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A RESEARCH FRAMEWORK OF ELECTRONIC DOCUMENT MANAGEMENT SYSTEMS (EDMS) IMPLEMENTATION PROCESS IN GOVERNMENT

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ABSTRACT

Many governments today have implemented Electronic Document Management Systems (EDMS). The employment of EDMS systems has increased the operational (e.g. document storage and retrieval, auditing, workflow facilities, searching and publishing) effectiveness of governments on daily basis. However, not many studies had been undertaken into process of implementing EDMS in the government context. Therefore, this paper fills this gap by presenting a research framework for the implementation process of EDMS. Based on a content analysis of the reviewed literature, this paper identifies thirteen (13) common factors contributing to the implementation process of EDMS. The factors are: (1) Top management support; (2) Budgetary; (3) Implementation planning; (4) Anti-corruption; (5) Implementation staff; (6) Security and privacy; (7) Data quality, (8) User requirements; (9) Cooperation; (10) Systems integration; (11) Awareness; (12) Resistance to change; and (13) Staff training. All these factors subsequently were linked to the Prosci-ADKAR model of change to outline the structure of EDMS implementation process framework. The proposed framework contributes to the theoretical understanding of the EAI implementation process, which may support government practitioners in implementing the EDMS applications in their government organizations. The paper also highlights with three important issues that need to be explored further while developing the framework: 1) the EDMS implementation process meaning in system development life cycle; 2) the importance of EDMS implementation factors; and 3) the kind approach to investigate EDMS implementation process.

Keywords: *Electronic Document Management System (EDMS), EDMS implementation, implementation process, EDMS factor, content analysis*

1. INTRODUCTION

E-Government has been identified globally as a key development strategy and as such, has influenced many governments to implement it. However, the primary objective of e-Government should not just limited to providing information services to its citizens, but, must includes the development of strategic links among various government departments through the use of communications medium at various levels of government. These require that governments' daily routine (e.g., transactions, procurements, operations, and resources) must be digitized for better cost effective and convenient service quality [13],[46]. In doing so, e-Government services require electronic document management systems (EDMS) to determine the document flow and dictates the operations and business processes within and outside the government organizations.

Germany government, for instance, has successfully implemented Document Management and Electronic Archiving (DOMEA) system to achieve a paperless agency at all the three levels administrative in the country [31]. The system presents the criteria and concepts that integrate EDMS to e-Government implementation. Another example, The National Archives of Australia (NAA) has distributed the recordkeeping metadata standard that represents information about records and document that the NAA incites be captured in EDMS and business systems used by Australian public sector [38]. From these two examples, therefore, EDMS can be defined as an automated system which supports the creation, use and maintenance of paper or electronic documents and

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records for the purposes of an organization's workflow and processes [27].

Some initial studies in the field have indicated that EDMS implementation have delivered some impressive benefits of governments. In the case of Croatia government, the implementation of EDMS enables the government in connecting all departments, public servants to a variety of information and facilitates efficient communication and document handling [50]. EDMS supports many governments to improve work process and forms publication, easier search of governmental records, cost saving from low use of materials [14],[27],[25]. In addition, government organizations can access information in faster and easier way, higher employee turnover or productivity and improve citizen satisfaction and relations management [1]. EDMS implementation also provides better security measures in government document processing procedures [48] and delivers accountability and transparency which are main requirements for effective corporate governance [52]

However, despite the impressive benefits offered by EDMS and also interest shown by many governments to implement EDMS, many initiatives have been failed to implement EDMS, particularly in developing countries. Iraqi government, for instance, in 2003, has started to implement e-Government that includes the EDMS application with the help from Italian government [3]. Although there exists employee practice and support offered by the Italian team, the e-Government implementation project in Iraq turned out to be a complete failure. One of the major factors responsible for this failure is the lack of an appropriate of EDMS implementation framework to support the e-Government initiative [1]. It can be argued here that the implementation of EDMS in e-Government project in Iraq has not been able to deliver many of the benefits other countries offer elsewhere. As a result, successful of EDMS implementation has become a great challenge to the Iraqi government. This begs a question as what had happened during the process of implementing EDMS in governments.

