

AN E-GOVERNMENT PROJECT MANAGEMENT APPROACH WITH E-TRANSFORMATION PERSPECTIVE

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—Abstract —

Technological improvements and infrastructures in e-government activities solely form the tip of the iceberg. Transformed and streamlined services have become underlying mechanism for many government projects. In this paper, we examine these mechanisms with a project management approach and highlight the difference between adaptive projects and transformative projects. Our findings suggest that the invisible part of the iceberg in an e-government project is composed of human resources management, business process re-engineering, and administrative and legislative needs. The success in an e-government project requires well-defined project plan and technical specifications, and comes with adequate level of focus on non-technical aspects that are based on the gap analysis for transformational needs.

Key Words: *e-Government, e-Transformation Project, Project Management*

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1. INTRODUCTION

Last few decades show that Information and Communication Technologies (ICTs) have become crucial part of public managements and e-government concept heavily inspired the public reforms. In this perspective, e-government is defined by academia and international organizations as similar outputs but with different scopes of impact addressing opportunities. As preferred in this paper, UN defines e-government as the use of ICT and its application by the government for the provision of information and public services to the people (UNDESA, 2005: 14).

Initially, e-government projects addressed the issues of digitalization of back-office. In parallel to technological developments and ICT penetration in society, digitalization focus has moved to the service delivery mechanisms. Moreover, many reform packages and external dynamics of institutions have required innovative and transformative ways of doing business. In general, this environment leads an organization to expand its focus on reshaping whole service lifecycle including back-office processes. Nowadays, majority of the e-government projects is more than a regular ICT project, and seeks for maximization of the impact. These projects consider the restructuring of processes and business models with respect to technological developments and social dynamics (Hanna, 2010). Accordingly, the notion of e-transformation is more inclusive of change and refers to adaptation to the new requirements of stakeholders.

Managing a project has already been a difficult process. In addition to this, a project in e-government field requires extra effort and deepened concern. Nature of e-government projects has not been comprehended adequately. As a result, e-government projects showed low success rates in the early assessments. According to Heeks (2006) and Murray (2006), during early 2000s, more than half of the e-government projects in the world were resulted in partial or complete failure. There might be several reasons of failure. Public service environment has gradually changed and complicated the nature of e-government projects which are already mismanaged.

Given this environment, this paper firstly presents the concepts and types of the e-government projects in order to answer the question of why there is a need for transformation. The paper shows the experiences in national and institutional level e-government projects. In accordance with transformation concept, this study

finally demonstrates an approach to manage the e-transformation projects in general in order to answer how e-transformation projects are to be conducted.

2. CONCEPT OF TRANSFORMATIVE E-GOVERNMENT PROJECTS

Since 2000s, public managers have had the inclination to see e-government projects as standard ICT projects. The concept behind e-government projects has evolved in time. Administrative focus has shifted from sole automation to participatory business model transformations and nowadays, to the open government concept (Rodríguez, 2010). The more transformative and innovative projects have penetrated into the administrative agendas, the more stressful adaptation has become in terms of response to the changing needs.

2.1. e-Government Dimensions and Project Approaches

In order to manage projects accurately, emerging developments created need to clearly differentiate the e-government project from the regular ICT projects with respect to scopes and project deliverables.

2.1.1. Dimensions of an e-Government Project

There are two dimensions of e-government projects in terms of service delivery: front-office and back office. OECD defines front-office as the part of the government that is seen by its constituency; the front office is where the services and the interactions occur between the government (administrations) and its citizens or its businesses (OECD, 2003). The back-office is defined by OECD as the part of the government (administrations) concerned with the internal operations that support core processes which are not accessible to the public (OECD, 2003). At early stages of e-government, to a large extent ICT solutions have been the main focus of back-office processes to digitalize data processing steps. However, according to technological developments and e-government maturity in a country, front-office projects have become feasible in time, and more electronic services have been delivered to users.

