JOURNAL OF COMPUTER INFORMATION SYSTEMS
Volume 52, Number 2, Winter 2011

Journal of Computer Information Systems

ISSN: 0887-4417 (Print) 2380-2057 (Online) Journal homepage: http://www.tandfonline.com/loi/ucis20

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Assion Lawson-Body, Lori Willoughby, Laurence Mukankusi & Kinvi Logossah

To cite this article: Assion Lawson-Body, Lori Willoughby, Laurence Mukankusi & Kinvi Logossah (2011) The Critical Success Factors for Public Sector CRM Implementation, Journal of Computer Information Systems, 52:2, 42-50

To link to this article: http://dx.doi.org/10.1080/08874417.2011.11645539

Published online: 11 Dec 2015.

THE CRITICAL SUCCESS FACTORS FOR PUBLIC SECTOR CRM IMPLEMENTATION

ASSION LAWSON-BODY
University of North Dakota
Grand Forks, ND 58202

LORI WILLOUGHBY
Minot State University
Minot, ND 58707

LAURENCE MUKANKUSI
University of North Dakota
Grand Forks, ND 58202

KINVI LOGOSSAH
University of Antilles and Guyana
Martinique, France

Journal of Computer Information Systems 2011.52:42-50.

ABSTRACT

In the private business sector, researchers have used the theory of planned behavior (TPB) to theorize IT implementation factors in three groups: contextual factors, organizational factors and individual factors. However, little research has been conducted regarding the use of these factors to study CRM implementation in the public institution sector. The objective of this study is to identify which private business IT and CRM implementation factors best fit to the CRM implementation at a public institution. For this purpose, data was collected through interviews involving 19 consultants of a US state small-business development center (SBDC) which recently implemented a CRM system. After using the grounded theory approach to generate CRM implementation factors from data, the contextual factors found were compatibility with SBA-EDMIS, environmental pressure, choice of technology, and outsourcing decision. The organizational factors found were high volume of data, investment decision, cost-effectiveness of CRM technology, and top management support. Some factors which are classified in the literature in some cases as organizational and in some cases as individual were also found. They are hybrid individual-organizational factors: training activities and CRM user acceptance. Some of the expected individual factors were not found.

Keywords: CRM implementation, contextual factors, organizational factors, individual factors.

INTRODUCTION

Many authors have developed IT implementation theoretical frameworks. Each of these frameworks contains a group of distinctive internal and external factors to organizations that influence the IT implementation process [20, 24]. There are contradictory explanations about the content, coverage and paradigm followed by these factors. Two groups of IT implementation theorists were opposed: one group of theorists says that implementation should take into account only technical factors. They are the technical IT implementation theorists. The second group, on the other hand, says that IT implementation should consider socio-technical factors. They are socio-technical IT implementation theorists.

Customer relationship management (CRM) implementation has strategic implications and its success or failure may determine the competitiveness of firms in information intense industries [23; 19]. Using the existing IT implementation technical and socio-technical factors, private sector companies have already been experiencing CRM implementation failures [4]**.** These failures are not limited to private business corporations because public institutions are also vulnerable to CRM implementation failures. According to Alshawi et al [1], CRM implementation is influenced by organizational, technical and data quality factors. After conducting qualitative research involving thirty small and medium-sized enterprises (SMEs) from the private sector, they found that factors affecting the implementation of CRM in SMEs are largely similar to the factors affecting CRM implementation in previously studied types of organizations. But public institutions were left out of the study of Alshawi et al [1]. Similar to Alshawi et al [1], many authors have proposed IT or CRM implementation factors in the private business sector. But little research has been conducted using these factors to study CRM implementation in the public sector. Is this because the IT and CRM implementation factors identified in the private sector are applicable to public/non-profit institutions? Academics and practitioners have not identified any implementation factors for public institutions, which face greater risks in CRM implementation than private businesses because they have limited resources and received funding from federal grant solicitations.

The existing factors to guide private companies in the implementation of CRM systems have not been adapted to the public organizations because they are different. Public institutions have their own culture and business processes which are not the same in the private sector. Consequently, the contextual, organizational and individual factors might vary from public sector implementation to private sector implementation. Is there a common way that will solve public and private company's implementation problems? This paper presents the results of a study that is an effort to answer this question.

The objective of this study is to identify which private business IT and CRM implementation factors best fit to the CRM implementation at a public institution like a state SBDC, which recently implemented a CRM system. The research question is: what are the contextual, organizational and individual factors, found in private organizations, influencing a strategic CRM implementation at a public institution which has limited resources?

Received: March 17, 2011 Revised: May 26, 2011 Accepted: July 6, 2011

THEORETICAL BACKGROUND

Researchers have used different theories to study IT implementation issues but most use the theory of planned behavior (TPB) [16]. TPB has been drawn from the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen in 1975 [18]. TPB is well–established in the IT field (Ajzen, 1991; cited in [18]). In the TPB, the firm's decision or *behavioral intention* to implement the CRM system is dependent of *attitude, subjective norm,* and *perceived behavioral control* [23]. According to the TPB, there will be execution of the *behavioral intention* [23] which, in this study, is the existence of the CRM implementation project. *Subjective norm* is the degree of perceived social pressure that the state SBDC feels to implement the CRM system. *Attitude* is the capacity of the state SBDC to undertake the CRM implementation project. *Perceived behavioral control* is how easy or difficult the state SBDC thinks that CRM implementation should be, including potential obstacles. Since the state SBDC is a resource-constrained public institution with limited possibilities of acquiring information and knowledge, the potential obstacles can be limited resources.