This paper is conceptual in nature and documents the first phase of a research project designed to building of EDMS implementation process in government. The aim of this paper is to propose a theoretical framework of EDMS implementation process. The proposed framework is needed as it will explain the characteristics that affect the process of EDMS implementation during the systems life cycle. As a consequence, this will uncover the influences on the process of implementing EDMS, thus, would provide knowledge for government practitioners (e.g., system developers, senior managers, and project managers) who are planning effective implementations of EDMS in the future. The paper is structured as follows: the following section presents the knowledge body of EDMS implementation research; the third section discusses the methodology used in the study. This is followed with the fourth section that describes the proposed framework of EDMS implementation process. The last two sections, the fifth and sixth section, concludes the study's issues and provides some possible future research directions.

2. RESEARCH METHODOLOGY

Certain procedures have been taken into account to ensure validity of the study. This includes the use of content analysis approach. While to ascertain the relevant literature on EDMS implementation studies, a search was performed using the ABI/INFORM, Elsevier and Emerald search databases. The main keywords employed during the searching process were restricted to a title and body text search of, namely, (1) electronic document management and (2) EDMS implementation. Furthermore, the results were constrained between years 2003 and 2015. The search identified with 279 academic studies. Filtering through the abstracts, 141 papers were then eliminated. The remaining 138 papers were chosen since they are closely related with EDMS system implementation. Following this, the study carefully examined and critically reviews each paper and classified it into several themes as discuss in the following sections.

3. LITERATURE REVIEW

There are many definitions of EDMS found from the government literature. From a technological perspective, EDMS can be defined as a group of information snapshots comprising of various information types which may exist in different places within a network with the ability to relate the information of other documents within the network, support multiple access in different data types, update and modification simultaneously and automatically [5],[40]. EDMS can also be described as a document that contains a unit of conceptual information record [20],[27]. Others define EDMS as a record of data with certain features like employees entity as part of an

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inventory or in a personal system containing the required information needed to represent a given concept [21]. While in this study, the term of EDMS encompasses the following interpretations: 1) electronic - the use of modern information technologies; 2) document - a set of information pertaining to a topic, structured for human comprehension, represented by a variety of symbols, stored and handled as a unit; and 3) management; creation, storage, organization, transmission, retrieval, manipulation, update, and eventual disposition of documents to fulfill an organizational purpose.

EDMS implementation studies in government sector began to grow in the early 2000s (i.e., has been used in the UK public sector since the late 1990s – early 2000s) [37]. As it is still within the growing stage, the majority of these studies were focusing upon the adoption model [38,24,14,22], at the early stage of implementation process. For instance, [24] has proposed adoption model in order to describe the effects of intergovernmental services in Taiwan. In another study, [38] has proposed adoption model for Australian government public sector aiming to achieve centralized electronic document management manner at multi levels (federal, state and local government). The study had found the ultimate goal of EDMS implementation occurred when widespread user adopted the new system.

EDMS implementation in government studies also discusses the system's application. In this category, most of the studies have proposed the needed of EDMS components to be integrated with each other [32,40,49,53]. This includes the integration components of document management (i.e., storing, controlling, searching and retrieving the documents), communication/messaging (i..e, easy to send and receive the documents through fax or email) and cooperation (i.e., improving disseminating and sharing of information through meeting and job identification). By integrating these three components, it enables users to quick access records and view of records created in applications that are not installed on the user's computer.

There are enormous factors have also been identified from the existing studies on EDMS implementation in government. For instances, top management support [38, 55,51], implementation planning [38,52], data quality [19,26,44],and collaboration [15,45,52] are among the common factors reported. Such studies, however, pay attention only a single factor or a combination of factors that are associated with the success of the EDMS outcomes. Although such factors are indeed useful, an in-depth understanding of the complexities associated with the implementation is needed. In other words, the existing studies on EDMS implementation were not capable of describing how the factors fit together and occur throughout the whole implementation life cycle (i.e. as they are only concerned with the initial stage of the implementation process). Exploring factors without identifying how these factors evolve over time is similar to placing the factors into a single phase of the system life cycle, with the complexity of the EDMS implementation unable to be achieved. Therefore, the need for studies that examine the combination of sequential events and activities that are necessary [42], for the success of EDMS implementation has become important.

