

E-government Frameworks Survey

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Abstract

This article presents survey of different e-government frameworks. After the new technologies that have been happened in the last decade therefore all countries move towards updating and developing their government into electronic government (e-government). E-Government has become a global phenomenon. There have been some great innovations in e-government over the last decade. Some governments compete for leadership in offering online services. In this paper more than evaluation criteria that determine the overall development of its e-government plan. The importance of citizen/end user satisfaction of the e-government e-services is a new parameter that affects e-government objectives. It is expected that the performance of e-government framework is more effective if and only if takes into its consideration.

Keywords: *Decision Support Systems (DSS), Frameworks, electronic-government (e-government)*

1. Introduction

E-government allows the public access for government information and services 24 hours a day, 7 days a week, and provides the potential for government to fundamentally restructure its operation. E-government is expected to improve government service delivery; increase public participation in government; and provide society as a whole with easier and greater access to government information and services by providing information to the public, allowing the public to report problems on line, and providing the public with the ability to purchase, request, or otherwise obtain government services on line.

While definitions of e-government by various sources may vary widely, there is a common theme. E-government involves using information technology, and especially the Internet, to improve the delivery of government services to citizens, businesses, and other government agencies to

interact and receive services from the federal, state or local governments twenty four hours a day, seven days a week [7,8].

E-government involves the use of information and communication technologies (ICTs) to support government operations and provide government services [5].

In this work, a survey of most common frameworks for different e-government is presented. By discussing e-government components. The aim is to utilize its components to help developers of e-government to integrate its components within their e-governments.

This paper is organized as follows. Section 2 presents general e-government definitions. Section 3 summarizes e-government: lessons of experience. Section 4 describes survey of most common e-government frameworks. The discussion of the survey is given in section 5. Finally the conclusion is presented in section 6.

2. E-government Definitions

E-government is defined as: government activities that take place over electronic communications among all levels of government, citizens, and the business community, including: acquiring and providing products and services; placing and receiving orders; providing and obtaining information; and completing financial transactions [1]. E-government is the continuous optimization of service delivery, constituency participation

and governance by transforming internal and external relationships through technology, the Internet and new media. This includes government to citizen, government to employee, government to business, and government to government.

There are numbers of definitions for e-government in the literature. Turban et al. [2] defined e-government as: “The use of information technology in general and e-commerce in particular, to provide citizens and organizations with more convenient access to government information and services, and to provide delivery of public services to citizens, business partners and suppliers, and those working in the public sector”. David McClure’s [3] defined:” Electronic government refers to government’s use of technology, particularly web-based Internet applications to enhance the access to the delivery of government information and services to citizens, business partners, and employees, other agencies and entities”. Also Milford considers e-government as any way technology is used to help simplify and automate transactions between government and constituents, businesses, or other governments [4, 5].

3. E-Government: Lessons of Experience

We accessed many different forums for e-governments frameworks. We summarized the lessons from professional e-government developers as the following:

- 1) E-government cannot perform as a substitute for governance reform
- 2) E-government must address the rural urban divide
- 3) Manage expectations: e-government is not a magic bullet
- 4) Translating promises to benefits involves difficult organizational changes.
- 5) There is no “one size fits all” strategy: the context needs to be understood
- 6) Balance top direction and bottom up initiative
- 7) Avoid large failures; deliver early results
- 8) Identify priority interventions that are capable of exploring a country’s competitive advantage, delivering cross-cutting positive impacts
- 9) Promote partnerships between government, private sector, civil society and donors
- 10) Avoid technology focus: ensure complementary investment; skills, organizational innovation and incentives are crucial for making technology work
- 11) Emphasize training and capacity building

4. Comparison of Common E-government Frameworks

New Zealand proposed e-government framework was planed eleven years ago. Its framework architecture composed of two trends; as in fig. 1 the first trend is the integration between people and business through access channel layer such as mail, portals, sub-portals, call centers and TV,.....etc. The business processes represented as education, health, business services and environment, etc. The second trend is used as the common foundation at all others layer like application layer, policies and standards layer, services layer, information technology layer and data/information layer[3].

