific techniques. Lucas (1981) concurs with this view by stating that:

“IS implementation is an-going process which includes the entire development of the system from the original suggestion through the feasibility study, system analysis and design, programming, training, conversion and installation of the system.”

IS implementation from the third group can be described as the “wider view” of implementation as it emphasises the beginning and end of the process. Any narrower definition (i.e., as discussed in the first and second group) of IS implementation can lead the study to unconscious activities that are critical to the process (Marble 2000). Hence, it is the wider view of implementation that will be used for the purpose of this study. This broad definition of implementation will permit this study to determine as much as possible the determinants leading to CiRM implementation success. Moreover, the “wider view” has integrated the organisational and technical aspects of IS implementation (e.g., Zmud and Cox, 1979; Lucas, 1981; Munkvold, 1999; Teoh, Jais, Che-Ahmad and Nasirin, 2010). By exploring and connecting these two aspects, it may be significant to recognise that both organisational and technical aspects are equally important ingredients to the success of CiRM implementation.

Appendix IV

Disagreement between the Glaserian and Straussian

The Glaserian and Straussian of GTA differ in three fundamental issues as illustrates in Table IV.1.

Stream	Principle of emergence	Coding	A priori theory
Glaserian	Required by following the origin works of Glaser and Strauss (1967) and other manuscripts authored by Glaser	Open, Selective and Theoretical	Not allowed
Straussian	Required by following the works of Strauss and Corbin (1998)	Open, Axial and Selective	Allowed to direct initial coding of themes and categories, based upon the initial research problem

Table IV.1: The dissimilarities of Glaserian and Straussian GTA.

Glaser (1992) urged researchers to use the ‘emergence’ version (the original version of grounded theory approach formulation by Glaser and Strauss and other works authored by Glaser) which stressed that the theory should emerge from the data, thus claiming that the Straussian version was not a grounded theory but a ‘forced’ description. Strauss and Corbin (1998) rejected this by saying the data *‘are not being forced; they are being allowed to speak’*. The Glaserian stream also believes that the research problem and question are only discovered when coding begins while the Straussian version stress the need for a research statement about the phenomenon to set the boundaries around the study area (Coleman and O’Connor, 2007; Strauss and Corbin, 1998).

The Straussian approach to coding procedures also differs from the Glaserian approach. Straussian made note of three major coding procedures which include open, axial and selective coding respectively, while Glaserian mentioned open, selective and theoretical coding correspondingly (Strauss and Corbin, 1998). Similarly, the Straussian stream tends to be more flexible than Glaserian version on the use of a priori theory, literature, non-technical literature, and personal as well as professional experiences in the domain of the study by guiding the researchers’ data analysis (Strauss and Corbin, 1998).