For the aforementioned reason, the main objective of this study is to propose a framework of EDMS implementation process. The proposed framework is needed to know how the characteristics of the factors that affect EDMS implementation are moving during the systems development life cycle. By understanding this, government practisioners that ultimately involved in the process of implementing EDMS in their governments' organization can know their responsibilities for ensuring that implementation factors need to be managed in an effective manner to ensure successful outcome.

3.1 Approaches of Studying EDMS Implementation Research

As the development of EDMS implementation process framework need to include the combination of sequential events and activities throughout its process, therefore, the relation between information systems (IS) implementation studies with EDMS implementation research should be revealed first. This can be achieved through the identification of IS implementation paradigms. With this regards, there are two broad approaches that are commonly used in the literature for studying the phenomenon of IS implementation, namely the factor approach and the process approach [38].

The factor approach on IS implementation recognizes the potential predictors' of successful system development and examines the empirical relation between predictors and outcomes. Together predictors and outcomes are regarded as variables that able be measured along some type of scale. For instance, the degree of top management support, the degree of user involvement, and the

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perceptions and attitudes of various participants are commonly used predictors in factor research [41]. The degree of a system's success, or some other dependent variable can be associated with the levels of the independent variables using a statistical technique such as multiple regressions [28]. This situation has raised three main criticisms of the factor approach: (1) there is no mechanism for the understanding of inter-relationships between those individual factors; (2) this approach views implementation as a static process instead of dynamic phenomenon and (3) there is a lack of agreement between researchers in this field [18].

While process approach provides the story that describes the degree of association between outcomes and predictors. In this case, IS implementation is considered as a sequence of events that occurs over time [42]. Although, the activities can become analytically, and cumbersome difficult, a positive feature of process approach is their faithful account of actual experiences [6] while implementing IS such as EDMS.

Although the factor approach is in fact valuable, an in-depth understanding of the complexities associated with implementation demands is needed [6]. In other words, the factor approach was found not fitting for studying how the complex system is implemented, such as EDMS. Accordingly, the "process approach" seems more reliable to describe the process of EDMS implementation in governments. In doing this, all EDMS government practisioners' activities that have evolved for the whole process of system implementation have to be identified (in accordance with their stages). Once the activities have been discovered, they need to be arranged to follow the system development life cycle [6,7]. Through the arrangement, the EDMS implementation process starts from beginning and end of the process can be developed. This can be done by sequencing the activities that follow the narrative story of government practisioners in implementing an EDMS system.

3. 2 Phases of EDMS Implementation Process

As implementing a new IS includes an organizational change process [7], two main types of IS implementation models have been studied to frame the structure of EDMS implementation process, namely planned and emergent models [9],[47],[34]. Planned change management has been defined as tactics includes sequential phases for changing organizational and individual behavior [9]. In reviewing the models of planned change such as the models of Lewin's, Lippit's, House's and, Bullock and Battem's, the study found that all these models go to lay down schedules, objectives and methods in progress (see Table 1). Its success is dependent on the role of key persons who effectively and understand the implementation strategy.

Table 1: Summary of Planned Change Models

Lewin's model (1952)	**Lippit's model (1958)**	**House's model (1980)**	**Bullock and Battern's model (1985)**
Unfreezing	Exploring	Scouting	Exploration
	Diagnosing the problem	Entry	Planning
	Planning for the change	Diagnosis	
	Actions that need to be taken	Planning	
Moving	Transform to actual change effort	Action	Action
Refreezing	Stables the change	Stables	Integration
	Terminate relationship	Termination	

Lewin's model, the father of planned change in organization studies, offerred the three-phases that has become the classic way of thinking about alliteration in organizations. Here, the three-phases model breaks the change down into three distinct steps: *Unfreezing, Moving*, and *Refreezing* [4]. *Unfreezing* happens only when there is want and will to change, and this drive could either be self-induced or within a group. In *Moving* phase, an organization has to move essentially to a new level of equilibrium. The third step is *Refreezing* that constructs a new equilibrium as an output from the change by balancing both driving force with that of restraining. While Lippitt's model of change is extended from Lewin's model. The Lippit's model points out that if implemented change spreads down to related systems in the organization, it becomes more likely to be a permanently implemented change. This certainly can make acceptance in a shorter period [30].

