A Goal Oriented and Knowledge Based e-Government Project Management Platform

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Abstract

There is a growing need for better project management in e-Government endeavors to bring together people with diverse knowledge and skills so they can develop and implement project activities effectively and efficiently. This paper is a research report on eGTPM (e-Government Transformation Project Management) platform, a project management tool which assists implementers and decision-makers in e-Government project planning and control. eGTPM Platform improves most existing commercial tools by integrating goal orientation and dynamic enterprise modeling (DEM) principles into the knowledge building tool developed at the Decision Systems Laboratory in National Technical University of Athens. By employing goal orientation and DEM principles’ concepts, eGTPM facilitates communication and collaboration among all involved parties in order to jointly identify project needs and requirements and to reduce the number of changes due to misunderstandings. eGTPM also includes a knowledge based project control advisor which contains heuristic knowledge to guide users to possible design alternatives. The paper describes eGTPM’s components and possible directions for future work.

1. Introduction

e-Government projects hold the promise of optimizing and improving services provision and increasing the productivity and efficiency of public administration established work processes. Yet, few development projects deliver on this potential, instead falling victim to any of a collection of pitfalls.

Examples of implementation problems, delays and failures in the area of e-Government can be found in practically all countries [1], [2]. In Germany, for instance, the failure to set up a satellite-based highway toll system has led to a national debacle, a loss of 156-180 million euros per month since then and calls for resignation of the transport minister [3]. In UK, a social benefit-payment card scheme is reported to have collapsed after three years, wasting 300 million British Pounds. In 1999, problems with the Passport Office’s new computer system caused chaos for thousands of travelers [4]. Another case to be added concerned the Customs and Excise’s switch to paying VAT online, which caused major problems in 2002. In Austria, the implementation of an electronic insurance card in the health system has been delayed for several years. After the continued failure of an international consortium to provide the e-card, the Federation of Social Insurances finally cancelled the contract in spring 2003 after two years and started a new tender [5].

Project managers, decision-makers and public administration employees are all too familiar with implementation and management hindrances that render the project obsolete before its completion, project escalation and costs that spiral out of control, and deterioration of communication among stakeholders. Furthermore, as the complexity and importance of e-Government applications increase, the implications of failed development efforts are magnified. An effective project management process, therefore, is critical to the successful completion of development work.

Most often e-Government project failure is not due to technical problems, uncontrollable forces, or the people involved but simply to bad project management [6], [7]. The managerial causes of e-Government project failure include failure to properly control the project (i.e., knowing what to watch for, when to act, and what to do), inadequate e-Government project’s planning and goals definition [8]. Unclear project needs, poor work breakdown structures and lack of stakeholder involvement, at an early stage, in defining project requirements and scope are major contributors to the instability, conflict and numerous change requests which lead to rework, delay and failure.

This paper presents a collaborative e-Government project management platform that helps alleviate the problems arising from the specific characteristics of e-Government projects.

The placement of the specific paper in the overall research methodology framework is illustrated in section 2. Related work in the area of project management tools is presented in section 3. Specific e-Government characteristics related to project
management are identified in section 4 and the proposed platform is presented in section 5. Section 6 illustrates an application of the specific platform in an e-Government project and finally conclusions are presented in section 7.

2. Methodology

The presented platform relies on eGTPM approach [9]. Even though the theoretical background of the whole research methodology is out of the scope of this paper, a quick overview of the different research phases will help the reader to better understand the methodological bedrock that supports the presented results. As shown in Figure 1, this process consists of the following phases and steps:

Phase 1 - *Literature review:* A review of current literature in e-Government area is used to identify factors found to influence the success of e-Government initiatives. This review includes the scanning of top journals, book chapters and case studies in information systems and public administration with a focus on e-Government initiatives. The analysis in this step is focused on drawing the specific management and implementation challenges that are been confronted in projects of e-Government domain [10].

Phase 2 - *Exploratory Research:* The analysis in this step examines some of the most popular project management approaches whose selection is based on their visibility and central role in e-Government systems project implementation. The study has utilised a methodology that is based on exploratory research. Available literature and case studies have been reviewed and authors’ personal experience in e-Government projects implementation has been exploited. The type of exploratory research was chosen because it can provide significant insight into a given situation, facilitating the structure and identification of new problems. The identified weaknesses have been mapped to the related e-Government project challenges identified in phase 1.

