

Stages of Data Analysis Process to Implementing E-government Project

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Abstract—The success of implementing any project depends largely on identifying the weaknesses and strengths of a project, through a set of stages. This paper aims to clarify the main stages of implementing e-government project, also aims to explain the stages by answering the following questions: How to make an overview of the e-government project? How to gathering data? How to analyze the collected data? How to design the conceptual framework?

Keywords—Data Collection, Data Analysis, Design Conceptual Framework

I. INTRODUCTION

In general, to implement successfully project it is necessary to understand the project components and clarifying the benefits, barriers and risks, as well as know the opinions and attitudes about the factors that influence the implementation of a project.

E-government project is not a new concept, but also it is not easy to implement. E-government project requires a clear vision to implement, and clarify the main components, as well as and identify the benefits and barriers of the transfer to e-government services.

In this paper will discuss the fundamental stages of implementing the e-government project and avoid the failure, these stages are:

Stage one, Literature Review, aims to give an overview of e-government and specify the weakness, strength, benefits and barriers of transfer to e-government services. The literature review as well gives the ability to learning from the success and failures experiences of previous projects. Stage two, Data Collection, explain the method of gathering data and clarify each method. Stage three, Data Analysis, explain the main step to analyze the collected data and identifying critical factors. Stage four, Design Conceptual Framework, give the concept of data analysis and clarify the previous steps in the diagram. Stage five, Implementing, can be defined as the stage to convert and implement what discussed above to reality.

II. LITERATURE REVIEW

The literature review in the simple definition is review and discusses subject or information published in a particular area. The literature review sometimes can be taken in a certain time period. The literature review is an arrangement and re-

organization of information in a specific subject to give a new interpretation of old information that can be merging with new information, to building new standards and conclusions in the field of study.

The literature review can be defined as a general review of the specific subject, to clarify the weaknesses and strengths of previous studies.

However, many studies noted that the main purpose of the literature review is:

- Build a complete and clear picture on the research.
- Clarify the weaknesses and strengths of previous studies and current research.
- Clarify the gaps of previous studies.
- Clarify the results and formulating.
- Clarify the questions of research, and formulate questions in smoothly and understandable.

According to the field of study in this article, which is the e-government project, the literature review is a very important step, to build out a clear picture of the e-government project, and identified weaknesses and strengths of the e-government project.

The literature review helps the researcher to avoid mistakes and problems that can be occurred during the implementation of the e-government project.

In the e-government project, the literature review plays an important role in identifying the main factors of the e-government project, as well as the main elements of each factor.

III. DATA COLLECTION STAGE

Data collection stage is very important step to uncover all the details relevant to the research. Rowley (2002) defined that data collection and analysis can contribute to support research propositions. On other hand, many studies (Njie and Asimiran (2014); Sharma, Bao, and Peng (2014); Iacono et al. (2009); Meyer (2001)) identified different sources to collecting data, which are: Interview, Documents, Direct observations.

According to the literature review, the researcher must determine the research aims, the data required and research context, to select the suitable method for collecting data to



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build a conceptual framework for evaluating e-government implementation.

However, based on the research requirements, there is a different method to collecting the data. The preferred method is:

Case study

The case study is the preferred research strategy for collecting data. The case study is known as a practical methodology, which focus on current phenomenon or real-life context, and allows researchers to investigate and understand in depth of the phenomenon (Al-azri et al. 2010; Meyer, 2001).

Iacono et al. (2009), Njie and Asimiran (2014) defined case study as a method that investigates phenomenon within its natural setting. Case study is a powerful method in theory building, and deep understanding to phenomenon within its particularity. The case study allows the researcher to investigate, explore and collecting data within an organization to be studied.

Yin (2003) defined the case study according to set of features, which are:

- The phenomenon is examined in its natural setting.
- More than one entity can be examined at the same time.
- Knowledge is constructed rather than discovered or found.
- Use more than one method to collecting data.
- Helpful to explore data and explain the complexities of real-life which may not available in experimental or survey research.

Interviews

The interview method is one of the methods that help the researcher to discover issues and collecting the needed data. The interview one of the methods that has the ability to clarify incomplete issues or unclear, this method enables the researcher to understand interviewee clearly. Yin (2003) state "one of the most important sources of case study information is the interview". Open-ended interviews are two-way open communications; enable researchers to ask respondents for the facts as well their opinions.