House's model, however, dissimilar from other planned models in that it contains two feedback loops [36]. The two feedbacks are a significant issue that can employ robust changing strategies. The first loop relates to states where the planned change has been enacted but following a midpoint evaluation, its general thrust or specific action points are modified. While, the second feedback

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loop illustrates the state where a main development project has worked its way through to completion and the organization development consultant moves on either in a completely new organization or to a new project within the host organization. Another model, Bullock and Batten's model describes four phases which have been developed in terms of two dimensions of change: change phases and change process. The four phases are *Exploration, Planning, Action* and *Integration* [47], which need a detail activities when implementing change management. Firstly, *Exploration* phase needs awareness, search and contacting. Secondly, *Planning* phase necessity diagnosis, design, and decision. Thirdly, in *Action* phase must implement and evaluation. The final phase, *Integration* consists of three process stabilization, diffusion, and renewal. One of the main criticisms of this model is that if final phase cannot be reached, it will incredible to stabilize change due to a constant and ongoing process [47]. In summary, planned models are statics (i.e., not dynamic) and they only suitable for times of stability. Additionally, they focus on group involvement [34], not for individual.

On the other hands, the emergent change models such as Kanter, Kotter and Luecke emphasize the processual nature of organizing. The model of emergent change claimed that the role of managers is not to plan, but, rather to create or foster an organizational environment which inspires and sustains experimentation and to develop staff that will take accountability for identifying the need for change and implementing it [16]. The emergent change models also view of change as a procedure that explains through the interaction of various variables, including the political and context processes within an organization. Furthermore, this division of IS implementation model tends to perceive change as driven from the bottom up rather than from the top down, and strains that change is an open-ended and continuous process of adaptation to changing conditions and circumstances [34].

Table 2 shows a comparison of the three models of emergent change (i.e., modes of Kanter, Kotter and Luecke). These three models have stressed the importance of creating a vision and institutionalize to the new approach in the organizational culture. Both Kanter and Luecke models emphasized the importance of having a strong leadership and identifying the need for a change in the organization, which was not included in Kotter's model which had instead applied the need of winning in shorter-term and consolidating gains while generating more change [47].

Table 2: A Comparison of Models of Emergent Change (adapted from Todnem, 2005)

Phase	Kanter's model (1992)	Kotter's model (1996)	Luecke's model (2003)
1	Investigate the organization and its need for change	Developing a strategy and vision	Mobilize energy and commitment through joint identification of business problems and their solutions
2	Create vision and guideline	Establishing a sense of Urgency	Develop a shared vision of how to organize and manage for competitiveness
3	Separate for the past	Creating a guiding coalition	Identify the leadership
4	Create a sense of urgency	Empowering broad- based action	Institutionalize success through formal policies, systems and structures
5	Support a strong manger role	Communicating the change vision	Focus on result, not in activities.
6	Line up political sponsorship	Anchoring new approaches in the culture	Start change at the periphery then let it spread to other units without pushing it from the top.
7	Craft an implementation strategy	Generating short-term wins Consolidating gains and producing more change	Monitor and adjust strategies in response to problems in the change process
8	Develop- enabling structures	-	-
9	Communicate, involve people and be honest	-	-
10	Reinforcement and institutionalize change	-	-

Models of Kanter and Kotter, having more in common, highlighted how establishing a sense of

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urgency is crucial for a successful transformation together with creating a guiding coalition, empowering people and facilitate structures, and communication the vision[47,10,43]. Luecke's model added a few steps in his theory, among others monitoring the change process and adjusting emerging problems. Another difference between Kotter and Luecke is the hierarchy level; in former's theory there's a leader and a coalition but Luecke talks sees the need of hierarchy reduction before begning in the change [35].

