E-Government Foresight in Developing Countries

F. Saghafi, B. Zarei, A. Aliahmadi and M. Fathian

1Department of Industrial Engineering, Iran University of Science and Technology, Tehran, Iran
2Department of Entrepreneurship, Tehran University, Tehran, Iran

Abstract: Ever-increasing development of information technology has affected many aspects of the individual, social and organizational life. This enforces many countries to develop and adapt comprehensive plans to manage this relatively new phenomenon. Highly adoptable e-government policies and protocols are required nationally, where traditional e-government plans are failed to address the citizens' requirements. In this study current e-government activities in developing countries discussed and highlighted available foresight methodologies. The main components of the e-government foresight are identified using meta-synthesis methodology. Finally, a new framework is developed for the e-government foresight in developing counties. This framework has a systematic approach to foresight in contextual and interaction areas with 3 main processes: pre foresight, foresight and post foresight. It should be considered that the main processes are cyclic. This issue is ignored in other frameworks.

Key words: E-government % Foresight % Framework % Information society % Integration % Gap analysis

INTRODUCTION

The item No. 13 of Tunis Commitment in Information Society [1] says: "We also recognize that the ICT revolution can have a tremendous positive impact as an instrument of sustainable development. In addition, an appropriate enabling environment at national and international levels could prevent increasing social and economic division and the widening of the gap between rich and poor countries, regions and individuals--including between men and women". This and many similar arguments have motivated knowledge-based development in developing countries [2-3].

Information and communication technologies (ICTs) have the potential to justify service delivery failures in traditional governments. ICTs created a networked structure for quality delivery of services, efficiency and effectiveness, decentralization, transparency and accountability. E-government has emerged as a popular catch phrase in public administration to cover all of those functions [4]. Ndou has studied e-government development and implementation in developing countries and specified seven challenges including [3]:

C ICT infrastructure such as telecommunications equipment.
C Policy issues such as legislation.
C Human capital development such as skills and capabilities.
C Change management such as culture, resistance to change.
C Partnership and collaboration such as public/private partnership.
C Leadership role such as motivate, involve.
C Strategy.

Misra [4] has overviewed the e-government scenarios for year 2006 and has recognized ten emerging e-government challenges for policy makers in strategy formulation and implementation. He concludes that the future of e-government may be quite sobering after the initial hype surrounding it settles down [5].

In the following sections foresight, foresight frameworks, international experiences about e-government foresight and the need for e-government foresight in developing countries are reviewed. Then major foresight components which typically are used in different frameworks are analyzed. Based on these components and the challenges of developing countries a new framework
is proposed for the e-government foresight. Employing this approach in e-government initiatives introduces new opportunities in e-government planning and implementation in developing countries.

**Foresighting Frameworks:** According to Martin[6], “Foresight is the process involved in systematically attempting to look into the longer term future of science, technology, the economy and society with the aim of identifying areas of strategic research and the emerging new technologies likely to yield the greatest economic and social benefits”.

Constructing the alternatives for the desired future is the objective of foresight. Havas highlighted that in foresight broad objectives, geographical scope (level), themes, time horizon, methods and participation are closely interrelated and thus a careful project design is needed to assure coherence among these constituents[7]. In this regard, Saristas [8] proposed a six-step systematic framework for foresight studies that includes designing foresight program, performing foresight program, recognize the reasons of difference between designed programs and performed programs, specification and performance of foresight system, desired situation design, breakage and potential weakness in foresight system redesigning. Other frameworks have the same structure, consisting of a set of steps to handle the uncertainty environment.

For a particular situation, appropriate framework should be adopted. Tegart and Johanson have proposed seven criterions for selecting a foresight methodology including the degree of future uncertainty, time horizon, future’s type, number and type of participators, logistics and key challenges [9]. These are related to foresight expected output and how to do the study.

Saristas [8] argues that a systematic foresight should create relations between context, content and foresight process. Foresight is based on a context that has effect on content and process. Context is collection of truths that has surrounded an event, whereas, content is collection of something that can be observed, discovered and learned. Process is a method of accessing to result and contains the procedures design, perform, implement, evaluate and improvement. In designing and organizing the foresight process four important factors are readiness for foresight, reception of concepts and scope of work, inputs and existence resources and organization of the project [10-11]. Similarly, a systematic approach to foresight process is remarked by Miles in 2003 with a five stage processes including pre-foresight, recruitment, generation, action and renewal. Popper is completed Miles’s stages [12]. Foresight activity in Upgrade project of England presented five components and some questions [13]. Martin for better perception of foresight has proposed foresight typology based on organization specification, covering level, functions, orientation, natural pressures, time horizon and metrology approach [6].