Phase 3 - *eGTPM Approach Conceptualisation:* The proposed approach is formulated attempting to cover the gaps of existing project management approaches regarding eGovernment projects management, identified in phase 2.

Phase 4 - *eGTPM Platform Implementation:* A supporting platform is implemented in order to practically support and simultaneously validate the eGTPM approach. Initially, relative project management tools are evaluated and thereinafter the platform is designed.

Phase 5 - *eGTPM Application:* Aim of this phase is to apply the proposed approach and tool in real e-Government cases, evaluate its effectiveness and exploit the assessment results to improve them [11]. For the scope of this paper the focus is on phase 4.

3. Related Work

There are many commercially available project management products ranging from low-end tools to sophisticated systems for multi-project management.

- **Figure 1. Methodology**

Most of these systems offer generic project management features such as network scheduling, resource management, budgeting, cost control and performance analysis. They vary considerably in capabilities, flexibility, degree of integration, ease use, and interfaces. In the open-source desktop applications group there are tools such as Gantt Chart [12], [13] for project scheduling of tasks, and doing resource management using resource load charts and Open Workbench [14], [15] focused on scheduling. In the open-source web-based applications class there are programs such as eGroupWare [16], [17] which assist in managing contacts, appointments, projects and to-do lists and Codendi [18] focused on organizing software project processes, improving schedule management,
increasing software delivery quality and collaboration between project teams. There are also proprietary desktop applications such as Microsoft Project [19], [20] designed to assist project managers in developing plans, assigning resources to tasks, tracking progress, managing budgets and analyzing workloads or Primavera [21], [22] used for scheduling and tracking project related activities. Regarding proprietary web-based applications, ProjectVision [23] is designed to follow the Prince2 project management methodology and AtTask [24] includes task management, issue tracking, document management, time tracking, and portfolio management.

Most of the sophisticated systems are more expensive and have a substantial learning curve. These high-end systems (e.g., Primavera Project Planner, Artemis, Micro Planner X-Pert, Harvard Total Project Manager etc.) provide integrated planning, scheduling, costing, control, and analytical reporting [25].

Artemis [26], [27] is one of the major advanced systems that offer a comprehensive set of tools including features that assist project control such as earned value management reporting, and active alert for tracking project performances. However, this tool only allows sharing access to information and does not provide mechanisms to coordinate or to gather ideas as typical collaborative tools do.

Software Productivity Research's KnowledgePLAN [28] is one of a very few commercial project management systems that exploits expert system technology to guide users through the development of software project estimates. KnowledgePLAN provides knowledge based estimation, scheduling functionality, and "what-if" analysis to explore alternatives for resource allocation.

A major drawback of these procedural models, applied to the majority of project management tools, is the complexity and unnaturalness of their representation and formulation. In addition, they are unable to directly apply the expertise of human project planners and exploit the existing knowledge to improve the project plan [29], or backtrack to test further solution paths when stuck [30]. In this respect therefore, a knowledge exploitation system can provide the abilities to represent and manipulate knowledge of expert planners to improve the accuracy and completeness of e-Government project plans [31].

Levitt and Kunz [29] have proposed a knowledge based method for producing CPM networks, describing formalisms for encapsulating a project’s activities as knowledge representations. Bell [30], however, handles precedence constraints using captured knowledge of the project planner, Jong et al. [32] further highlight the ability of knowledge based system (KBS) to support an explicit model of the project management domain, and to provide a unique capability of intelligent assistance to the project manager. These authors are unanimous in perceiving further opportunities for knowledge reuse in project planning and management that are the focus of this paper.

The process of planning and scheduling e-Government projects often involves uncertainty concerning both internal and external agents and events. In several cases, external factors may place a constraint on an activity or goal in the project. Such factors may include for example, the unavailability of specialized equipment, personnel or design information before a certain date, the dependence on another public organization to complete a preceding part of a large e-Government project, or even political and social factors. A KBS could provide a heuristic for satisfactorily reconfiguring the project structure given this constraint, and propagating its consequences.