In summary, models of planned change often focus on diminishing the restrictive environmental forces, while models of emergent change focuses on identifying the enabling forces and enhancing hem. All models from these two divsions (as discussed here) can lead to frustrations among staff if individual needs are not taken into consideration. This is in line with Prosci-ADKAR model [54,23] where the model suggests that effective change management is built on two integrated components, namely individual change management model and organizational change management process. Here, both the individual and the organizational perspectives are necessary for an effective change management initiative [47]. Individual change management is an understanding of how one person makes a change successfully within five building blocks, namely Awareness, Desire, Knowledge, Ability and Reinforcement. While organizational Change Management Process is built in three phases: 1) Preparing for change; 2) Managing change; and 3) Reinforcing change. In other words the Prosci ADKAR model is built on the three phases; which are the process and steps that project team must take to manage change. Within these phases are 5 building blocks for successful change – Awareness, Desire, Knowledge, Ability and Reinforcement(as shown in Figure 1.)

Therefore, the combination of individual and organizational perspectives make the uniqueness of this model compared with other models of IS implementation. The selection of Prosci-ADKAR model supports this research in comprehending the EDMS implementation. For the aforementioned reasons, this study adopts the Prosci-ADKAR model to structure a research framework of the EDMS implementation process. Figure 1 illustrates the Prosci-ADKAR model.

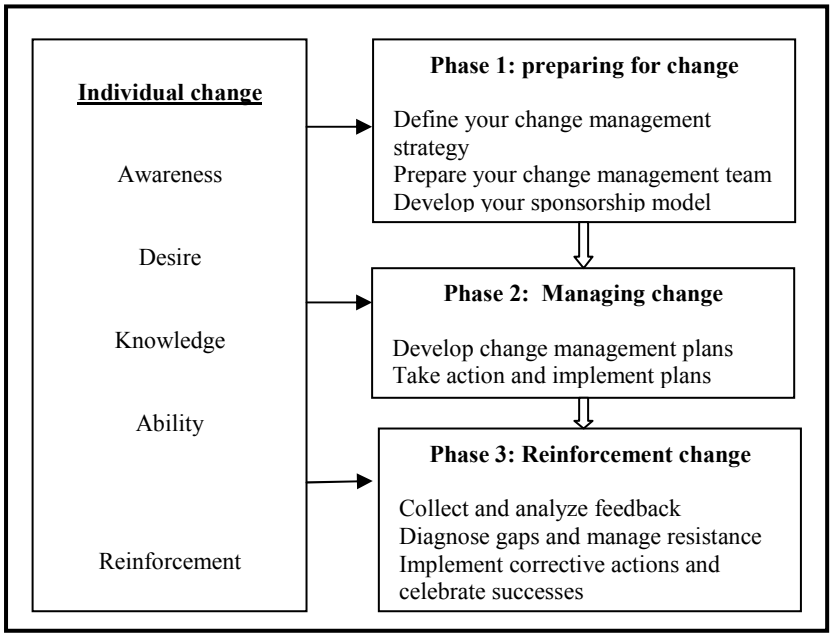

Figure 1: Prosci-ADKAR model of implementation (adapted from Steyn, And Van der, 2013)

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4. THE PROPOSED FRAMEWORK OF EDMS IMPLEMENTATION PROCESS IN GOVERNMENT

There are three main components in the propesed framework of EDMS implementation process in government: *Individual Change*, *Organizational Change* and *Common Factors*. In the attempt to identify the main implementation factors together with their stages, the study has viewed Prosci-ADKAR model as follows. In the a *Awareness* phase, this study will identify why is the change happening and why is the change happening now. In the *Desire* phase, thie study will identify what are the personal motivators that would cause to support the change. Whilst in the *Knowledge* phase, the skills and knowledge which are required during and after the change is implemented need to be identified. In the *Ability* phase, the study will identify what barriers may inhibit during and after the change. Finally, the study will discover what will make the change stick at the *Reinforcement* phase. While the individual change model is focused on how individual makes a successful change, the 3-Phase organizational change focuses on the activities taken by a team to enable and encourage those individual changes. Organizational Change Management Process is built in three phases, *Preparing for change*, *Managing change* and *Reinforcing change* (as shown in Figure 2). As a result, the common factors leading to EDMS implementation, which were identified while reviewing EDMS implementation studies are proposed. This includes the factors of:

1. *Top management support*

The intricacy and scale of the changes that will take place during the EDMS implementation made it evident that involvement of a leadership is highly required. It is significant to include that effective management is one of the main factors contributing to success EDMS [55,51]. [38] mentioned the role of the management becomes most significant especially at the early stage of EDMS implementation. Strong leadership must control the projects at all levels of EDMS from the lowest to the highest level. Top management should help in reducing change resistance [38].

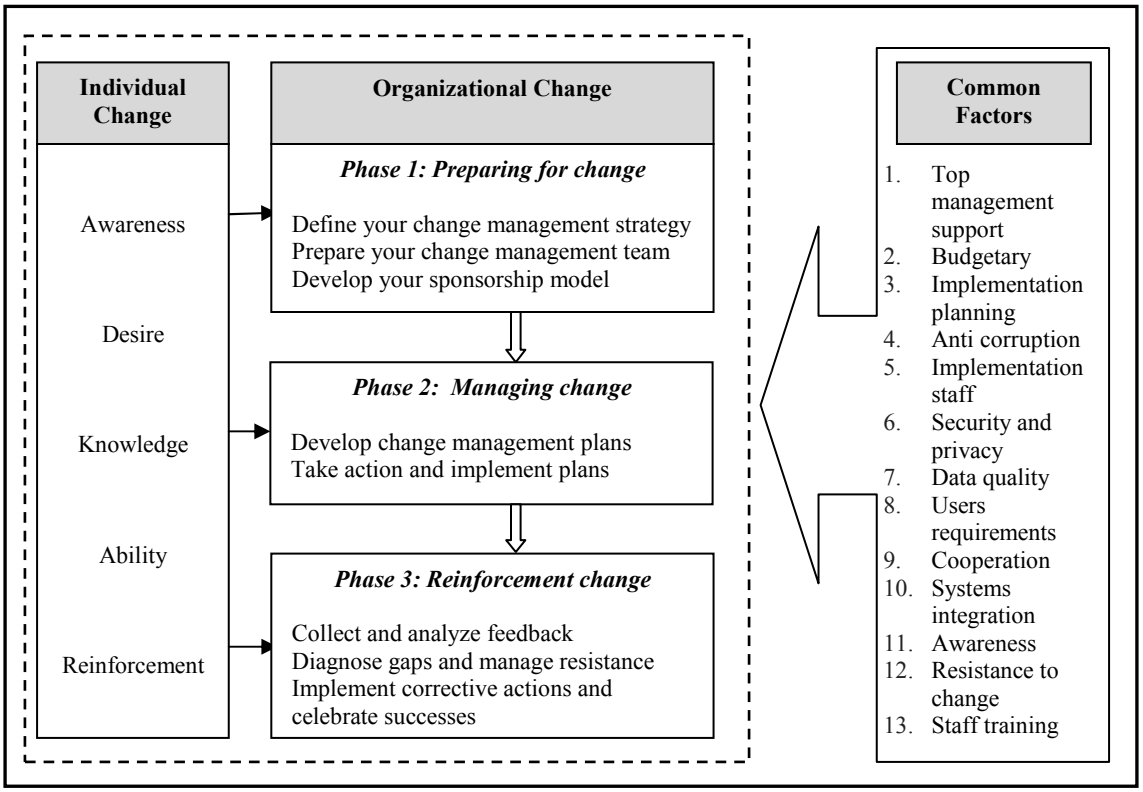

Figure 2: The Proposed Research Framework of EDMS Implementation Process in Government

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2. *Budgetary*

Inadequate budget is considered as a major challenge to EDMS implementation [5]. EDMS requires spending high cost to apply EDMS and train staff. EDMS at the early step may be do not requisite a lot of money, but, this is not true for the latter steps. Political stakeholders must know that amount on EDMS will continue to grow step after another. [5] stated that EDMS project was successfully implemented due to 80 percent of the budget was dedicated to employees training alone. However, the cost of EDMS implementation must be agreed by the political and technical staff before the implementation phase start.