Accordingly, Ebrahim and Irani (2005) name the e-government architecture framework in four layers; access layer on the top for users and devices, e-government layer for websites and portals, e-business layer for data processing applications and storage, and infrastructure layer at the bottom for network and processing power; in which each layer addresses a particular aspect of e-

government. While access and e-government layers correspond to front-office, e-business and infrastructure layers remain in back-office dimension.

Regarding these dimensions, e-government applications have matured in time with respect to the priorities of institution and demands of users (Lee, 2010). From the least mature level to most mature level of e-government service delivery; the complexity and change requirements of these dimensions proportionally increase with respect to institutional structure involving technical capacity, business processes, organizational structure and legislation.

2.1.2. Scope of e-Government Projects

E-government projects are categorized into 3 levels according to the scope of the project.

1. **Institutional e-Government/Automation Projects:** The scope of these projects such as implementing electronic document management, human resources management, institutional resource planning and renewing personnel devices is limited to organizational and back-office needs without integration to systems or services of other organizations. Majority of these projects can be named as automation and ICT infrastructure projects.
2. **Inter-institutional e-Government Projects:** The scope of these projects covers both front-office and back-office dimensions. Projects are flexible as long as there is more than one institution in terms of service preparation and delivery. Nowadays, majority of the e-government projects for public services such as justice, education et cetera remains in this scope.
3. **Supra-institutional e-Government Projects:** The scope of these projects is limited to infrastructure or interoperability frameworks. These projects such as government network, government cloud, and open data portal horizontally enable other services by institutions.

2.2. Effects of e-Government Projects in Institutional Structure

Implementing e-government projects may change the institutional structure and service delivery mechanisms that require transformative solutions. Hence, there is a need to look in different aspects to embrace these effects. It is possible to name these aspects as below:

1. **Technology**, which covers ICT infrastructure, and hardware and software solutions.
2. **Administration**, which covers administrative and bureaucratic environment, and human resources policy.
3. **Operation**, which covers main and auxiliary processes for delivering services.
4. **Legislation**, which covers legal environment of administrative and operational aspects.

3. EXPERIENCES IN E-GOVERNMENT PROJECTS

It is easy to find successful cases in literature; but difficult to find analysis on failed ones. Following common problems in e-government projects, this section scrutinizes project scopes in terms of transformative approach.

3.1. Common Problems in an e-Government Project

There are several mistakes in e-government projects repeated by the most of the public organizations. There are two sides of a generic e-government project: project owner and contractor. It is noted that in-house software development projects are not out of the scope of the common problems.

Based on the field experiences, it is possible to list these mistakes with respect to phases of an e-government project:

1. **Feasibility**: Most of the e-government projects are lacking a detailed feasibility reports that adversely affect the both side. Lack of domain knowledge and commitment to the project, and time pressure are the main reasons of failure.
2. **Technical Specifications**: Most of the e-government projects are in shortage of detailed technical specifications due to lack of personnel's technical and non-technical experience in related project. Therefore, it is highly possible to see copy-and-paste or vendor-driven specifications.
3. **Project Plan**: In general, project plan is under the responsibility of the contractor. Naturally, none of the contractors seek for failure. Contractor's lack of knowledge about what exactly to do in the project and project owner's limited attention to request the details of project plan are mostly the main reasons of failure in planning phase.