4. e-Government Management Characteristics

The government projects have now become the end to end transformation of all the activities performed to design, market, sell, produce, deliver and support a set of related products and services, to deliver business value from the government to its citizens/enterprises. This is a modern view with a focus on public services; however the traditional project management methodologies tend to be activity centric to deliver cost savings and productivity improvements quickly. Although this type of project management approach is a good start, and is easily cost justified, its emphasis on the IT enablement of individual processes through the development and deployment of specific applications has a number of major issues demanding the appropriate eGovernment architecture framework [33]. eGTPM [34] approach attempts to develop eGovernment project management field beyond its current conceptual base connecting it more closely to the specific challenges of eGovernment transformation projects. eGTPM provides a sound basis for project management in eGovernment area, being a result-oriented approach to project management and offering a radical departure from the more traditional project management methodologies, focusing on what must be achieved, the goals [35], rather than on trying to predict timescales and resources for activities. Through reusing methodologies from the Enterprise Modeling domain and combining example project components (along the ideas of Industry Models, of the eBusiness area), eGTPM approach provides a knowledge-rich environment for planning, organizing and monitoring
eGovernment projects - satisfying the specific eGovernment project challenges. eGTPM’s knowledge management aspect relates to the capabilities offered by the tool for knowledge transfer among e-Government projects. Knowledge has been and is still a major government’s resource. Since knowledge is regularly localized or even personal and difficult to share, it becomes immediately evident that despite a lot of e-Government projects’ knowledge, it is not necessarily available anywhere, anytime for anybody. It means that not all stakeholders can necessarily benefit from that knowledge. Consequently, a lot of “wheel reinventing” is going on in public administration. Very often e-Government projects to be materialized are similar to some other projects that have been implemented in the past. Therefore, in many cases planning and scheduling are just a process of adapting or modifying an old project schedule. Therefore, there is an inevitable need for the better exploitation of continually accumulated knowledge in order to retain the high quality and homogeneity of the project planning and decision making process [36]. In this section some critical aspects of e-Government project management are discussed.

Characteristic 1: Goal-driven management nature

Successful project management of government transformation projects require bringing the disparate organizations, business processes, technologies, agendas, cultures and people together to create a harmonious and workable solution. And this solution is not known in advance – the effort of going on the ‘ride’ is as important to the outcome as the original intent. Also government transformation projects are identified as component type projects. They usually are not one-piece projects, but they are clearly formulated objectives, divided into goals [37]. Imprecise or even incorrect goals will have harmful effects on the eGovernment project and sometimes people are lured to the ‘fast track’. Therefore to implement the project, first it should be decided and then its partial goals achieved. In traditional planning, goals represent the completion of activity, not the accomplishment of a result. The focus is on “doing things” rather than on achieving real results. In eGTPM the goal is defined as a practical and tangible step within the project described as a state, which must be reached to meet the final objective.

eGTPM philosophy is based on the sound understanding of the final project target as well as to the precise decomposition of it in well-defined sub-goals. Decomposition of project plan into goals leads to the development of a rigorous component-based understanding of project implementation. The profound project apprehension will improve the quality of selection, implementation and continuous improvement of government transformation projects, and will reduce project risks. Using the top-down approach and especially the project breakdown in goals, the uncoupling between the targeted goals and the implementation procedure to achieve them is accomplished.

Characteristic 2: Reusability of knowledge

A lot of knowledge deriving from already materialized government transformation projects remains unexploited inside project managers’ minds or in project schedules, plans and reports. Existing best practices and already successfully implemented eGovernment projects could pave the way for approaches that can exploit model driven design and provide domain specific ways of implementing safe and usually multiple challenging goals [38], [39]. This accumulated knowledge varies from method steps, techniques and practices, up to systems, project deliverables and lessons learned. Project types, goals, activities, deliverable templates, roles, responsibilities, stakeholders, identified risks and other reusable items, from the already implemented eGovernment projects, could be stored in a knowledge repository and become available for reuse in order to build a new government transformation project. This repository could serve as the backbone of knowledge management in eGovernment transformation projects, making experience and best practices available for future eGovernment projects. In many e-Government cases some patterns of activities frequently repeat. Depending on the particular type of government transformation project (National Gateway, Regional Portal, Back Office systems interconnection, eGovernment Framework implementation etc.) eGTPM embodies the use of properly structured patterns that could provide the bedrock on which a new government project can be planned.