Appendix V

Strategies for Data Collection in Each Local Government

Local government organisations		System Developer Contact and Positions	Data Collection Methodology		
			In-depth interviews	Archives	
				Inside organisation	Outside organisation
1.	Sevenoaks District Council, Council Offices Argyle Road Sevenoaks Kent TN13 1HG UK	Brian Hatt CiRM Manager e-mail: brian.hatt@sevenoaks.gov.uk Tel: 01732 227280 Fax: 01732 742339	√ Tape recording √ Note taking	√ CiRM system processes √ Communication Plan	√ Council homepage √ The Implementing Electronic Government Statement
2.	Hampshire County Council (HCC) Hantsdirect Parkway 94-96 Wickham Road Fareham PO16 7JL UK	Steve Hawker. CiRM Manager e-mail: steve.hawker@hants.gov.uk Tel: 01329 225313 / 0751 5077 065 Fax: 01329 282534	√ Tape recording √ Note taking	√ Corporate Performance Plan √ A meeting report	√ The Implementing Electronic Government Statement √ Council homepage
3.	Pasir Gudang Municipal Council, L3-06 Kompleks Pusat Bandar Pasir Gudang, 81700 Pasir Gudang, Johor, MALAYSIA	Hamidon Abd Majid Head of the System Analysts (Head of ICT Department) Tel: +607 2547887 Fax : +607 251 5260 e-mail: hamidon@mppg.gov.my Syariza Mohd Sharif System Analyst Tel: +607 2547770 Fax : +607 251 5260 e-mail: syariza75@yahoo.com	√ Tape recording √ Note taking √ Tape recording √ Note taking	√ ICT documents	√ Council homepage
4.	Muar Municipal Council , Karung Berkunci No.516, 84009 Muar, Johor, MALAYSIA	Zulkefli Yaakob Programmer Tel: +606-9544049 Fax: +606-9521204 e-mail: zulkefliyaakob@yahoo.com	√ Tape recording √ Note taking	-	√ Council homepage
5.	Johor Bahru Tengah Municipal Council Menara MPJBT, 81300 Skudai, Johor Bahru, Johor, MALAYSIA	Siti Rafidah Arifin Head of the System Analysts (Head of ICT Department) Tel : 07-5561005 ext. 6124 e-mail: sitirafidah@mpjbt.gov.my or ctrafidah@gmail.com Ahmad Faizal Ab. Wahab Assistant of IS Officer Tel : 07-5561005 ext. 6116 e-mail: faizal@mpjbt.gov.my Wan Iznif Wan Ibrahim Assistant of IS Officer Tel : 07-5561005 ext. 6125 e-mail: icznif@mpjbt.gov.my	√ Tape recording √ Note taking √ Tape recording √ Note taking √ Tape recording √ Note taking	√ ICT documents	√ Council homepage

6.	Ampang Jaya Municipal Council Menara MPAJ, Jalan Pandan Utama 55100, Pandan Indah Kuala Lumpur, MALAYSIA	Rozliza Mohd Head of the System Analysts (Head of ICT Department) Tel: +6019-2601324 / +603-429768130 Fax: +603-42968050 e-mail: rosliza@mpaj.gov.my Zulkifli Md Dom System Analyst Tel: +0603 4296 8030 e-mail: zul@mpaj.gov.my Muhaini Musa Programmer Tel: +603 4297 2137 e-mail: muhaini@mpaj.gov.my	√ Tape recording √ Note taking √ Tape recording √ Note taking √ Tape recording √ Note taking		√ Council homepage
7.	Sepang Municipal Council Persiaran Semarak Api, 63200 Cyberjaya, Selangor, MALAYSIA	Mr. Rosfan b. Hashim Head of the System Analysts (Head of ICT Department) Tel : +6013 3428183 e-mail: rosfan@mpsepang.gov.my Mazlina Bajuri Programmer Tel: +6013 2244665 e-mail: mazlina@mpsepang.gov.my Almanzo Supian Programmer Tel: +6012 2308454 e-mail: almanzo@mpsepang.gov.my Nor Aisyah Mohd Nasir Programmer e-mail: aisvah@mpsepang.gov.my	√ Tape recording √ Note taking √ Tape recording √ Note taking √ Tape recording √ Note taking √ Tape recording √ Note taking	√ ICT documents	√ Council homepage
8.	Subang Jaya Municipal Council Jalan Perpaduan USJ 5, 47610 Subang Jaya, Selangor, MALAYSIA	Samzol Saat Head of the System Analysts Tel : +603 8026 3193 or +6019 3537514 Fax : +603 8024 6612 e-mail: samzol@mpsj.gov.my Mohd Aisamuddin Razali System Analyst Tel: +603-8026 4373 e-mail: aisamuddin@mpsj.gov.my	√ Tape recording √ Note taking √ Tape recording √ Note taking	√ ICT documents	√ Council homepage
9.	Kulai Jaya Municipal Council Jalan Pejabat Kerajaan 81000 Kulai Jaya, Johor, MALAYSIA	Shahida Ahmad Head of the System Analysts (Head of ICT Department) Tel: +6019-7535769 Fax: +607-6632407 e-mail: arsenium_83@yahoo.com Sabariah Sidek Programmer Tel : +607-6631511	√ Tape recording √ Note taking	-	√ Council homepage
10.	Batu Pahat Municipal Council Bangunan MPBP, Jalan Pejabat, 83000 Batu Pahat, Johor, MALAYSIA	Saiful Akma Adan System Analyst Tel: +607-4345395 / +6017- 7376234 e-mail: saiful@mpbp.gov.my	√ Tape recording √ Note taking	-	√ Council homepage

Appendix VI

Reaching Data Saturation

The focus of the data analysis (i.e., data generated from the primary fieldwork – fifteen in-depth interviews) was on the development of CiRM system implementation core and sub-themes. As the interview questions were open-ended, iterative approaches were used to closely review and develop these core and sub-themes. The preliminary theme set the direction of data collection and analysis in subsequent interviews.