TPB theory accounts for some of the IT and CRM implementation factors which are theorized in three groups: contextual factors, organizational factors and individual factors [2]. Wybo [30] extended the theories of IT implementation to include the sales cycle as a source of identified contextual factors. Standing et al., [26] indicate that like private businesses, public institutions also are influenced by contextual, organizational and individual factors. Following Wybo [30] and Standing et al., [26] an attempt is made in this paper to determine whether existing IT and CRM implementation factors will be found in the CRM implementation project at a public institution.

CONTEXTUAL FACTORS

In the private businesses, contextual factors have been linked to competitive pressure in many studies of IT implementation. According to Avlonitis and Panagopoulos [2], competition pressure and environmental pressures are potential contextual factors. These factors are relevant when a firm implements a CRM system and other industry firms feel the pressure or are influenced to use the same system because they do not want to be behind [6].

Finnegan and Currie [9] further described ways that the current business environment can impact CRM implementation. CRM allows organizations to adopt a holistic approach towards their customers, but CRM implementations often ignore the underlying interdependencies of contextual socio-technical elements that can enable or inhibit the culture, process, people, and technology integration [9]. CRM implementation can also be affected by contextual factors such as benchmarking enterprises and exchange data quality between organizations [8]. Even et al [8] found that the process of improving CRM data quality does not necessarily maximize economic benefits.

Since the state SBDC is a non-profit organization and a public institution, the competitive pressure factor might not fit to the rationale behind its decision to implement CRM, rather it is non-competitive pressures. In the public sector, institutional theory has been used to study environmental pressures and peer influence in a wide variety of research. Institutional theory considers how institutions cope with factors such as susceptibility to external forces [23]. Other contextual factors which can influence IT implementation in public institutions are imitation and conformism which is the tendency of firms to imitate the most common form of behavior [11]. For example, public institutions can imitate each other to implement CRM technology even if it might fail.

ORGANIZATIONAL FACTORS

While Hirschheim et al [13] challenged the view that IT implementation should only be conceived in technical terms by presenting it as a form of social action, others have investigated the organizational factors behind the IT implementation process and concluded that those factors may be as important as other elements such as technical factors. In the private sector, many authors have argued that IT and CRM implementation success or failure is largely due to organizational and social, rather than technical, factors [21].

According to Finnegan and Currie [9], most problems in CRM implementation are not technical but organizational; they include organizational change and disruption, different views on customer information and changes in the business processes. Organizational resistance can create barriers for an overall CRM integration. Variables such as senior management support/sponsorship, selling change internally, putting a change infrastructure in place, providing effective end-user training, business process re-configuration and establishing rewarding systems play an important role in the CRM implementation process [9]. Becker et al [4] found that CRM impacts performance only if adequately supported by the appropriate company stakeholders. Moreno and Melendez [19] found that organizational factors (human resource management, the organizational structure, and resource allocation) impact CRM implementation success. Hung et al [14] proposed an integrated model that incorporates organizational factors (size of organization, IS staff capabilities, innovation of senior executives and knowledge management capabilities) as primary determinants of CRM implementation.

The debate of the use of social organizational factors and technical organizational factors in IT implementation has been made in the private businesses, as well as in the public institutions. For instance, Robey and Newman [25] stated that IT is subject to social construction which may have an impact on its implementation and use. To shape their theoretical arguments, they developed a framework linking social context of implementation with organizational processes. The organizational factors in the public sector are relevant to rules, regulations and by-laws/policies. Rules and regulations are thought to ensure the predictability of the behavior of the organization and to lead to efficiency and effectiveness [26]. There are general rules which are applied to all public purchases. These rules require that the main mode of IT or CRM systems purchasing should be through competitive bidding. In some public institutions, by-laws and policy are used and public institutions may fail to realize significant benefits from their IT or CRM innovations because they have been implemented to satisfy policy rather than efficiency [26].

INDIVIDUAL FACTORS

Prior researchers have used the behavioral theory and the subjective psychological theory to provide an underpinning explanation to user behavior and successful IT implementation in organizations (Barki and Hartwick, 1989; cited in [23]). In the private business sector, individual resistance and user acceptance

TABLE 1.
Summary of IT and CRM implementation factors

	Factors
Contextual Factors	Competitive pressures
	Environmental pressures
	Relations with customers
	Peer influence
Organizational Factors (technical factors)	IT infrastructure
	IT Training
	IT maintenance plan
	IT application complexity
Organizational Factors (social factors)	Top management support
	Human resource management
	Size of organization
	Organizational change management
	Knowledge management
Individual Factors	Computer anxiety
	User acceptance
	Personal innovativeness
	User resistance
	Computer experience
	User personal dispositions
	User capacity of acquired IT knowledge

of CRM can be a factor in CRM implementation [9]. Venkatesh et al., 2003; and Chiu and Wang, 2008 (cited in [22]) found that when users have enough usage capacity, they show positive acceptance of CRM technology.