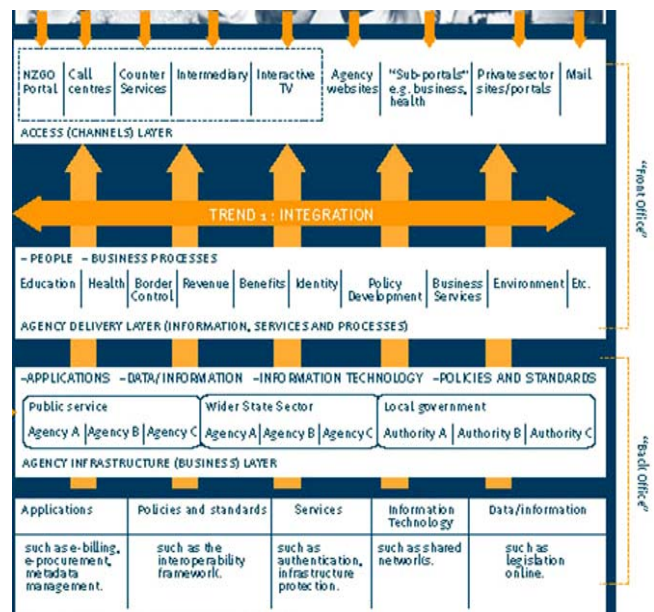


Fig. 1 New Zealand E-government Framework

Sri Lanka divided its framework layers into three major architecture layers as in fig. 2. They are application architecture, data architecture and network architecture. Application layer represented government internal solutions such as e-pension, e-human resource management (HRM), e-bills and e-tax filling solutions [6,7].

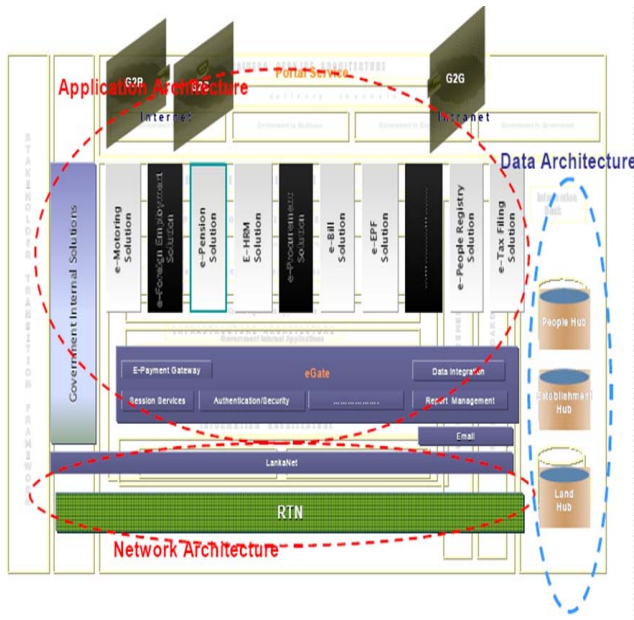


Fig. 2 Sri Lanka E-government Framework

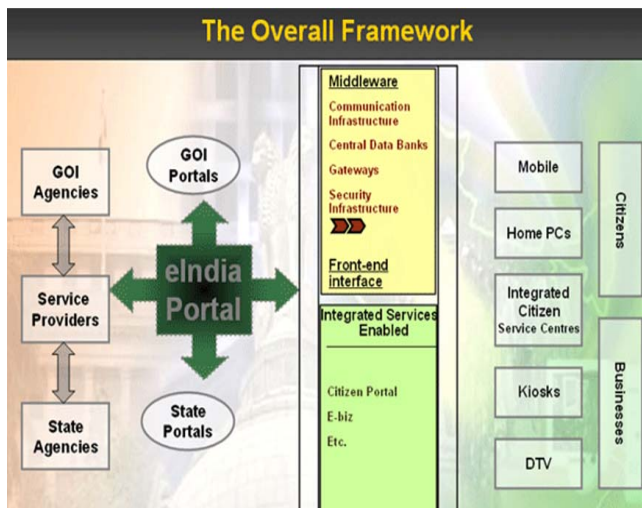


Fig. 3 India E-government Framework

As shown in fig. 3 India e-government framework was designed by dividing its framework based on middleware and integrated services enabled between e-India portals and e-government partnerships such as businesses and citizens through mobile, home PCs and integrated citizen service centers [4,6-8].