Following the constant comparative analysis method (Glaser and Strauss, 1967), the interviews data from the second case (AJMC) were contrasted with those interviews of first case (JBTMC). It was also found that the preliminary concepts generated during the first case however, did not necessarily confirm some of the findings emerging from subsequent cases. This was the essence of the iterative approach to developing core and sub-themes (i.e., leading to a significant clarification of the emerging theoretical framework). This process was employed throughout subsequent interviews (i.e., SJMC, SEMC, KUMC and BPMC).

The iteration between data and concepts ended when sufficient categories, sub-categories and related concepts had been defined to explain what had been observed at all sites and when no additional data were being collected or found to add or develop to the set of categories and sub-categories. A situation Glaser and Strauss (1967) described as “theoretical saturation”.¹²⁶ The resultant framework is empirically valid (substantive and theoretical contributions) as it can account for the unique data of each site and can generalise patterns across the sites (Eisenhardt, 1989; Miles and Huberman, 1994; Yin 2003). Emerging concepts were checked for representativeness by examining them across participants and with triangulation of methods. Triangulation across sites and across data collection methods (interviews and archives) further served to strengthen the emerging categories, sub-categories and concepts.

¹²⁶ The researcher has suspected that the study had reached data saturation by the time he had coded interview transcript number fourteen (KUMC case). However, interview fifteen (BPMC case) was still conducted to ensure that saturation had, indeed, been achieved. Analysing this last one interview transcript produced no new concepts and all the concepts that were developed from this interview were able to be placed under the existing categories discussed so far. Having done this, the researcher was satisfied that he had sufficiently developed and saturated all categories in association with CiRM implementation process and only then the study did cease data collection.

Appendix VII

Cross Analysis of CiRM Implementation Processes

The cross analysis exercise (or known as the “constant comparative analysis method”) was suggested by Miles and Huberman (1994). It is a method for across site contrast and pattern clustering that involves matrix displays (to contrast key experiences, events and consequences). The resultant concepts are empirically valid because it can account for the unique data of each case (Eisenhardt, 1989). Precautions were taken to corroborate the interpretations made by re-asking another participant with the same information in the same department (Miles and Huberman, 1994; Yin 2003). Emerging concepts were checked for representativeness by examining them across participants and with triangulation of methods. Triangulation across cases and across data collection methods (interviews and archives) further served to strengthen the emerging concepts. This method also requires checking of contrasts and searching for negative evidence, thus forcing the confrontation of emerging explanation with possible alternative ones.

Appendix VIII

Validation of the Framework of CiRM Implementation Process

Two common tests are used to examine the quality of research data (which include the final theoretical framework). Table VIII.1 lists the tests.

Tests	Tactics	Stage of research in which tactic occurs
Construct Validity	<ol style="list-style-type: none">1. Use multiple sources of evidence2. Have key participants to review draft of the case studies/Feeding back the findings to participants	Data collection and composition
Internal Validity	<ol style="list-style-type: none">1. Do explanation building2. Do pattern-matching	Data analysis

Table VIII.1: Case study tactics employed in the study (adapted from Yin, 2003)

Two tactics were employed to increase construct validity. The first is the use of multiple sources of data, in a manner encouraging convergent lines of inquiry. This includes the use of in-depth interviews and archives tactics during data collection. The second is to have the draft case study report reviewed by the participants.