3. *Implementation planning*

A clear vision and business plan supports organizations identify their goals and justify their implementation of EDMS. Without a clear vision and a series of related (budget) strategy, an EDMS system should not be attempted [52]. In other words, without a solid understanding of the organisation's plan and how the EDMs aligns with that plan [38], there will be no commitment from management, the board or from the staff.

4. *Anti-Corruption*

Fighting corruption is a requirement for the success of EDMS implementation government's organization. EDMS can be affected by the leadership decision especially if IT developers need collaboration from the beneficial department. Additionally, corrupt leaders definetly would not provide adequate funds, infrastructures and facilities for appropriate and efficient EDMS [39]. Thus, corruption is one of the factors that interrupted the progress of EMDS implementation [2]

5. *Implementation staff*

Lack of IT expertise is considered one major challenge to EDMS implementation [33]. Since they are the responsible team to develop the electronic service, IT qualified staff are the most important persons during EDMS implementation in the ability phase. In general, lack of qualified technical staff is a problem for every government worldwide [33].

6. *Security and Privacy*

Security and privacy is the responsibility of the IT department and must be completed at the post-implementation phase. Lack of security rules leads to lack of trust. local agencies should employ trust-building polices and privacy laws. Securing government information against unauthorized access is one of the important factors in EDMS implementation . [5] stated the access of sensitive information by unauthorized internal and/or external somebody leads to distrust which means external and internal stakeholders refrain from using electronic services.

7. *Data Quality*

Data quality has been defined as the processes and technologies involved in ensuring the conformance of data values to business requirements and acceptance criteria[26]. In general, Poor data quality one of a major challenge that hamper any ICT implementation [19]. However, High-quality data needs to pass a set of quality criteria. Those include Integration, Accuracy, Consistency, Completeness, Validation, Relevance [44].

8. *User Requirements*

User requirement is a factor that leads to the failure of EDMS implementation in any organization. user requirement is a record/document usually that specifies what the user expects the s system to be able to do[26]. for example, The staff shall be capable to search either all of the initial set of databases or choice a subset from it. Other example the System shall provide suitable viewers for the staff to read documents in the document area. In summary, Requirements set out what the system must do and define constraints on its implementation and operation [11].

9. *Cooperation*

Establishing cooperation between IT staff and top management is a necessary. An optimal implementation team is combination of records managers, IT people and records creators [45], and should possibly even include a member of the Board [52]. The IT staff provide a complement to the more business-focused skills of the records managers [52], while records managers or records creators provide input about user requirement .Internal project manager will play the role of a conductor for the smooth performance of the whole team [15].

10. *Systems Integration*

The integration of subsystems of EDMS in any organization is helpful for the success of EDMS. it is necessary more than ever before, because in the organization, there are hundreds of separate applications, which involves high amount and long time to matching the information. Thus, the integration must complete and coherent system and all systems parameters in order to assure compatibility and combined inter-operability[32].

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11. Awareness

Raising the awareness of the benefit of EDMS implementation is necessary. Raising awareness about EDMS project importance among all employees leads to effective implementation and encourage associations. In fact, EDMS implementation should be the goal of every single employee at all levels. EDMS success depends highly on the awareness of the programmer [33]. This has to be spread to all staff in the first step of the development to increase chances of success.

12. Resistance to Change

Resistance to Change is a main factor affect in EDMS implementation were highlighted by several studies in the literature. The definition of resistance is the force that hinders or stops [12]. Also resistance has been identified by [17] as staff behavior that seeks to disrupt, hinder, challenge, or invert prevailing assumptions, discourses, and power relations. The establishment of EDMS carries a change management in staff and leadership. Thus, there will be resistance to change will grow steadily if not controlled.