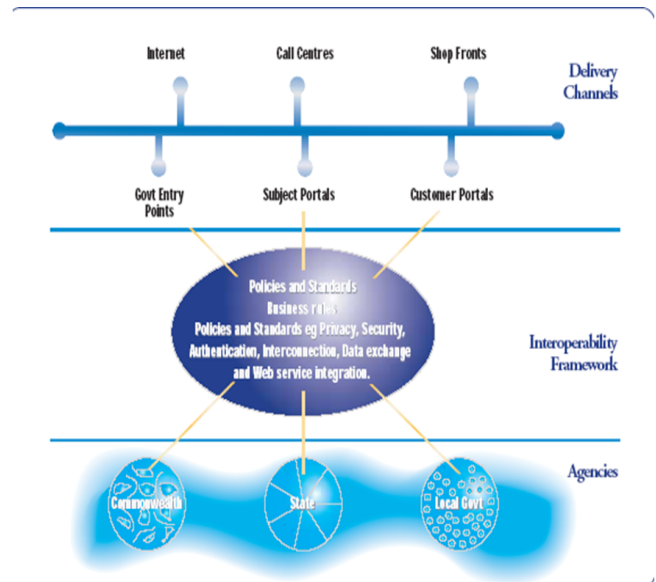


Fig. 4 Australia E-government Framework

Australia developed its e-government frameworks based on three major layers as shown in fig. 4. Its framework composed of agencies such as commonwealth and local government that use interoperability framework. The interoperability framework contains policies and standards e.g. security, privacy, authentication, data exchange and web service integration via delivery channels such as Internet, call centers and shop fronts. There are many portals that are used to storing and retrieve data in this framework such as customer portal, subject portal and government entry points [9, 10].

5. Discussion

After this study we found that every country can develop any e-government framework plan depending on its strategy and user satisfaction parameters. There are intersections between the above frameworks such as the application layer, data portal and network layer. Now where the evaluation method is? That determines the overall development of its e-government plan. Table I summarize the most important criteria's that evaluate e-government frameworks.

TABLE I
Evaluation Criteria

1	Ease of use
2	Reliability
3	Data query and display
4	Storage and retrieval
5	Documentation
6	Reporting
7	Speed
8	Support decisions
9	Pricing

The importance of citizen/end user satisfaction of the e-government e-services is the tenth criteria parameters. It is expected that the performance of e-government framework is more effective joined into its consideration. The measurement of performance for e-government summarize in table II.

TABLE II
Measuring Performance of E-government

Hierarchy	Performance measures
LEVEL 1	Return on investment (ROI)
LEVEL2	Total costs and revenues
LEVEL3	IMRPVING in quality of planning and control
LEVEL4	Quality of decisions
LEVEL5	Value of information
LEVEL6	System characteristics

6. Conclusion

We have found that the movement to e-government is very important for all government to interact with people and business transactions. E-government offers a huge potential to find innovative way to reach the satisfaction of people in general. Progress of new technologies allows electronic services to be applied in e-government. This survey is presented especially to the developers of e-government's plans. So the above e-government frameworks are the base for developing and maintaining e-government. A new parameter was found to improve the delivery of e-services established on user stratification. If you need to build the best e-government frameworks you should utilize the intersection of their layers.

References

[1] Keen, P. and Scott-Morton, M. "Decision Support Systems: an organizational perspective", Addison-Wesley Publishing 1978.
 [2] Karacapidilis, N.I and Pappis, C " A framework for group decision support systems: Combining AI tools and OR techniques", European Journal of Operational Research, Vol. 103, pp 373-388, 1997.

[3] Abdelkader ADLA "A Cooperative Intelligent Decision Support System for Contingency Management", Journal of Computer Science Vol.2, No.10, pp 758-764, 2006.
 [4] Roger L. Hayen, "Investigating decision support system frameworks", Issues in Information Systems Journal, Vol. 2, No.2, 2006.
 [5] Backus, M., "E-Governance and Developing Countries, Introduction and examples", Research Report, No.3, 2001
 [6] Sharma, S. K. and Gupta, J. N. D., "Building Blocks of an E-Government – A Framework", Journal of Electronic Commerce in Organization, Vol.1, No.4, pp 34-48, 2003.
 [7] P.Salhofer, and D.Ferbas, "A pragmatic Approach to the Introduction of E-Government", Proc.8, International Government Research Conference, 2007.
 [8] Zhiyuan Fang, "E-government in Digital Era: Concept, Practice, and Development", International Journal of the Computer, the Internet and Management," Vol.10, No.2, pp 1-22, 2002.
 [9] Shivakumar Kolachalam, "An Overview of E-government", International Symposium on learning Management and Technology Development in the Information and Internet Age, online available at www.ea2000.com, 2003.
 [10] Shailendra C. Jain Palvia, Sushil S.Sharma ", E.Government and E-Governance: Definitions/Domain Framework and Status around the World", 5th International Conference on E-governance (ICEG), 2007.

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