The descriptive, interpretative and theoretical validity of the findings are all depend on their internal generalisability to the research as a whole. For this thesis, the concern over internal validity may be extended to the broader problem of making inferences. To regard the research as valid, feedback was used. In doing this, the study has validated the emerging framework (together with its twelve determinants) with two system developers (each one from MPJBT and MPKU) and asked them to comment upon it. The aim was to know whether the participants could recognise themselves in the emerging framework and whether or not the framework represented their experience of CiRM implementation process. Both of them stated that they thought the idea of CiRM implementation process a ‘good’ explanation to account for their experience while implementing the CiRM initiatives and they also agreed that they could see themselves in the theory.

This process did add credibility to the researcher's of interpretations of the data, to the categories that the study developed and to the 'CiRM implementation process' grounded theory. Ultimately, as stressed by Strauss and Corbin (1998) that validity in grounded theory relates to the applicability and usefulness of theory and whether it can explain phenomena. The CiRM implementation process theory, in this case, does provide an explanatory account of system developers in Malaysian local government while implementing CiRM system. Further, this theory can be seen to be grounded in the data that the study obtained.

Appendix IX
Feedback from Participant on the Emerging
Framework of CiRM Implementation Process

The following pages are copies of e-mail communications between the researcher and Ms Rafidah, a Head of ICT Department at MPJBT.

From: Siti Rafidah [sitirafidah@mpjbt.gov.my]
Sent: 2 August 2011 10:18
To: Mahadi Bahari [mahadi.bahari@brunel.ac.uk]
Subject: Re: CiRM implementation process at MPJBT

Dear Mahadi,

Thank you for giving me the opportunity to comment on your work. I have made some comments regarding factual matters where I think the emphasis is slightly wrong. I hope the remarks are helpful.

Overall, I satisfied with the proposed framework – very clear to understand as its narrate all the implementation activities by sequencing the order that exactly follow the actual life cycle while I implemented the system. The identified determinants also make sense that they were important to the success of CiRM implementation. Good job Mahadi!

Hope we can work together in the future. You know how to get me right? Best wishes and good luck on your thesis writing.

Regards,
Siti Rafidah

From: Mahadi Bahari [mahadi.bahari@brunel.ac.uk]
Sent: 10 July 2011 09:33
To: Siti Rafidah [sitirafidah@mpjbt.gov.my]
Subject: Re: Re: CiRM implementation process at MPJBT

Dear Siti Rafidah,

Well thank you so much for your reply. As the report contains more than 10 pages, take your time to read it thoroughly. Your thoughts on the report perhaps could point out the things that I might have misinterpreted from the interview. It will also help me to provide some credibility of the study in the thesis.

Please let me know if you want further assistance from me. Thank you very much for your time and help.

Kind regards,

Mahadi Bahari
Project Coordinator for CRM Implementation Process,
Centre for Information Systems Research (CISR).
School of Information Systems, Computing and Mathematics,
Brunel University,
UXBRIDGE Middlesex,
UBH 3PH,
UNITED KINGDOM.
E-mail: mahadi.bahari@brunel.ac.uk
Mobile no: +447 502407849

From: Siti Rafidah [sitirafidah@mpjbt.gov.my]
Sent: 07 July 2011 13:45
To: Mahadi Bahari [mahadi.bahari@brunel.ac.uk]
Subject: Re: CiRM implementation process at MPJBT

Dear Mr. Mahadi,

Please could you send me the complimentary report? I would like to know what you have written. Thank you.

Regards,
Siti Rafidah

From: Mahadi Bahari [mahadi.bahari@brunel.ac.uk]
Sent: 23 June 2011 03:24
To: Siti Rafidah [sitirafidah@mpjbt.gov.my]
Subject: CiRM implementation process at MPJBT

Dear Siti Rafidah,

I write in the hope that you will be able to help me.

It's me Mahadi, a PhD student from Brunel University who interviewed you sometime in 2009 about the CiRM implementation process in your local government. Actually I could not reach you over the phone and thus failed to talk with you regarding the findings of this study.

For your information, I have put the findings of your council (MPJBT) towards CiRM implementation process in the thesis. Would it be possible for you to have a look at what I've written (in a report format)? I'm looking forward to hearing from you. Your co-operation is highly appreciated.

Thank you.

Kind regards,

Mahadi Bahari
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