Potential CRM user behavior in both private and public sectors will vary. Users differ in terms of personal dispositions and in acquired knowledge [2]. Among the individual factors we may cite computer anxiety, personal innovativeness and user resistance to change. Computer anxiety is about individuals who experience negative affectivity or fatalism when using the computer [12]. Those individuals are likely to view negatively the CRM implementation process. Personal innovativeness is a user's willingness to try a new IT and a new method, or a measure of his or her receptivity to change [26]. Many studies have concluded that innovative individuals have more positive perceptions to the implementation process and resist less to the change. User resistance to change is the lack of engagement of people who will employ the technology after the implementation.

CASE BACKGROUND

The state SBDC is funded in part through a partnership with the U.S. small-business administration (SBA) and makes many service centers available to provide no-cost consulting and low-cost training to small businesses (SBs) throughout the state. The state SBDC must deliver effective services to the SB community under the annual cooperative agreement negotiated with US SBA. Also, non-federal funds are allocated to the state SBDC from the state Department of Commerce, the state Certified Development Corporation (CDC) and the local university. The state SBDC is one of over 65 SBDCs in the U.S. whose performance is measured in terms of substantial economic impact, business and job creation and retention and increased company revenues.

The lead center of the state SBDC is composed of a state director and an assistant state director. The lead center authorizes about 12 service centers, each headed by a regional director who supervises the consultants. Those centers located in more populated cities receive more funding per center than the rural center allocation. Because the state SBDC is a non-profit organization, the performance of the consultants is assessed based on the number of clients trained, the variety of training events organized, the number of clients served, the total consulting hours offered and the number of long-term counseling clients.

THE CYCLE OF INTERACTIONS

This section enables understanding of the interactions between the state SBDC and SBs. The interactions map shown in Figure 1 helps us to realize how the state SBDC connects SBs to services and resources.

As shown in Figure 1, the state SBDC lead center partners with the following entities and institutions: the state Department of Commerce, the state CDC, the state Mep (The Preferred Manufacturing Partner), the state Regional Council and U.S. SBA. Usually, banks or other organizations refer the SB or the prospective SB to the state SBDC lead center or service centers. Once the SB or prospective SB comes to the state SBDC, it is taken in charge by a state SBDC consultant who uses the 1-Site system, the old information systems for managing customer relationship, to open an account for the SB or the prospective SB. Next, the consultant goes through the state SBDC presentation by explaining the services and resources available to the SB. The decision to prepare a proposal is made. The consultant identifies the SB as either "introductory position" or "advanced position". To determine the position, the consultant assesses the experience, the equity, the assets, the financial needs, etc. of the SB. After that step, a North American Industry Classification System (NAICS) code is assigned to the SB. The consultant monitors the proposal and corresponds with the state SBDC partners and organizations to determine whether the proposal is viable. At that level, the approval decision is made. In collaboration with the SB, the consultant prepares the business plan using the built-in business plan model available in the 1-Site system. The next step is the financial projection where the consultant prepares the projected balance sheet, cash flow, income statement, etc. This projection is followed by the identification of the type of loans needed. The loan can originate from Banks, U.S. SBA or other financial institutions. The consultant keeps in touch with the SB by follow-ups and adjustments to the financial projections.

CRM TECHNOLOGY INFRASTRUCTURE OF THE STATE SBDC

CRM underlying infrastructure of the state SBDC has three parts: operational CRM, analytical CRM and collaborative CRM. Figure 2 shows the functionalities of the CRM system of the state SBDC.

Under the operational CRM, there are channel interaction systems which communicate directly with the operational database system. Actually, the operational database is the current year database of the state SBDC. Data are migrated from 1-Site system, forms sba641 and sba1062, and online web sites (online form 641) to the operational database. CRM systems

