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Change Management in Information System Projects Implementation in Government Organizations

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Abstract *- Successful implementation of Information Systems has been a challenge to any organization, whether it is government or privately owned. Several governments have invested big amount of money on Information Systems (IS) however, most of the projects failed to be implemented successfully due to the lack of Change Management (CM). This paper aims to document the Change Management (CM) concepts being used by other government-owned offices and organizations. Through extensive literature review, the Change Management (CM) concepts, applications and methods being used by government organizations are discovered. This paper will serve as a reference to other government agencies planning to implement an Information System (IS) project.*

Keywords: change management in government organizations, IS change management in public office

1 INTRODUCTION

Information Technology (IT) performs as business foundation in organizations. Information Technology plays an important role in improving the economic progress of an organization. Not just private organizations, several government organizations are transforming from management-oriented to service-oriented. Part if this transformation is the development and implementation of Information Systems (IS). Cadle and Yates[1], stated four reasons why an organization should consider development and implementation of an information system: (1) business survival, (2) improving efficiency, (3) competitive advantage, and (4) external factors.

Generally, there are five (5) different types of Information System [2]. These are: (1) Transaction Processing System, (2) Management Information Systems, (3) Decision Support Systems, (4) Expert Systems and Neutral Networks and (5) Information Systems in Organizations. Several governments have already implemented Executive Information System (EIS) [3] which provides executives with meaningful information used for decision-making.

Information Systems for governance and public administration, as one of the most important aspects of computer applications in developing countries, have been a high priority concern in almost all developing countries. Governance and public administration cannot be productive, effective and efficient without the support of modern information technology. The use of information technology has been an absolute requirement for public administration and management development. The process of effectively creating information systems for

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government organizations is not easy. Both in the developed and developing world, numerous government computerization and information system projects failed.

The main difficulties hampering the success, in principle, are more on the management area rather than on the technical side. Other critical issues [4] involved are (1) appreciation and understanding of the advanced state of the art of information technology, (2) awareness of the trends of modern information technologies and their impacts on development strategies of developing countries, (3) knowledge on the roles of government policy in stimulating effective use of information technology, and (4) cognizance of the management issues of government information infrastructure and information systems building.

This paper aims to explore and discuss application of Change Management (CM) techniques, methods and concepts to government organizations to ensure the successful implementation of Information Systems (IS).

The rest of the paper is organized as follows: section 2 discusses Change Management (CM), section 3 discusses the methodology to be used. In section 4, results will be discussed. Finally, section 5 concludes the paper.

2 CHANGE MANAGEMENT

As changes are inevitable and unpredictable, change management has been an increasingly significant subject. Regardless of how the new information system is technologically advanced and no matter how the implementation is planned, human potential still represents a factor in dealing with changes. Documented and functional Change Management (CM) is one of the decisive factors for a project's success.

Change Management (CM) [9] is a structured approach for ensuring that changes are thoroughly and smoothly implemented, and that the lasting benefits of change are achieved. The term Change Management is often used as a scapegoat when an IT project initiative failed. The change being managed could range from a simple process, changes in policies and strategies, and/or implementation of an information system.

James Taylor[5] identified two categories or types of changes: (1) change that is initiated by the client's need evaluation - these changes occur primarily because the requirements1 were not clear at the very beginning of the project, due to change of technology, or the change in needs caused by certain market requirements; (2) change that is caused by the information system development and implementation project itself. This change is often called as developmental changes.

In general, McMillan [6] the reason for organizational change is brought by a 'world view that is no longer consonant with the twenty-fist century'. He also added, globalization and technology are two of the most general reasons for change. Tetenbaum [7] has outlined different factors for driving change in the modern world of organizations, these are: (1) New technologies that have transformed communications, electronics, consumer markets and speeded up industries; (2) globalization, which has resulted in a world that is ever more connected and interdependent as information, money and goods move around the planet; (3) globalization and new technologies, which together have sharpened competition and precipitated the rise and fall of market leaders; (4) new change processes and practices, which are now happening faster than ever before in our known history; (5) speed, an

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incredible increase in technological speed is matched in business (product life cycles are measured in months not years) and in people's lives; and (6) complexity and paradox which are increasing as a result of all these changes and are making more and more difficult demands on managers used to seeking certainties and solutions in order to bring about the ideals of stability and order. It is worth noting from what Tetanbaum outlined, that internal and/or external factors can drive change.

When managing changes, Ciric and Rakovic[8] emphasized the areas to which special attention is essential: (1) resistance to change, (2) organizational culture and (3) project participants or stakeholders.

This paper explores change management approaches of government organizations in terms of information system implementation. Additionally, this paper will also look into the three (3) areas in which change management approach is applied.

The next section discusses the methodology that will be used in gathering scholarly papers to be reviewed.

3 METHODOLOGY

This paper uses the Systematic Literature Review (SLR) method in undertaking a systematic literature review. By complying to the systematic procedure defined by the said research method, this paper can provide a more objective process in selecting relevant and note-worthy studies. The major steps in SLR include the following: (1) defining a research question, (2) search strategy for selecting studies and (3) management of studies.