4. **Project Monitoring & Evaluation (M&E) Framework:** Even though each project requires M&E, it is rarely implemented into the project plan. In general, M&E activities are not continuous but irregular with absence of a framework.
5. **Requirement Analysis, Design & Implementation:** The contractor leads these steps. However, these steps mostly become troublesome due to inadequate technical specifications, ill-conceived plans, and lack of project owner's contribution in requirement analysis. It is especially usual for software projects to repeatedly overhaul the requirements.
6. **Test & Acceptance Processes:** Main problem in this phase comes from unclear specifications and procedures. Even though, test procedures are under the responsibility of the contractor, project owner's lack of knowledge in the technology or development processes maximizes the failure risk.
7. **Administrative and Legal Regulations:** E-government projects highly depend on directives and amendments in regulations that increase resistance to change. However, amendments mostly come after the project development phase which postpones the launch day of the e-service.
8. **Adaptation and Popularization:** The project owner leads these steps. However, it is always difficult to communicate the project outputs to the users including personnel and citizens. There might be design failures but in most case the problem comes from lack of empathy and concerns.
9. **Maintenance:** There are similar problems in general such as not planning and budgeting this phase at the beginning of the project. Main reasons are avoiding project budget increases and staff's lack of commitment to the system operation which eventually raises business continuity issues.

3.1.1. Human Resources Problems

Human resources management is one of the key criteria to successfully implement the project. It is possible to explain this situation in two phases:

1. During the project development

- Possible changes in project coordinator and project management group slows down the project development.
- In most cases there are few administrators in the institutions dedicated to project which makes the position of administrators more critical.

- There are few personnel with the knowledge of monitoring and evaluating the project with respect to the technical specifications and project plan.
- Extended decision-making processes with hierarchy slow down the project progress.
- Motivation in personnel to adapt new system is much lower in public institutions than private sector.

2. During the project roll-out

- Reallocation of the staff with experience in developed systems hinders the adaptation.
- Depends on the scope of the users in project, it becomes difficult to spread the system and ensure it has been used in a way projected.
- Resistance in switching to new system may occur in different ways such as personal reasons or organizational habits.

In addition to losing all monetary returns of the project with common mistakes and human resources problems, more negative impact rises with non-monetary effects. These are listed as below:

1. Project delivery delays: Considering a proper project delivers output in 2-3 years, failed or ill-conceived project at least doubles this schedule. For instance, it takes several months to test and realize the ineffectiveness of outputs. Following the preparation of a new project plan in a year and extra 2-3 years for the new project and test procedures, total time spent to see working system reaches 6-8 years.
2. Negative perception of external stakeholders on administration and institution impedes launching a new project.
3. Fading level of staff support hinders the new project development.

3.2. Projects in Inter-institutional Level

Beside common problems in e-government projects, increased need for communication and cooperation among institutions makes the projects considerably difficult at this level. Given that transformed and streamlined service need is higher in the inter-institutional level projects, interoperability concern at technical and administrative levels becomes main obstacle.

Figure-1: Main Steps for e-Government Projects at Inter- and Supra-Institutional Level



Considering interoperability issues, Figure-1 illustrates the main steps for e-government project with increased focus on strategic alignment and action identification at national level.

For instance, it is estimated that 24% of the public ICT projects in Turkey were concluded in planned time and budget that are scheduled as between 2007 - 2010. Moreover, 25% of the projects of Short Term Action Plan and 20% of the projects of the e-Transformation Turkey 2005 Action Plan that are also included in Information Society Strategy 2006-2010 weren't finished by December 2012 (Ministry of Development, 2013: 85).

Due to the distributed nature of inter-institutional level projects, M&E and inter-institutional coordination become most significant issues among other level of projects. Hence, majority of these projects is prone to come to a deadlock in the absence of effective coordination.

3.3. Projects in Supra-Institutional Level

Due to the nature of supra-institutional projects, majority of the public bodies are to be affected adversely if the project is faultily identified and ill-planned. At this level, projects require higher level of coordination and M&E, and it is expected that national strategies initialize supra-institutional e-government projects. There are possible reasons to have a failed project; however aligning requirements of institutions adequately at strategy and action preparation becomes a difficult period of strategy coordinator.

In spite of having technical competent professionals in the field, this level of projects are in shortage of a priori experience at national level that makes feasibility study and project planning troublesome. Due to the hierarchic nature of supra-level projects, M&E becomes easier compared to inter-institutional projects once the responsible body is assigned.