Characteristic 3: Multi-dimensionality

There is often a tendency in the specifications of eGovernment projects to overemphasize the technical aspects and ignore the social, managerial, policy, people, cultural and organizational aspects. Most times it is easier to imagine the concrete, technical tasks rather than the abstract, organizational and human ones.
An eGovernment project usually addresses several needs or purposes in an organisation; it usually has a composite goal and the plan is therefore multi-dimensional. This means that several aspects of the project are carried out simultaneously. In order to bring out the multi-dimensional aspects of eGovernment project work [40], [41], [42], [43], the concept of the result path is introduced in eGTPM approach. A result path is a series of goals that are closely related to each other. Result paths tell the implementers and the readers of the plan what results the project aims to achieve and in which manner are they interdependent (Figure 2).

Characteristic 4: Different viewpoints

During the implementation of an e-Government project, each participant views the project from his own perspective. Stakeholder management is a significant issue in government projects and bespeaks subtle treatment [44], [45]. eGTPM ensures that all the project stakeholders are identified, by providing a pre-defined set of most common stakeholders in eGovernment projects. The framework advantage is not detected only in the definition of the stakeholders, but much more by specifying the expected role and responsibility of each role in each specific activity or deliverable, in order to ensure each participant’s commitment to the project.

eGTPM identifies the project stakeholders which are affected positively or negatively from the results. The stakeholders’ analysis, records in the stakeholder table, their areas of interest, the kinds of contributions to the project, the expectations of the stakeholder, the power of the stakeholder and the appropriate strategy to work with each stakeholder. In this way the project support is strengthened and the appropriate informative channels are discovered.

5. eGTPM Platform

5.1. Planning Levels

Project planning within eGTPM platform consists of two essential levels (Figure 3): the global planning level and the operational level. They are both analyzed in the following sub-sections.

5.1.1. Global Planning Level. Planning at this level is concerned with what is to be accomplished and not how the work will be done. In other words, this level is goal oriented. In eGovernment project work, it is quite impractical to operate solely with final goals. It is necessary to have certain checkpoints along the way. These checkpoints are the goals. It should be easy to ascertain whether or not a goal has been reached. It is not always easy to formulate goals in this way, but the easier to decide whether a goal has been reached, the easier to control an eGovernment project. It is even better if the goals also provide the organisation and the managers with useful results. The goal then becomes both a checkpoint and a deliverable obtaining what is called evolutionary development, a gradual fulfillment of project goals. The eGovernment project does not wait until the last goal delivers all the results, but it rather plans to deliver results in installments. A goal is a description of a state the project should be in at a certain stage. As much as possible, a goal should be neutrally stated with regards to ways of obtaining it. It is important for a goal to be described in such a way that it is possible to ascertain that the desired state has been reached.

Global planning level includes goals’ definition, goal plan scheduling and goal responsibility chart completion.

5.1.2. Operational Planning Level. Project planning at operational level includes definition, through specific activities, of how goals can be attained, definition of the expected deliverables, implementation of the responsibility chart at the activity level and production of the project schedule. As the activity description is developed, the employees are involved in estimating the efforts and determining the start and end dates. The activities are described in such a way as to allow for straightforward and immediate assessment of the project's progress in time. This not only commits the project manager to making the target or goal date, but also challenges the project staff to do so.
5.2. The Prototype

5.2.1. eGTPM Platform Architecture. A prototype project management tool based on knowledge exploitation has been developed which integrates management functions with eGovernment project patterns development and knowledge re-use operations [46]; the functions that the platform offers can be divided into two main categories: Core Management Functions and Reporting Functions, as depicted in Figure 4.