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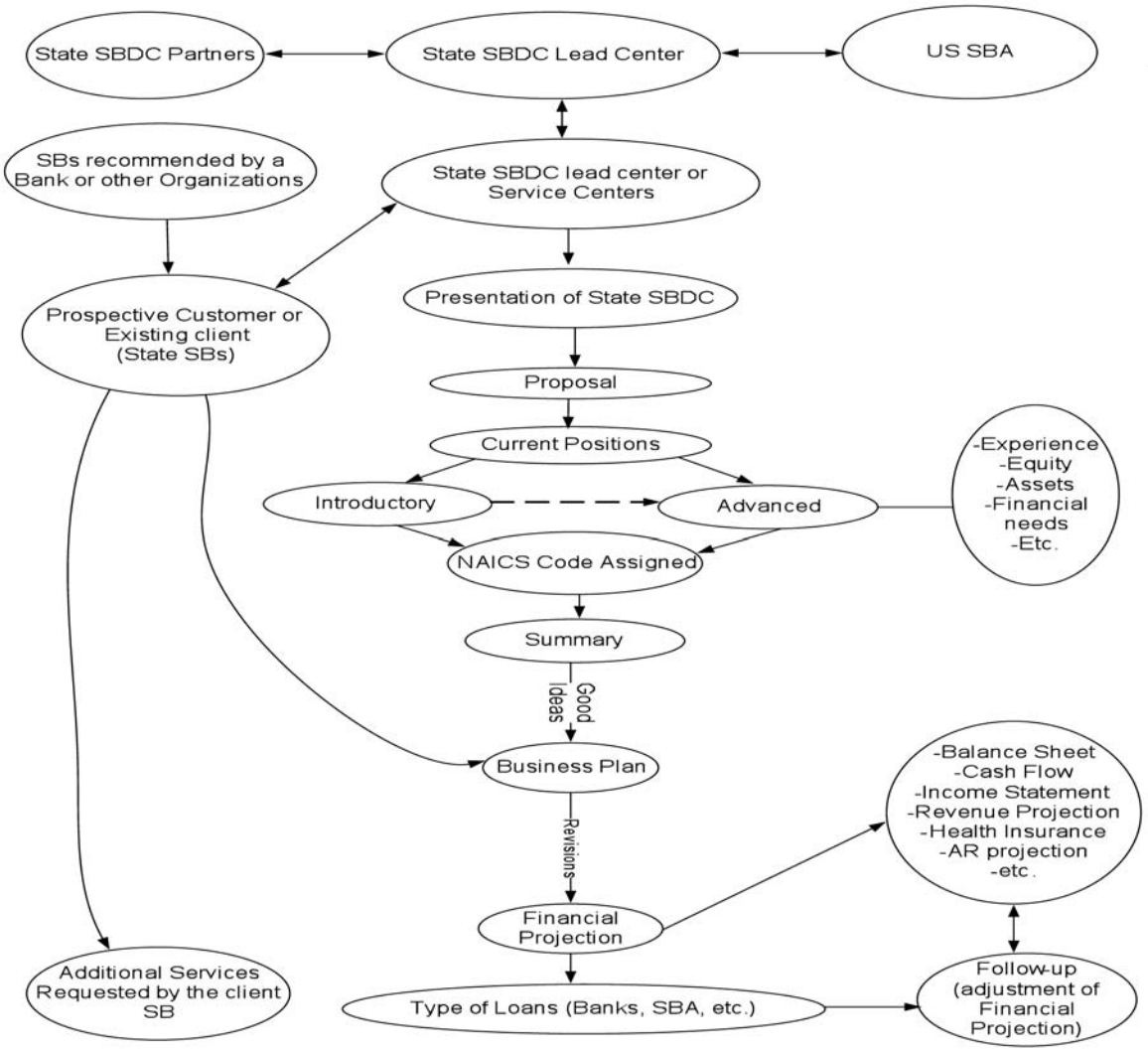

FIGURE 1. Interactions map before CRM implementation

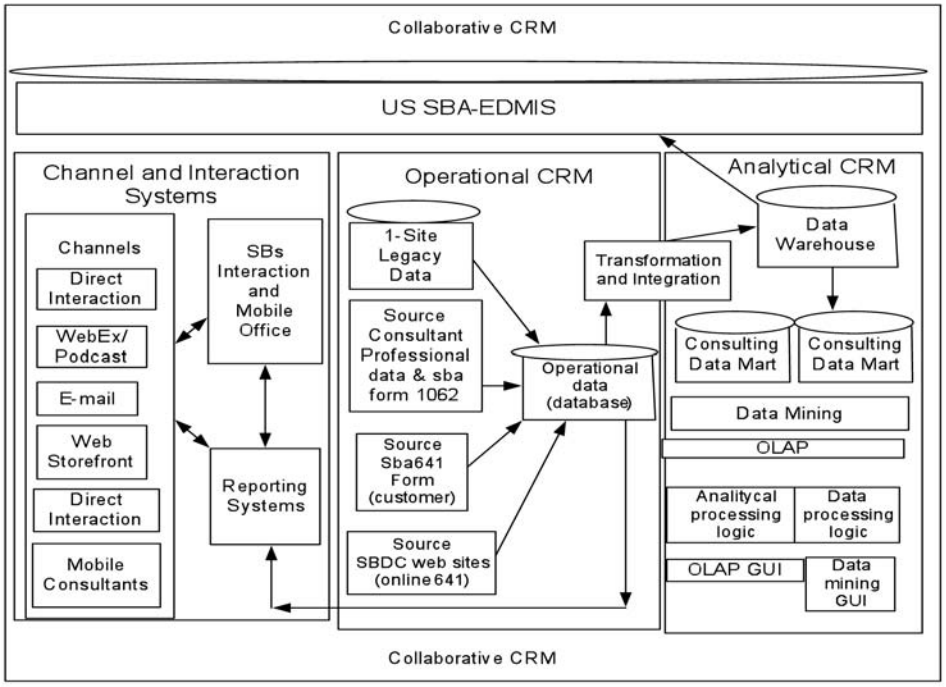

FIGURE 2. CRM implemented at the state SBDC

TABLE 2. Content analysis streams

Points of view about content analysis	Meanings
Hermeneutic-interpretative analysis	A scientific procedure by means of which textual material is examined to find its meaning and sense [5].
Empirical-explanatory analysis	A quantitative procedure by assigning content to specific categories and counting frequencies with the aim of describing the manifest content [5].
Mixed forms of content analysis	The mixed forms are the qualitative methods of content analysis and the quantifying content analyses [5]

functionalities are used to transform, integrate, and archive the content of the operational database to the data warehouse. Under the analytical CRM, the data warehouse is split into small portions called data mart [15]. At this point, the SBDC introduced data mining, used to create patterns and discover knowledge, which are not directly observable when reading the data mart or the data warehouse. Under the collaborative CRM of the state SBDC, there is a module named economic impact module that communicates with the federal system named Entrepreneurial Development Management Information System (SBA-EDMIS). EDMIS is administered by SBA. All SBDCs country wide must report to EDMIS.