Using the SLR methodology, the author should be able to define a research question that is anchored to purpose of the literature review. The author should also be able to plan for the search strategy and specify the steps needed. Lastly, the author should be able to manage the studies, filtering the irrelevant studies and selecting the pilot studies to be evaluated.

3.1 Defining a research question

This paper aims to identify different Change Management (CM) approaches of government organizations in Information System (IS) implementation and defining a research question is the initial step. The research question will be the basis for the search strategy and the selection of the pilot studies to be evaluated.

3.2 Planning a search strategy

The initial step in planning a search strategy is selecting the input data source. In this paper, ACM Digital Library and will be used as a source for the relevant studies. ACM Digital Library has been chosen as the source because this is the most comprehensive database of full-text articles covering computing and information technology. The second step in our search strategy is to construct a query based on the research question. Keywords should be chosen carefully to maintain the proper balance between specificity and generality.

3.3 Managing the studies

After running the query in the ACM Digital Library, studies will be obtained. But there is a need for each of the study to be assessed for its actual relevance through inclusion criteria. Table 1 shows the inclusion criteria.

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Table 1: Inclusion Criteria

No.	Criterion	Description
1	It should be written in English.	There are some studies that are written in other language. They have provided English title and abstract so these papers will show up in the search results. Only studies written in English will be included.
2	It should be peer-reviewed.	To ensure the quality of this systematic literature review, only peer-reviewed studies will be included.

4 RESULTS AND DISCUSSION

This section will discuss the results of each step in the SLR methodology and later part will discuss the selected pilot studies.

4.1 Research question defined

This paper aims to answer the following question: What are the Change Management (CM) approaches in Information System (IS) implementation in government organizations?

4.2 Results of the search strategy

Keywords were constructed from the research question. These keywords will be used in the search query in ACM Digital Library. The following search query will be used: "*change management in information system implementation in government organizations*". Table 2 shows the number of search results per source:

Table 2: Number of search results per source

Search query	Number of results (ACM Digital Library)
change management in information system implementation in government organizations	453,752

4.3 Managing the studies

The search result for the first query has been furtherly refined by publication year (>= 2013). Table 3 shows the number of search results for the given query.

Table 3: Search result for the refined query

Search query	Number of results (ACM Digital Library)
change management in information system implementation in government organizations	139,956

To furtherly filter the results, advanced search feature has been used. The first where clause will be on the Title field that matches all (compared to matches any) of the following words or phrases: "change management information system government organization". The next where clause will on the field of Publication Year, this is set to

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on or after (>=) 2013. The full query syntax is as follows:

"query": { acmdlTitle:(+change+management +information +system +government+organization) }

"filter": {"publicationYear":{ "gte":2013 }}, {owners.owner=HOSTED}

The above query resulted to fewer matches. Table 3 shows the result set for the query above.

Table 3: Search result for the refined query

Search query	Number of results (ACM Digital Library)
change management in information system implementation in government organizations	9

From a total of 9 ACM Full-text Collection records, there were only 5 [10][11][12][13][14] results found. However, only two articles were found to fit this study. These 2 [10][11] research articles (pilot studies) were selected of pilot studies by reading the abstract and conclusion to verify and assess the paper's relevance to the research question. Table 4 shows the final list of pilot studies to be evaluated.

Table 4: Final list of researches with publication year

No.	Research Title	Publication Year
1	Impact of Knowledge Management and Change Management on the Effectiveness of the Firm: Evidence from the Russian Companies [10]	2016
2	Change Management as a Critical Sustainability Factor to Prevent Failure of e-Government Initiatives [11]	2014

The next sections will discuss the Change Management (CM) approaches of different government organizations in their implementation of information system.

4.4 Results of the search strategy

The search results for the query "*change management in information system implementation in government organizations*" clearly shows that change management is an area of research that is not fully explored.

The study conducted by Zelenkov [10] emphasized that Change Management (CM) is a complementary activity to the Knowledge Management (KM). Many organizations believe that enterprise knowledge is a key resource to ensure the effectiveness. However, the Zelenkov's [10] empirical investigations of practical usage of management tools show that knowledge management meets the expectations much less frequently. Authors of empirical research [15] even found that there is no positive impact of the quality of the KM processes on enterprise knowledge. Based on their theoretical analysis, since enterprise knowledge is materialized from the changes in internal systems, therefore, a joint development of Knowledge Management (KM) and Change Management (CM) is necessary to provide the greatest effectiveness [16]. They noted that the

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most important factor is not only the ability of an organization to learn and develop but also the capability to realize proposed changes.

Zelenkov surveyed 88 Russian companies, 35 of which are government owned. Based on their study, the effectiveness of the organization depends on the following Change Management (CM) practices: (1) recognition of the need for change, (2) change diagnosis and planning, (3) change implementation and evaluation, and (4) organization support of CM. It is also worth noting that government organizations have worse managerial practices and are less effective than private companies.