Saunders et al. (2009) stated that the research interviews enable the researcher to gathering of wealthy and detailed information, though it needs a sufficient level of competence to conduct these, to gain the necessary of information data related to their use.

Documentation

Documentation is a content of data related to subjects prepared for a specific purpose, and the document can be included paper, magazine, reports and electronic documents.

Documents are provided possibility to supplement needed information from other resources, and highlight the new ideas and insights that need further investigation by researcher (Yin

2003). Zakaria (2004) defined that the document is useful source of information and build plans and ideas that can be manipulated during interviews.

Questionnaire

Nicholas Walliman (2001) pointed out that questionnaire is flexible tool enable the researchers to organize the questions and receive replies from respondents without needed to talk with each one separately. Saunders et al. (2009) found that "Although questionnaires may be used as the only data collection method, it may be better to link them with other methods in a multiple-methods research design". Questionnaire has the ability to provide required data to the research in less time and no cost (Alrawabdeh 2014).

IV. DATA ANALYSIS STAGE

The procedure of data analysis is using to classify and identify the results of collected data to achieve the project goals. Saunders and Rojon (2014) defined that the data analysis procedures "use to analyze data need to be explained clearly with examples if necessary", the examples help to explain the cases in its natural setting. Theivananthampillai (2009) pointed that the data analysis is including three steps (collecting, noticing and thinking steps).

It need be added that data analysis procedures provided support for the hypothesis of research and clarified that the most cases in include three steps:"1) coding or annotating the primary data, 2) grouping together the related codes, and 3) generating the themes from the codes".

According to (Creswell, pp. 248, 2014) the collected data can be analyzed by the following steps, Table 1-1 illustrated the steps of data analysis process in information system (IS).

TABLE 1. STEPS OF DATA ANALYSIS PROCESS IN IS
(SOURCE: CRESWELL, PP. 248, 2014)

Step	Description of step
Organize and prepare the data for analysis	This involves transcribing interviews, record notes, cataloging and arranging the data into different types according to the sources of information, and prepared tables depending on the predefined set of factors.
Read or look at all the data.	Through the first step, the author wrote general ideas about the information and collected data, and take impression about the participant's thoughts and what they say.
Start coding	Coding is the process of classification and arrangement of data by special symbols that can be bracketing chunks, text, image segments, or paragraphs to describe those categories.
Description (identifying factors)	Describe the new data findings through connecting and classify different themes.
Interconnecting themes, factors	An analytical discussion to Interconnect multiple perspectives from individuals, and quotations, themes, and common factors.
Making and interpretation	Based on the data analysis results and comparisons which gleaned from the literature or theories the author can add his own understanding and give the interpretation.

Fig.1 shows the main units of data analysis process to implementing e-government project.