3.4. Main Differences in E-Government Projects

Considering the scope and the effects on institutional structure, e-government projects are categorized into 2 types:

1. **Adaptive e-Government Projects**, in which main focus remains on adaption to the new technology with respect to the front-office e-government layers without re-engineering back-office business processes and institutional structure. This type of projects has limited impacts on institutional structure.
2. **Transformative e-Government Projects**, in which main focus expands to re-engineering back-office and front-office business processes and updating the institutional structure. This type of projects affects the institutional structure extensively.

Based on the e-government projects concept and the field experiences, the main differences between adaptive and transformative e-government projects are expressed with qualitative scale of 3-levels at Table 1.

Table-1: Comparison of the Adaptive and Transformative E-Government Projects

Characteristic	Adaptive e-Government Projects	Transformative e-Government Projects
Returns by Project Dimensions		
Back-Office Processes	Low	High
- Infrastructure Layer	High	Low
- e-Business Layer	Low	High
Front-Office Processes	Medium	High
- e-Government Layer	Medium	High
- Access Layer	Medium	High
Effects on Institutional Structure		
Technology	High	High
Administration	Low	Medium
Operation	Low	High
Legislation	Low	Medium

4. ROADMAP FOR A BETTER E-GOVERNMENT PROJECT MANAGEMENT APPROACH

The key success criterion for any e-government project is having error-free contract and technical specifications. It is meant with error-free that contract clearly defines the responsibilities and sanctions, and addresses the terms of references and technical specifications without onerous conditions. Furthermore, it is meant that technical specification equally details all modules of software requirements and clearly specifies the hardware and service procurements. However, it doesn't guarantee the success but only a good launch of the project. Noting that each project requires different conditions, project success comes with robust project management regardless of any project management standard.

When the project is ICT-related, it is expected to have hardware and/or software implementation. The issue is to determine to what extent the project requires ICT solution and business model transformation. Helping to allocate the resources adequately becomes main dilemma of many practitioners.

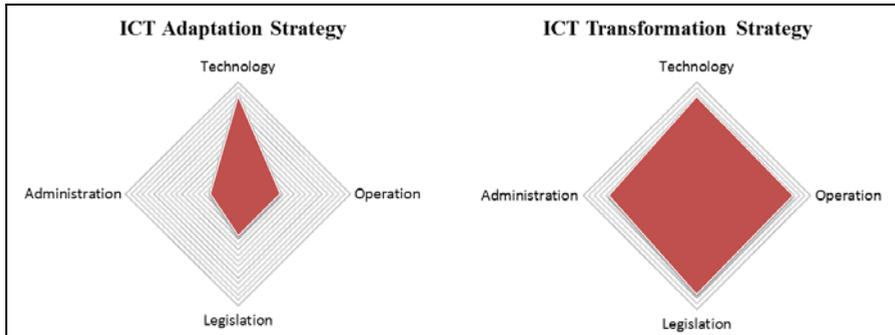
4.1. Decision on a Development Approach

Information society and knowledge-based economy continuously require the institutions to adapt new demands of citizens and society. Due to the very nature of public administrations all around the world, bureaucratic structure has higher resistance to change. Institutions rarely find a way to pass this bottleneck that addressing actual requirements of social and economic development into the administrative practices. This situation hinders the institutions to adapt and evolve in time. Hence, they mostly need transformative approaches to find a solution.

Given the aspects of institutional structure and analysis, it is expected to follow one of the two main strategies for every e-government project:

1. **ICT Adaptation Strategy:** Adapts technology to the existing process and brings few changes in business model. Technology focus is the main concern in this strategy. Other dimensions are analyzed as needed. It is relatively easy to implement with limited exploration of the feasibility, therefore it promises limited returns on investment.
2. **ICT Transformation Strategy:** Re-engineers the business processes to the technology and brings notable change in workflows. It is relatively difficult to implement which requires analyzing all dimensions to fully exploration of the feasibility but promises higher returns on investment.