**E-Government Foresight Experiences:** E-government implementation needs a long-term attention to the future. Because it is necessary to consider the e-government vision based on the technological promotion [14-15]. New technologies will affect interactions, specifications, new services and improvement of the traditional services in future [16]. Therefore, it is necessary to provide some scenarios for interactions type and e-government services for the future. It is also necessity to recognize uncertain trends besides other trends [17]. This leads to a secure e-government [18] through making desired scenario for the future, based on new technology and regulations. Reversely, the results of e-government affect the implementation and revision of the government policies [19].

It is crucial to focus on a holistic framework to ensure that all relevant aspects of e-government scenarios, that interdependently impact each other, are considered. Such guiding framework should contain the following four aspects as the core of the framework: (a) Society, environment and culture, (b) Governments and administration, (c) Economies, efficiency and effectiveness, (d) ICT development and innovation [17]. Scenario makers should balance all these aspects.

E-government foresight is implemented in some countries such as Bulgaria [18], India [20] and OECD countries [16. Malaysia in his 2020 programs on e-government [21] have futuristic approach, however, no foresight techniques is employed [20]. Janssen and his colleagues [17] accomplished a common work between Albany, Lithuania, Netherlands and Germany and introduced 15 scenarios for e-government in year 2020 to shape different dimensions of alternative futures. It is required to develop an e-government foresight framework for developing countries, where are experiencing a different context

**MATERIALS AND METHODS**

Meta-Synthesis approach is used to produce interpretive translation, ground narratives or theories by integrating and comparing the funding or metaphors of different qualitative studies [22]. Qualitative
meta-synthesis enlarges the interpretive possibilities of data. Meta-synthesis differ from secondary analyses in that the former uses the findings of published research as data and the latter uses raw data collected by original researchers to reexamine an issue under study. The aim of meta-synthesis is to create an innovative and integrative interpretation of qualitative findings that is more substantive than those revealed by individual investigations [23]. This method is used to integrate multiple studies in order to produce comprehensive and interpretive finding by comparing, interpreting, translating and synthesizing different research frameworks. This method has been widely used in social sciences. The methodology of this research is qualitative and meta-analysis and synthesis[24] approach is used as below:

**Getting Started:** The aim of this research is to create a framework for e-government foresight process.

**Select Relevant Studies:** 9 different frameworks and models were identified based on literature survey related to e-government foresight.

**Reading the Studies:** 9 foresight frameworks were reviewed and details of each model were investigated.

**Determining How the Studies Are Related:** In this step, relationship between different studies is presented. Analysis of these models has shown that their developing trends are similar, although they are based on various perspectives.

**Translating the Studies into One Another:** In this step, different framework is compared and their relationships are found. The main parameters of the models are translated to each other.

**Synthesizing Translations:** This step, presents the relationship of different models in a table (Table 1).

**Expressing the Synthesis and Presenting the Finding:** In this stage, result of research and finding organized into text and diagram.

### RESULTS AND DISCUSSION

E-government foresight is important for different countries. However, traditionally developing countries in their e-government initiatives, have adopted international experiences. This demands more attentions to their government context. This results in new dimensions and critical components as well as a new framework of the e-government foresight.

**Dimension and Critical Component of E-Government Foresight:** Scientists have addressed almost similar the fundamental components for the foresight. UNIDO [25] and European commission (EC)[26] introduces 12 and 15 dimensions respectively. UNIDO argues that both technology foresight and general foresight are the same. This provides the ground for using the results of the above table for discovering e-government foresight in developing countries.
E-government in developing countries is a priority for development. Government is expected to be the largest consumer of ICT products and services for the next 5 years. It has the potential to reduce transaction costs of doing business, increase quality of service and decrease the corruption. In these countries e-government will increase digital content, effectively integrate and improve their bureaucracy and process productivity and even leads to social reformations. Developing countries have some constraints such as limited financial resources, inappropriate political climate, lack of institutional framework, insufficient records and databases, insufficient knowledge base and knowledge network and poor infrastructure. Providing a unique vision and fair objectives, focusing on process-oriented decision making, designing a good plan can help to succeed. These parameters already are described as foresight dimension.

E-government foresight might have a multiplication effect for conducting of spin-off foresights (tax reforms, IT sector, education, etc.). The results of e-government foresight have significant effects on policy implementation and revision.