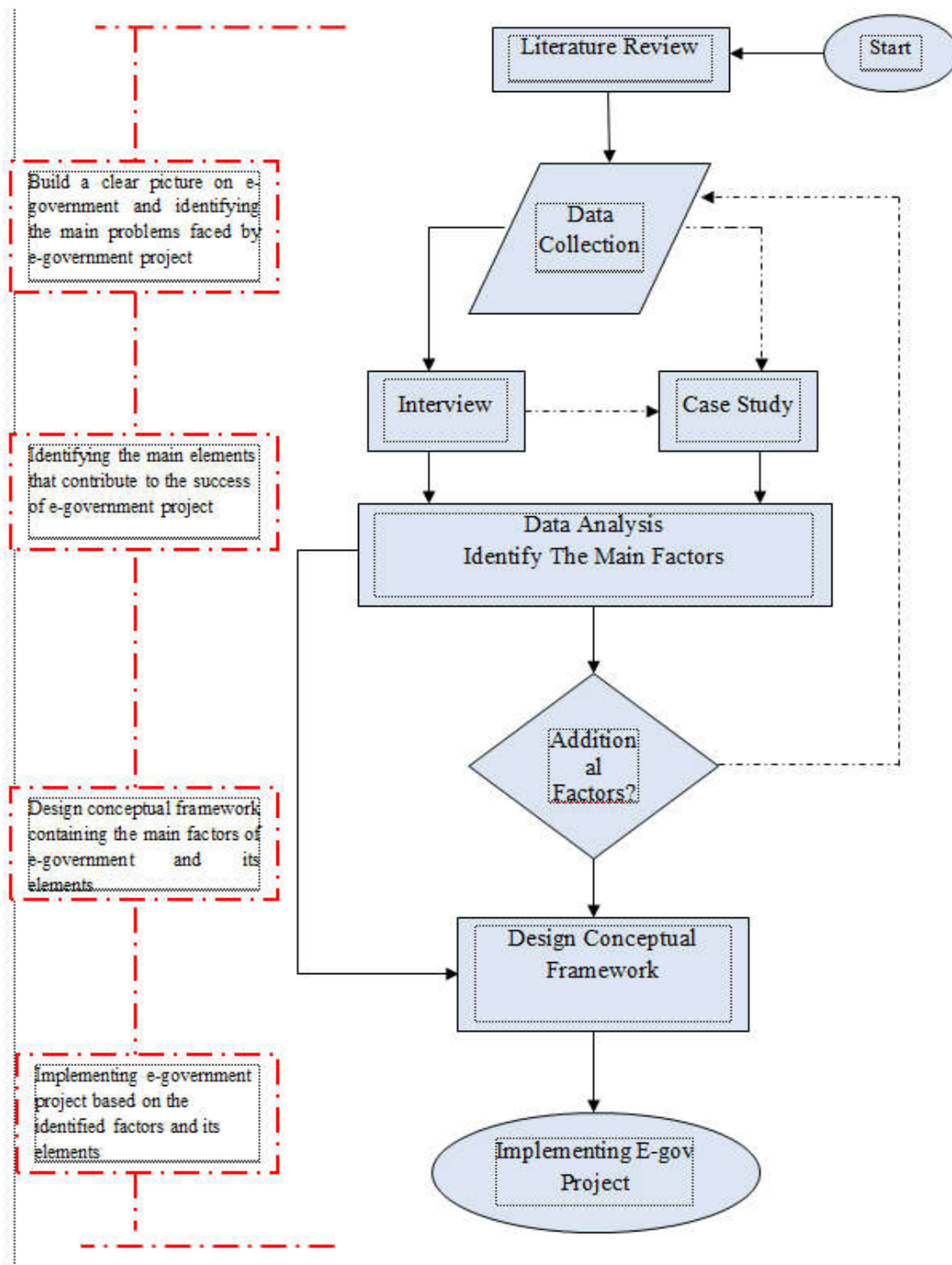


Fig.1 Data analysis process of E-gov project

V. DESIGN CONCEPTUAL FRAMEWORK STAGE

Design conceptual framework can be defined as an action plan to move from the stage of collected data and analysis to the next stage of designing; clarifying and drawing the main

units of factors is very helpful to arrange the collected data in the right format, also provides a map to understand the needed component to implementing e-government project. Design conceptual framework also is useful stage to help other



researchers to follow the framework and understand the concept of project and main factors that can be developed in future work.

Design stage aims to give a clear picture of the structure of the project and outline all needed method and tools for the e-project.

Identifies the conceptual framework and the main factors that influencing the implementation of e-government, as well as identifies the key actors that enable researchers to prioritize for successful implementation of e-government project.

In additional, the conceptual framework clarify and determining the guidelines of needed elements to achieve the implementation of e-government services successfully. However, this stage illustrates the final framework with the critical factors with its main elements for adopting e-government.

VI. IMPLEMENTING STAGE

The implementing stage can be defined as the stage to convert and implement what discussed above to reality. The success of the implementation phase depends on what is identified in the conceptual framework of main factors as well as its elements.

To ensure the smooth implementation stage of e-government service project successfully, the implementation process must include important steps such as evaluate performance and improvement, supporting the process of change.

VII. CONCLUSION

The main goals of the paper are clarifying the needed steps to move to e-government project smoothly, as well as aiming to identified how to build a clear picture of the e-government project by literature review and collecting data by the different methods such as interview, documentation, and questionnaire, also gathering data by selecting a research strategy (case study).

However, the paper can be summarized in the following steps:

- Build a complete and clear picture of the project by literature review.

- Clarifying the stages that have to be taken into account to implementing e-government project.
- Collecting data by selecting the suitable method.
- Analyzing the collected data according to Creswell's steps of data analysis.
- Build a conceptual framework according to the findings.

Make decision and priority in the implementation process.

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