RESEARCH DESIGN AND PROCEDURES

RESEARCH DESIGN

After obtaining the necessary agreement of the state SBDC lead center, we began our case study to find the contextual, organizational and individual factors that may emerge in the CRM implementation process. In order to satisfy the objective of this study, data was collected by using several methods such as interviews, observations of meetings, and collection of documents like internal papers, plans, agendas, minutes and annual report from the state SBDC. The results of these investigations were added to the findings from IT and CRM implementation literature to set up an interview guide.

SITE SELECTION

The state SBDC has been selected for investigation because it provides interesting insights into how a public institution undertakes CRM implementation. Most of the participants would come from the state SBDC network. Therefore, the focus was on two groups of participants: the supervisors and the consultants. The state SBDC director provided a list of consultants who would participate in the study. A series of phone and online discussions took place with all consultants over a four-week period.

The consultants who participated in the study were spread across counties in the state. There are 53 counties in the state. Each county has a county level SBDC. The lead center of the state SBDC is located in the capital of the state. In terms of location, 23% of the participants cover the north-western counties of the state, 31% work in the north-eastern counties, 31% are located in the south-western counties and 15% in the south-eastern counties of the state.

In terms of gender, 56% of the participants who have an office in the state are women while 44% are men. In terms of education, 44% of the participants who have an office in the state have a Bachelor's degree while 56% have a Master's degree. In terms of age, 34% of the consultants are over 50 years old. About 22% of the consultants are between 21 and 30 years old. Roughly 22% of the consultants are between 31 and 40 years old. The final 22% of the consultants are between 41 and 50 years old.

DATA COLLECTION

The purpose of the interview was explained during the initial telephone and online contact and an additional meeting was set up to complete the interview at a subsequent date. All interviews were face-to-face.

Primarily, structured interviews were conducted with all the relevant participants in the CRM implementation process. All interviews lasted for one hour, were tape-recorded and transcribed with the permissions of the interviewees. In total, 19 interviews were conducted.

The state SBDC consultants were asked to answer open-ended questions. A summary of these open-ended questions are the following: the state SBDC consultants were asked to describe the CRM implementation process, the motivations for the CRM implementation, CRM implementation decision making process, the influence of their peers who already implemented CRM, training received, their participation, their involvement, the top management support, the relationship between the CRM vendor and the state SBDC, the data compatibility issues between their existing systems and the SBA EDMIS, the cost and budget of the CRM implementation process.

ANALYSIS

CONTENT ANALYSIS

Content analysis is the tabulation of the most commonly occurring concepts in the body of text and in small fragments of a body of literature, typically with the frequency of occurrence attached [27]. Table 2 summarizes three groups of authors using different points of view about content analysis.

This study has used the mixed forms of content analysis as shown in Table 2. This is because, we did an overview of IT and CRM implementation factors but we did not know which factors can emerge from the state CRM implementation process. In addition, we used a grounded theory approach to examine data collected from interviews. Therefore a model was not developed first, but instead, emerged from the data analysis [10]. Following the grounded theory approach, categories have been established which related to the contextual, organizational and individual factors. These categories and factors were represented based on the content found in the transcript of the interviews.

Rourke et al (cited in [10]) distinguish five types of units in content analysis. Those units can be a text, a message, a paragraph, a theme and sentence. The text units which were frequently

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TABLE 3.
Inter-judges reliabilities and Factors per Category

Categories	Factors	Cohen's Kappa (k)
Contextual Category	Data compatibility issues between 1-Site and SBA-EDMIS	.91
	Environmental pressure	.85
	Choice of the technology	.93
	Outsourcing Decided	.90
Organizational category	High volume of data	.90
	Investment Decision	.86
	Cost-effectiveness of CRM technology	.88
	Top Management Support	.90
Hybrid individual-organizational category	Training Activities	.87
	CRM user acceptance	.86

used and related to the existing IT and CRM implementation contextual, organizational and individual factors were chosen as a unit of analysis in this content analysis. On this basis, each text unit in the interview transcripts was analyzed to determine whether it was related to CRM implementation or not and, if so, to what extent existing IT and CRM implementation contextual, organizational and individual factors it related.

FACTOR IDENTIFICATION

Following the grounded theory approach and the procedures recommended by the mixed forms group, two judges converted the interview data into meaningful text units. If the judges found the same text unit more than once per participant, they coded it as one count. Regardless of the number of times a single participant repeated the same text unit, we considered it as one count.

The factors that emerged from the implementation literature were corroborated with interview data text units. In this way, the text units were associated with their relevant factors inside the contextual, organizational and individual categories.

RELIABILITY TEST

Cohen's kappa (k) was used to assess the credibility of the content analysis. Cohen's kappa (k) measures the overall inter-coder reliability, and the Cohen's kappa (k) results that are closer to 1 indicate a perfect consensus between both coders; while 0 indicate lower agreement between the pair of judges. As noted in Table 3, the Cohen's kappa reliabilities for the factors ranged from a high of .94 to a low of .85.

FINDINGS

After the content analysis and the reliability tests, all factors which were found fell in the contextual, organizational and hybrid individual-organizational categories. As shown in Table 3, some of the expected factors were found in 2 of 3 categories. Some factors which are classified in the literature as individual and in some cases as organizational were also found. As shown in Table 3, they have been assigned to a hybrid individual-organizational factor category. Some of the expected factors did not find support (see Table 1).

DISCUSSION

The state SBDC implementation process was found to be influenced by some of the same contextual and organizational factors as CRM implementation in the private business sector.