Table 1 compares the application of these components in nine selected frameworks. The first components of this table have adopted from EC and the rest mentioned in other references. Between foresight studies in Table 1, eight studies are related to general foresight and 1 is derived from e-government foresight.

Rationales identify the arguments for conducting knowledge society foresight. Objectives declare the achievements of knowledge society foresight. Review existing strategic arrangements addresses how will knowledge society foresight complement or challenge. Orientation is about the focus of knowledge society foresight, while, level identifies political/economic/social institutional ‘level’ to be carried out. Time horizon focus on how far out is foresight to peer. Coverage detects the sectors/issues/problems that the foresight seeks to cover. Participation highlights the breadth of actor engagement. Consultation identifies the depth of actor engagement. Duration and cost deals with the time a foresight exercise last and the cost. Methods are about the methods and techniques used at the various stages of an exercise. Organization and management concentrate on the organization and management of knowledge society foresight. Dissemination is about the results of knowledge society foresight to be diffused beyond those immediate actors who took part in the exercise. Implementation shows the results of knowledge society foresight in following-up the action. Evaluation is about assessing the outcomes of knowledge society foresight. It is evident that, all of the 18 components have important role in foresight.

**E-Government Framework Studies in Developing Countries:** Considering components of Table 1 and existing frameworks, a framework is proposed for e-government foresight in developing countries in Figure 1.

Core components of this framework are adopted from the Martin's framework. Plan and design of the foresight processes are performed in pre-foresight step; foresight and dissemination of the results are carried out in the foresight step; in post-foresight the results are implemented and evaluated. It should be noticed that in the proposed framework, the main process are cyclic. Independent of foresight’s level and focus center, it is necessary to evaluate the results of implementation for the future projects. This issue is ignored in other frameworks.
This framework has a systematic approach to foresight in contextual and interaction areas. The contextual area contains subjective forces such as social trends and basic values; developmental issues such as the speed of technological development, changing political climate and economic development; or constitutional values like privacy and human rights. These factors have some bearing on the e-government developments in the long term.

In the interaction area there are some actors such as citizens, business, governmental agencies, NGOs, suppliers, customers, politicians and legislators. On the other hand, we should consider the type of services provided and the various models of participation and technology used to involved people in policy-making processes as a part of this area. An independent organization is recommended to take care of the foresight projects.

**E-Government Foresight Processes:** As mentioned before, each step of the e-government foresight has some processes which are different in developing countries. In pre-foresight, foresight initiation should be firstly decided. This requires enormous investment and, therefore, the head of the organization in charge of e-government should take the decision. Then resources are provided and commitments on the foresight should be decided between the key stakeholders. This provides a shared vision for e-government design. A complete list of these factors is presented in Figure 2.

In foresight step, strengths and weaknesses of the e-government scenarios should be analyzed. This can be enriched by benchmarking the foresights of other countries. In this stage, the focus should be on both project participants, such as defining proper methods for catch the attention of the stakeholders and technological equipments. Trend analysis, Delphi and scenario building is generally applied in the foresight step. In this step, some proper criteria and tools have to be defined for evaluating the results of the foresight program and dissemination of the results. A complete list of the essential factors in this step is shown in Figure 3.

In post-foresight the result of the other steps are implemented and evaluated. This step provides the national policies and master plans of e-government. Research planning or technology developments are major
moves forward. Simultaneously, capability building programs and reorientation of the leadership are mandatory. This provides the ground for strategy making and pursuing the objectives. In this step, detail design of the projects is defined and benefits of the foresight project are notified to the potential users. A complete list of the essential factors in this step is shown in Figure 4.

CONCLUSIONS

E-government has formed new challenges for developing countries. It demands large investments that can be efficiently managed by scientific approaches through understanding trends and mega trends, recognizing different domains and applying foresight techniques. The main message of the e-government foresight is that the future is neither the extension of other countries’ experiences nor the past experiences of ours. It is the results of proactive action to shape future context in cooperation with other stakeholders. This paper has presented a framework for e-government foresight in developing countries with study of other best practices, investigating similar issues such as technology foresight and reviewing general frameworks in the field. These analyses suggested a list of components to be incorporated in a proposed framework. This framework is an excellent guideline for e-government foresight in developing countries. Due to limited number of studied frameworks, this research can be continued by providing a more customized model for e-government in developing countries.

REFERENCES


20. Kanungo, V., 2006. E-government Foresight for the Next Decade, Key Policy, Implementation and Research Challenges for India, CSDMS.