Figure-2: Comparison of e-Government Project Strategies



It is illustrated in Figure 2 that transformation strategy requires equally deeper analysis in all aspects whilst adaptation strategy mainly focuses on technology.

As mentioned in maturity levels, in order to streamline the processes and to horizontally connect the systems there is a growing need in changes and complexity in analysis. On the other hand, transformative approach has high potential to increase the effectiveness and impact on stakeholders. Table-2 shows the roadmap for transformative e-government projects with qualitative scale of 3-levels. Considering the suitability in the e-government trends and advisability in project scopes, e-transformation projects are to be managed and developed in effective way.

Table-2: Roadmap for the Adaptive and Transformative E-Government Projects

Characteristic of e-Government Projects	Adaptive e-Government Projects	Transformative e-Government Projects
Advisability in Project Scopes		
Institutional Automation	High	Medium
Inter-Institutional	Low	High
Supra-Institutional	Medium	Low
Suitability in e-Government Trends		
IT Capacity Development Trends	High	Low
Service-Centric Trends	Medium	High
Data-Centric Trends	Low	High

5. CONCLUSION

This study briefly conceptualizes the transformative needs of society and highlights main approaches to successfully plan and manage e-government projects with an e-transformation perspective.

Firstly, it is noted that preparation of a detailed technical specifications and project plan is indispensable to let the project managers faultlessly launch and manage the project plan.

Secondly, there is no one-size-fits-all solution for e-government project management problems. There is a crucial need in the system design and roll-out phases which are to be advancing step by step and developing module by module. Performing roll-out needs the stakeholders embrace the change and new tools. Thus, it is important to involve the system users in the project development phase and gather their opinions and suggestions.

Thirdly, e-government projects were merely seen to be software and hardware purchasing processes. Considering the significance of change management, communication management and legal amendments are to be default procedure of any kind of e-government projects. Depending on the project characteristic with changing ratios, experiences shows that technology forms a small portion of the successful e-government project. Especially, re-engineering the back-office and front-office business processes has become crucial to further the e-government impact with e-transformation perspective.

Consequently, the initial key to success of e-government projects is to decide whether requirements need adaptive or transformative approach. Following the decision, there is a need to implement comprehensive analysis including all aspects of institutional structure. In these terms, it is beneficial to apply transformative approach, even though initial time and cost required are relatively higher to adaptive approach, rather than facing with failed projects and losing time with starting from the beginning.

BIBLIOGRAPHY

Ebrahim, Zakareya and Irani, Zahir (2005), "E-government adoption: architecture and barriers," *Business Process Management Journal*, Vol. 11, No.5, pp. 589-611.

Hanna, Nagy (2010), *Transforming Government and Building the Information Society Challenges and Opportunities*, New York: Springer.

Heeks, Richard (2006), *Implementing and Managing eGovernment*, London: Sage Publications.

Lee, Jungwoo (2010), "10 year retrospect on stage models of e-Government: A qualitative meta-synthesis", *Government Information Quarterly*, Vol. 27, pp. 220-230.

Ministry of Development (2013), "Current State Analysis Report for Renewal of Information Society Strategy", Ankara: Republic of Turkey, Ministry of Development.

Murray, Jonathan (2006), "The GAP Principles: Supporting IT Projects and e-Government through Improved Governance, Architecture and Procurement", Microsoft.

OECD (2003), "The e-Government Imperative", *OECD E-Government Studies*, Paris: OECD.

Rodríguez Bolívar, Manuel Pedro, Laura Alcaide Muñoz and Antonio M. López Hernández (2010), "Trends of e-Government Research -Contextualization and Research Opportunities", *The International Journal of Digital Accounting Research*, Vol. 10, pp. 87-111.

UNDESA (2005), "Global E-government Readiness Report 2005: From E-Government to E-Inclusion", New York: United Nations.