Under contextual factors, we found that *data compatibility between 1-Site and SBA-EDMIS* was a factor in the state SBDC decision to implement a CRM system. This corroborates with the results of Tornatzky and Klein [29] who also found that compatibility is a motivating factor for IT implementation. But this does not corroborate the findings of Even et al [8] who found that the process of improving CRM data quality is not necessarily a motivating factor for CRM implementation.

The state SBDC 1-Site database configuration was not synchronized with the EDMIS database. Because of that inefficiency, the EDMIS system rejected all exported records from the state SBDC. After noticing the problem, the state SBDC decided to implement CRM as a new solution for reporting data to the EDMIS. This is reflected by the following declaration collected during the interview:

> "*The first thing I noticed was the shortcoming of our current system. There was a very big problem with the SBA-EDMIS system and the current 1-Site program because it was very incomplete as far as the SBA requirements…"*

Environmental pressure was another contextual factor [9]**.** At the state SBDC, CRM implementation was influenced by external forces. All US SBDCs have to respect or follow some SBA regulations. About 28 US SBDC have implemented the CRM system. The state SBDC also felt the pressure to do so. An excerpt of the interviews that revealed the environmental pressure is the following:

> *"Currently, 28 states use CRM systems. I asked my peers what systems were best recognized by our national association. I gathered all of that data to see what my peers were using. Most of them were using CRM…"*

Choice of the technology was another contextual factor found in this study. Technological factors are considered when companies assess the fit between the new software and its hardware platform [7]. At the state SBDC, there was a concern about the fit between the CRM system and the server which would host it. That concern was resolved because the vendor which has been chosen hosts the CRM systems on his server. The following statement derived from the interviews explained that:

> *"…After that, I had interviewed users of the CRM system to get the pros and cons of their experiences with that software. General speaking, those who used CRM found it to be adequate and responsive to customized needs because the vendor hosts the system on his server."*

The fourth contextual factor identified was *CRM outsourcing*. IT outsourcing is the transfer of part or all of an organization's computer science activities to an external specialized IT vendor.

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The transaction costs theory (TCT) has been used as a theoretical underpinning for identifying IT outsourcing risk factors [3]. The state SBDC faced the same challenge of whether to self-manage the CRM system or outsource it to an external vendor. The state SBDC outsourced the CRM system to an external vendor because it does not have its own IT department and usually relies on the IT center of the local university. A highlight from our interviews shows how the state SBDC arrived at that decision:

> *"I realized maybe in the advantage of state SBDC to use the CRM system because number 1 we didn't have the technological infrastructure and personnel to have a customized system; number 2, we didn't have the budget to redo the system and maintain it in order keep up with the federal standards; and number 3 the CRM system is widely used so the outsourcing decision was made…."*

The first organizational factor identified was *high volume of data*. The state SBDC CRM implementation initiative was motivated by the growth experienced by the state SBDC consultants in terms of the number of the SBs they assist per year. This finding is aligned with the proposition of Ozgener and Iraz, [20] that CRM is needed to capture and analyze massive amounts of customer information. A highlight from the findings includes:

> *"The state SBDC Network completed an outstanding year with continued record performance. For example, the state SBDC network served 887 clients with 7716 in total consulting hours while the goals for 2008 were 869 clients and a total of 6600 hours"*.

Investment Decision was another organizational factor. Prior research has used the real option theory to address the IT investment challenges in the private businesses [17]**.** However, the investment decision is different for public institutions. The implementation of CRM system at the state SBDC was funded through SBA grant. Also, the state SBDC local partners have financially contributed to the realization of this project. This is confirmed by the following declaration collected during the interview:

> *"I am the principal investigator who outlined the funding proposal for the CRM system. I have discussed about which item to purchase and to pay for once I have gone through diligence at the local university. So, we raised the money and after that the purchase was approved…."*

Cost-effectiveness was another organizational factor. Tornatzky and Klein [29] found that firms are inclined to adopt and implement technologies that are perceived to be low in cost. The state SBDC understood that the cost of adjusting and correcting the errors in their current system (1-Site) would be higher than the cost of the implementation of a CRM system. The following statement is used to support our analysis:

> "*...and the costs of continual updating of code were not worth the cost of a program designed for far less complicated transmission. CRM was continually being updated to allow the management of the program to be in conjunction with the state SBDC goals.*"

The final organizational factor was *top management support*. This finding corroborates with the study of Finnegan and Currie [9] who found that senior management support/ sponsorship plays an important role in the CRM implementation process. The state SBDC required the assistance of the legal and purchasing department for the evaluation of the licensing agreement feasibility. The local university is one of the state SBDC prominent partners and the state SBDC needs to report to this leading university. The decision of purchasing CRM was approved by the local university legal purchasing department who looked over the licensing agreements for CRM. This is confirmed by the following declaration collected during the interview:

> *"Top management knows the advantage of CRM implementation. We also had the Legal department at the regional university look over the licensing agreements for CRM in order to make sure that they fit to our host organization requirements. We also had a tech person from the local university make sure that the system would not interfere and would be of value and would've been worth inclusion in the state SBDC."*

The first hybrid factor was *training activities*. Training involves accretion of knowledge necessary to perform a task [31]. Tharenou et al., [28] used behavioral theory to explain the relationships between training and organizational-level outcomes. They concluded that most models of training end with the transfer of individual-level outcomes to the organizational-level outcomes. The state SBDC consultants received training during the annual conference. The CRM system would necessitate ongoing training. This piece of the interviews explained the state SBDC decision about training:

> *"After the decision to purchase the CRM system, we had in-person training with the developer in the annual conference. Once 1-Site data is migrated into the CRM system, training was provided when consultants should complete, clean and get rid of duplicate data imported from the old system into the CRM system."*

CRM user acceptance was the final hybrid factor. Venkatesh et al., 2003; and Chiu and Wang, 2008 (cited in [22]) also found that when users have sufficient usage capacity, they show positive acceptance of IT. Furthermore, when users see benefits, they accept the systems. In the case of the state SBDC, it would be simple for the consultants to use the CRM system in their daily business tasks because the CRM system has effective reporting capabilities and data format that match the EDMIS. The state SBDC could realize the benefits of using the CRM system. The implementation of CRM system should raise the performance of the consultants and the lead center. This is confirmed by the following declaration collected during the interview:

> *"The CRM allows us to report our endeavors to the SBA because EDMIS can easily capture our data. At that point, we realize the improvements of the communication of results, accuracy of data, and verification of data. Also, the effective communication between the CRM system and EDMIS becomes regular and is part of our day-to-day activities."*

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CONCLUSION

The objective of this study is to identify which private business IT and CRM implementation factors best fit to the CRM implementation at a public institution. This objective is relevant because while some organizations successfully implemented their CRM systems, others are likely to fail. In the case of this CRM implementation, the state SBDC is a particular organization because it is a non-profit organization functioning as a SB with limited resources and capabilities. Therefore, before deciding which implementation model should fit to the state SBDC, TPB was borrowed to theorize IT and CRM implementation factors in three groups: contextual factors, organizational factors and individual factors.

The grounded theory approach shows that most of the factors fell in the contextual, organizational and hybrid individual-organizational categories. Surprisingly, some of the expected factors did not find support. Factors usually associated with only the individual category were not found.

The findings of this research can be generalized because 28 other states are using the same CRM systems. Other states are using their proprietary systems and those states are expected to implement CRM systems. The successful implementation process found in this study can be reused in other public institutions which share the same vocation as the state SBDC and receive funding and grants from federal and state governments. The study serves to generalize the CRM implementation results in the SBDC context and in all affiliated public institutions to SDBC like Women Business Centers (WBCs), Service Corps of Retired Executives (SCORE), Veterans Business Outreach Centers (VBOCs) and U.S. Export Assistance Centers (USEACs). There are at least 50 SBDCs in US. Twenty eight out fifty already implemented CRM. Some other SBDCs keep using proprietary systems. The results of this study can benefit the SBDCs which will implement CRM in the future.

The findings of the study allow us to draw numerous relevant conclusions, which lead to practical and theoretical implications.

THEORETICAL IMPLICATIONS

This study demonstrated the applicability of TPB theory in the public sector. It also used the grounded theory to generate from data analysis an extension to TPB theory. The grounded theory was appropriate in this study because a framework was not developed first but, instead, emerged from the data analysis. Some of the existing IT and CRM implementation factors of the private businesses have emerged from data analysis of CRM implementation project at a public institution. The results demonstrated that various factors can be borrowed from the private business sector to refine the implementation of CRM in the public sector. Finally, this study contributes to the debate as to whether or not public organizations should imitate private organizations' CRM implementation processes. Numerous theories in the IT and CRM literature corroborated with the state SBDC CRM successful implementation.

PRACTICAL IMPLICATIONS

The factors identified in this research can be used as a guide for public institutions when they implement CRM systems. This public institution's CRM implementation strategy requires an innovative approach that will be reused in the situation of another company. Public institution managers need to understand their employee or consultant requirements and to foster their motivation in a successful CRM implementation process because of their constraints and budget limitations. The CRM seems to be a technology implemented only in the private sector. This research shows that CRM implementation can be expanded in the public sector. Based on the case study methodology, the paper suggests that some management techniques of CRM implementation process may be applicable to the private organizations as well as the public institutions, although differences exist between both.

We hope this research helps public institutions for any future CRM or software program implementation. It can also help new SBDC consultants to understand the interactions between SBs and SBDC constituencies.

LIMITATIONS

There were three notable limitations with the study. First, the researchers acknowledged the subjective nature of the analysis and the impact of their own values in carrying out this approach. Second, the study was conducted in a single state. The results might be more robust if more states were included. Third, there was a limitation related to the profile of the interviewees. From certain statements, we became aware that some interviewees did not participate in the whole CRM implementation process so they did not necessarily have a general background of their CRM implementation process.

FUTURE RESEARCH AVENUES

Researchers should study the impact of some CRM implementation factors found in this study on CRM implementation success. For instance, Data compatibility, environmental pressure, choice of technology, investment decision, cost-effectiveness of CRM technology, top management support and training activities can impact the CRM implementation success. Quantitative data can be collected from the consultants of the 28 other states which have implemented CRM to test this research model and hypotheses. Another avenue of future research could be the study of the outsourcing relationship between the state SBDC and the CRM vendor.

REFERENCES

[1] Alshawi, S., Missi, F., and Irani, Z. Organisational, technical and data quality factors in CRM adoption — SMEs perspective, *Industrial Marketing Management* 40, 2011, 376-383.