Another study conducted by Saravanan and Lessa [11] emphasized Change Management as a critical sustainability factor to prevent failure in the implementation of an e-government project (WoredaNet). The WoredaNet e-government project is an initiative of the federal government of Ethiopia to transform the traditional paper-based interaction within and between government organizations. Their study focused on the two (2) Ethiopian districts with regards to the differences on their Change Management practices in IT integration. Saravan and Lessa [11], through multiple case studies, revealed that the two districts have three core issues: (1) change efforts conducted on the human elements, (2) organizational culture and (3) the commitment of top management. The study also provided as to how to approach different change related factors and issues. As reveled in the study, one of the most critical factors that contributed to the success of the WoredaNet project is the commitment from top management to overcome the barriers and challenges for change. Leaders should act as change agents and have to adopt different approaches to manage people in new work settings. In addition, benefits of moving to a new system should be well highlighted since job loss and fear of technology integration increases employees' resistance to change. Still part of Change Management (CM) efforts is the staffing, skills, training and development. Employees need to be trained regularly for learning new skills to keep up with the rapidly changing technology. The study emphasized that the success of such e-Government project depends largely on human skills and capabilities. Performance management is also an important factor to incorporate in Change Management (CM). The organization should be creative in designing a reward system for employees who are new yet utilizing the new system. Lastly, a strong and continues collaboration of all levels of the government is necessary to implement a government-wide information system project.

5 CONCLUSION

This study clearly shows that Change Management (CM) is an area of research that needs more exploration. It is also worth noting that Change Management (CM) is not a priority for most government organizations, compared to private organizations.

From the related research articles reviewed, the following key points in Change Management (CM) should be considered by government organizations when implementing information system projects: (1) recognition of the need for change, (2) change diagnosis and planning, (3) change implementation and evaluation, (4) organization support of CM, (5) commitment from top management, (6) staffing, skills, training and development, (7) reward system, and (8) strong and continuous collaboration.

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REFERENCES

[1] Ćirić, Z., & Raković, L. (2010). Change management in information system development and implementation projects. Management Information System, 5(1), 23-028.

[2] Bhatt, G. D., & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: An empirical study. Journal of management information systems, 22(2), 253-277.

[3] Lungu, I., & Bara, A. (2007). Executive Information Systems. Academy of Economic Studies Publisher.

[4] Sage, A. P., & Rouse, W. B. (Eds.). (2009). Handbook of systems engineering and management. John Wiley & Sons.

[5] Taylor, W. A. (2000). Change-point analysis: a powerful new tool for detecting changes.

[6] Gilley, A., Gilley, J. W., & McMillan, H. S. (2009). Organizational change: Motivation, communication, and leadership effectiveness. Performance improvement quarterly, 21(4), 75-94.

[7] Tetenbaum, T. J., & Mulkeen, T. A. (1989, December). Irrationality in Organizations: A Constructivist Model for Change. In The Educational Forum (Vol. 53, No. 4, pp. 337-353). Taylor & Francis Group.

[8] Ćirić, Z., & Raković, L. (2010). Change management in information system development and implementation projects. Management Information System, 5(1), 23-028.

[9] Todnem By, R. (2005). Organisational change management: A critical review. Journal of change management, 5(4), 369-380.

[10] Zelenkov, Y. (2016, July). Impact of Knowledge Management and Change Management on the Effectiveness of the Firm: Evidence from the Russian Companies. In Proceedings of the The 11th International Knowledge Management in Organizations Conference on The changing face of Knowledge Management Impacting Society (p. 51). ACM.

[11] Lessa, L., & Saravanan, D. (2014, October). Change management as a critical sustainability factor to prevent failure of e-government initiatives. In Proceedings of the 8th International Conference on Theory and Practice of Electronic Governance (pp. 474-475). ACM.

[12] Hagen, L., & Sinn, D. (2012, October). Enterprise systems and government organizational changes: a socio-materiality analysis. In Proceedings of the 6th International Conference on Theory and Practice of Electronic Governance (pp. 470-471). ACM.

[13] Hagen, L. (2013, June). Enterprise system implementation in national and local Korean police agencies: a case study. In Proceedings of the 14th Annual International Conference on Digital Government Research (pp. 46-55). ACM.

[14] Alexandrova, A., Rapanotti, L., & Horrocks, I. (2015, May). The legacy problem in government agencies: an exploratory study. In Proceedings of the 16th Annual International Conference on Digital Government Research (pp. 150-159). ACM.

[15] Massingham, P. (2014). An evaluation of knowledge management tools: Part 1–managing knowledge resources. Journal of Knowledge Management, 18(6), 1075-1100.

Volume 2, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

[16] Sengupta, N., Bhattacharya, M. S., & Sengupta, R. N. (2006). Managing change in organizations. PHI Learning Pvt. Ltd..