Core management functions include functions that are responsible for administering eGovernment project data. Apart from functions such as insert and update goals and activities, create and update role profiles and responsibilities, update projects, create result paths etc. it also utilizes functions for creating, updating and deleting relationships between the entities (result paths, goals, activities, roles etc.). Reporting functions provide the platform user with a number of view functions, such as simple goal list which describes all the goal details for the generated plan, activity list and also some more complex views, such as goal plan which depicts the result paths, goals, and the interdependencies among them, responsibility chart which depicts the basic project responsibilities at the goal level for different roles and the project schedule draws the goals and activities scheduling details.

Scenario building is a very important support facility. It allows the decision-maker to experiment with the schedule and try out different scenarios. Different schedules could be compared and tested. Due to unpredictability of the actual conditions under which the plan will be executed, the decision-maker always checks the generated schedule by considering various scenarios and adapting his/her schedules correspondingly. If such adaptations are possible the schedule is considered to be robust, otherwise it has to be modified.

The proposed platform allows for easy project configuration and the use of best practice implementation scenarios when defining goals, activities and responsibilities.

Figure 4: eGTPM Platform Architecture

An attractive alternative for building the project plan from scratch is the selection of an appropriate pre-configured project plan using an eGTPM eGovernment project scenario (Figure 5). Government transformation project scenarios are stored in the Scenario Repository. The selected project scenario serves as a basis for the public organisation specific project plan. Because every eGovernment project is unique, the project scenario allows removing or editing the initial scenario goals. In the selected scenario newly created goals or additional goals can be inserted from the Goal Repository. Instead of selecting a generic eGovernment project scenario, the user can also select a previously customized project plan that has been created for a similar project. This previous plan can be modified and adopted as desired to serve as the basis for a new eGovernment project plan. In our experience the added value of the eGTPM will grow
with the number of available customized eGovernment project plans.

5.2.2. eGTPM Platform Operation. eGTPM Platform has the following objectives:

- Efficient preparation of comprehensive and consistent eGovernment project documentation (goal chart, goal list, responsibility chart, project schedule)
- Provide eGovernment project configuration based on data gained through experience
- Enable Knowledge Management (by using one central place for archiving historical project data)

The basic building blocks of project plans according to eGTPM are the goals. With the eGTPM the user can create specific goals for the project plan. He can also make use of a large number of existing goals for the plan. These generic goals are stored in the Goal Repository where he has the option of customizing the information first by editing part of the generic goal information. The platform provides the user the possibility to select a goal from the repository and change its information (Figure 6).

![Figure 6: Goal details form](image)

Figure 6: Goal details form

eGTPM Platform user can customize almost all information. The eGTPM responsibility codes are displayed automatically once the user has positioned his pointer in the referring fields. Information inserted in the field “Comments” serves only as background information, and is only displayed in this window. This could be used as documentation by the person who created this goal, or a warning for the usage of this goal. Note the tab ‘More’, giving access to additional goal information. Under ‘More’ the deliverables, completion criteria, services and additional information can be viewed. Unlike the comments in the previous screen, the additional information will be printed in the goal list. All of these fields can be customized, if required. The user has also the option of selecting ‘New’, indicating that he wants to create a new goal. If the user chooses to modify the default activities for the goal, he should select ‘Modify Activities’ in the window goal information (Figure 7).

![Figure 7: Activities selection form](image)

Figure 7: Activities selection form

The user has also the option of selecting ‘New’, indicating that he wants to create a new activity or edit if he likes to modify an activity. After the creation and the modification of the goal information the checkboxes indicate that the user can proceed to the third step of deliverables generation (Goal Chart, Responsibility Chart, Project Schedule, Goal List) further analyzed in the following section.

eGTPM platform can be accessed either through the Internet or as a client server application. A user can view the status of the project at anytime from any machine that can access eGTPM, and, with update permissions, can update project information. eGTPM provides asynchronous collaboration by allowing managers to share their views and update project activities from different places and at different times. Asynchronous collaboration occurs, for example, when one manager creates or modifies a plan that another manager reviews at a later time. Synchronous project management collaboration occurs, for example, when different functional managers work simultaneously on the same plan.