[2] Avlonitis, G. J. and Panagopoulos, N. G. Antecedents and consequences of CRM technology acceptance in the sales force, *Industrial Marketing Management* 34, 2005, 355-368.

[3] Bahli B. and Rivard S. "Validating measures of information technology outsourcing risk factors", *Omega* 33, 2005, 175-187.

[4] Becker, J. U., Greve, G., and Albers, S. The impact of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention, *Intern. J. of Research in Marketing* 26, 2009, 207-215.

[5] Bos, W. and Tarnai, C. Content analysis in empirical social research, *International Journal of Educational Research* 31, 1999, 659-671.

[6] Bradford, M. and Florin, J. Examining the role of innovation diffusion factors on the implementation success of ERP systems, *International Journal of Accounting Information Systems* 4, 2003, 205-225.

[7] Chengalur-Smith, I. and Duchessi, P. The initiation and adoption of client-server technology in organizations, *Information & Management* 35, 1999, 77-88.

[8] Even, A., Shankaranarayanan, G., and Berger, P. D. Evaluating a model for cost-effective data quality management in a real-world CRM setting, *Decision Support Systems* 50, 2010, 152-163.

[9] Finnegan, D. J., and Currie, W. L. A multi-layered approach to CRM implementation: An integration perspective, *European Management Journal* 28, 2010, 153-167.

[10] Gerbic, P. and Stacey, E. A purposive approach to content analysis: Designing analytical frameworks, Internet and Higher Education 8, 2005, 45-59.

[11] Guzman, R. A., Rodrıguez-Sickert, C. and Rowthorn, R. When in Rome, do as the Romans do: the co-evolution of altruistic punishment, conformist learning, and cooperation, *Evolution and Human Behavior* 28, 2007, 112-117.

[12] Hart, S., Hogg, G. and Banerjee, M. Does the level of experience have an effect on CRM programs? Exploratory research findings, *Industrial Marketing Management* 3, 2004, 549-560.

[13] Hirschheim R., Klein H. K., and Newman M. Information systems development as social action: Theoretical perspective and practice, Omega 19, 6, 1991, 587-608.

[14] Hung, S-Y., Hung, W-H., Tsai, C-A., and Jiang, S-C. Critical factors of hospital adoption on CRM system: Organizational and information system perspectives, *Decision Support Systems* 48, 2010, 592-603.

[15] Hwang M. I. and Xu H. A Structural Model of Data Warehousing Success, *Journal of Computer Information Systems* 9, 2008, 48-56.

[16] Khalifa, M. and Shen, K. N. Drivers for transactional B2C M-Commerce adoption: Extended theory of planned behavior, *Journal of Computer Information Systems* 48, 2008, 111-117.

[17] Kim Y. J. and Sanders G. L. Strategic actions in information technology investment based on real option theory, *Decision Support Systems* 33, 2002, 1-11.

[18] Liao, C., Palvia P. and Chen J-L. Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT), *International Journal of Information Management* 29, 2009, 309-320.

[19] Moreno, A. G., and Meléndez, A. P. Analyzing the impact of knowledge management on CRM success: The mediating effects of organizational factors International, *Journal of Information Management, 2011*.

[20] Ozgener, S., and Iraz, R. Customer relationship management in small-medium enterprises: The case of Turkish tourism industry, *Tourism Management* 27, 2006, 1356-1363.

[21] Pan, G., Hackney, R. and Pan, S. L. Information Systems implementation failure: Insights from prism, *International Journal of Information Management* 28, 2008, 259-269.

[22] Pai, J-C., and Tu, F-M. The acceptance and use of customer relationship management (CRM) systems: An empirical study of distribution service industry in Taiwan, *Expert Systems with Applications* 38, 2011, 579-584.

[23] Riemenscheinder, C. K., Harrison, D. A. and Mykytyn, P. P. Understanding IT adoption decisions in small business: integrating current theories, *Information and Management* 40, 2003, 269-285.

[24] Richards, K.A. and Jones, E. Customer Relationship Management: Finding value drivers, *Industrial Marketing Management* 37, 2008, 120-130.

[25] Robey, D. and Newman, M. Sequential patterns in information systems development: An application of a social process model, *ACM Transactions on Information Systems* 14, 1, 1996, 30-63.

[26] Standing, C., Sims, I. and Love, P. IT non-conformity in institutional environments: E-marketplace adoption in the government sector, *Information & Management* 46, 2009, 138-149.

[27] Stockwell P., Colomb R. M., Smith A. E. and Wiles J. Use of an automatic content analysis tool: A technique for seeing both local and global scope, *Int. J. Human-Computer Studies* 67, 2009, 424-436.

[28] Tharenou, P., Saks, A. M. and Moore, C. A review and critique of research on training and organizational-level outcomes, *Human Resource Management Review* 17, 2007, 251-273.

[29] Tornatzky, L.G. and Klein, K.J. Innovation characteristics and innovation adoption-implementation: a meta analysis of findings, *IEEE Transactions on Engineering Management* 29, 11, 1982, 28-45.

[30] Wybo, M. The IT sales cycle as a source of context in IS implementation theory, *Information and Management* 44, 2007, 397-407.

[31] Yaverbaum, G. J. and Nosek J. Effects of information system education and training on user satisfaction An empirical evaluation, *Information & Management* 22, 1992, 217-225.

Journal of Computer Information Systems 2011.52:42-50.