13. Staff Training

Staff training on the IT skills to adopt the EDMS project is necessary. Hence, IT training in the ability phase is most important and the responsibility of the organization. The rates of EDMS failures are greatly affected by the lack of skills and training. [33] stated more training for staff must be considered to enhance their awareness in dealing with the EDMS in a positive manner.

5. ISSUES SURROUNDING EDMS IMPLEMENTATION PROCESS IN GOVERNMENT

There are three issues that need to be explained before the proposed theoretical framework of the study can be further action. The first issue is regarding with the meaning of the EDMS implementation process. A true understanding of the characteristics of EDMS implementation process success or failure require a consideration of combination all events and activities involved in a sequenced manner. Indeed, implementation should be defined as beginning with the first activity of developing a system and not ending until the user is satisfied with the system [5]-[6]. Hence, the study should adopt the view that is capable of encapsulating most of the activities in the system development life cycle, in order to understand what actually had happened during its process. Thus, a wider definition seems more suitable to encapsulate factors as much as that factors leading to implementation success.

The second issue is that there are enormous numbers of successful EDMS implementation factors. The factors are subject to how and where the EDMS has been applied. This includes top management support, budgetary, implementation planning, anti-corruption , implementation staff, security and privacy, data quality, user requirements, cooperation, integration, awareness, resistance to change and staff training. However, the generalization of the findings that described is somewhat limited. The factors clarified were not completely discussed in terms how they fit occur within whole implementations process. Thus, one of the motivations for this study that factors fail to encapsulate the whole implementation process.

The third issue is related with kind of approach to investigate EDMS implementation. EDMS implementation is still inconspicuous due to many authors in the literature were followed factor approach. Several researches were highlighted to pay more attention to the process view of e government implementation. They argued that the implementation can be complex because the lack of technical and human resource and bureaucratic management style of government. Therefore, process approach is important step towards exploring and understanding the EDMS implementation in local government.

By considering these three issues, the proposed framework has been designed in which that effective EDMS implementation is achieved when there is an integration between individual change and organizational change management in government organization. ADKAR describes the five building blocks of successful individual change as Awareness-Desire-Knowledge-Ability-Reinforcement. While, organizational change management defines the activities, steps and tools a project team or change management resource can follow to support the required individual changes to occur. This framework will help public organizations gain a better comprehension of the factors effective EDMS implementation, and of the recommended process of change management from government practitioners perspective.

6. CONCLUSION

This study is an ongoing research with the aim to develop a research framework of EDMS implementation process in government. In achieving this, there are thirteen (13) common

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factors found that highly significant in EDMS government literature. The identified factors could potentially be different in other scenarios; however, this paper focuses to explore the common factors, which is an applicable framework for the EDMS implementation process for the government. These common factors were also classified as being sufficient or necessary, depending on the condition of a particular phase throughout the process of EDMS implementation. It is confident it will provide the government practitioners (e.g. system developers, senior managers, and project managers) with greater understanding concerning the process of EDMS implementation projects, by identifying the activities involved in each stage for better comprehension of the process.

The proposed framework also provides insights for additional studies regarding EDMS implementation where it applies Prosci-ADKAR model of change to frame the structure the implementation process for the EAI. It is quite interesting framework as it suggests that effective change management is built on two integrated components, namely individual change management model and organizational change management process. In other words, the framework treats both individual and the organizational perspectives are necessary for an effective change management initiative, rather than solely focus on individual or organizational change separately.

As this is a preliminary finding, there are several plans that have been developed. First, the framework which contains thirteen factors as presented in this paper is conceptual. Hence, we will validate these preliminary findings by using a TOPSIS method as suggested by [25] in order to rank and to show the importance of these factors to EDMS in government in reality setting. In doing this, a questionnaire will be distributed in some government organizations in one of developing countries. Once the rank of important factors already in hands, second, we will conduct a series of case studies with government practitioners in different government organizations (in the same country as similar with step one), to assess the general relevance of each factor in each phase. For us, this will be an interesting research area to be studied, as it will help us in understanding how the government practitioners' pattern will actually influence the smoothness of the implementation process. Therefore, more empirical qualitative research efforts in this emerging field should be carried out.

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