6. Application in an e-Government case study

6.1. Project Scope

In order to demonstrate its applicability in
facilitating an effective and efficient performance, the eGTPM Platform has been applied in a real e-Government project implementation. In the case of the Greek Public Administration, eGovernment evolution is currently addressed through a large number of ongoing projects (Central Governmental Portal, Central Local Administration Portal, National Network Infrastructure and numerous front-office information systems to provide electronic services) that demand a high degree of interoperability with legacy systems. In this context, the Greek electronic Government Interoperability Framework (eGIF) comes to facilitate the Greek Public Administration to adapt to the digital era, ensure deployment of joined-up information systems and delivery of high quality services to the citizens and businesses and contribute to the resolution of the interoperability problem.

The existing applying implementation procedure in Greek government transformation projects is based on the bottom-up approach. Most of the projects are organized attempting to define the necessary activities and the analytic project plan prior to the final goals. As a result most of them delay having exceeded the pre-defined budget. On top of that they do not cover the full spectrum of the stakeholders’ expectations leading to incomplete results or projects that cope with sustainability issues.

6.2. Project Management Structure According to eGTPM Platform

During eGIF project management the two levels planning approach of eGTPM was followed. Each of these is discussed, concerning the specific eGovernment project, in the following sections.

6.2.1 Global Planning Level. The goal plan (Figure 8) is the project’s global plan. The development of the eGIF goal plan and the eGIF goal list has been performed at the start of the project. The purpose was for all core project members and stakeholders to acquire a common understanding of the goals and how the project shall progress. This was essential to gain commitment from them. Moreover, project participants agreed on which goals were specifically critical to the project so that everyone understands the severe consequences if these goals were not reached in time or were realized with poor quality. During this phase the decision makers (politicians, high ranked public officers etc.) had the opportunity to realize, understand and commit to the project structure without digging in project implementation details. The basic dimensions, standards, systems, training & dissemination and project management and their interdependencies have been specified.

Goals specify what is to be achieved, not how it is to be achieved. Once defined in this way, they are less susceptible to change throughout the eGovernment project. Fixed points of departure at project and goal level are the contract between the public organisation and the project staff. This leads to predictable results, clear-cut responsibilities and prevents the principal from being submerged in details and losing sight of the overall process.

![Figure 8: Extract from the Goal Plan (automatically generated by eGTPM platform)](image)

**Goal List**

The goal list defines goals as situations or stages to be achieved during the eGIF project. Defining and agreeing the exact description of each goal it was made clear to each stakeholder what to expect from it. Following a part of the goal list implemented for the specific case is presented:

- **P1-Project File Defined**: A file containing the overall plans of a project and any other important documents is defined. It includes a record of project data/documents in scheduled time basis.
- **S1-Standards Blueprint Completed**: A blueprint with the contents that will be included in the Standards document is predesigned. After discussions, the stakeholders conclude in a mutual agreement concerning the framework that will be followed during the Standards document implementation.
- **P2-Coordination of stakeholders**: Interests Service, Improvement of the communication and coordination among project stakeholders is targeted. It articulates and formalizes the roles and responsibilities of each
stakeholder improving the project effectiveness and efficiency. Benefits for each stakeholder are ensured.

S2-State of the Art Analysis Completed: Remarkable eGIFs, other relative initiatives and projects are carefully selected, and their usefulness is evaluated. State of the art analysis of relevant frameworks at a pan-European and national level is conducted, lessons are learned and presented.

T1- Informative Web Site Completed: A comprehensive on-line project presentation website is developed and linked to all partners’ websites. It will serve as the reference point for people interested in the project itself, but will also contain reference material on all covered related fields, subscription functionalities for participation in public project events, various contact options to the project management as well as selected experts, etc. A “Partners Area” will be developed to facilitate shared editing and shared document management.

T2-Collaboration Platform Completed: Establishment of a permanent collaboration platform, which will include all the essential tools for the project implementation and it will serve as a cross project collaboration tool for knowledge, experience and best practice sharing, as well as results consolidation and dissemination support.

S3-Current Status Analysis: Analysis of the existing implementations for each standard, technology or methodology identified. A review of current developing country eGovernment projects is implemented. Picture of the existing situation is derived.

S4-Standards & Specifications Defined: Issues concerning the standards and specifications effectiveness, efficiency, openness, usefulness and applicability are examined and evaluated. The set of standards and specifications for achieving interoperability and information systems coherence across the public sector are defined.

S5-Metadata Templates Defined: The essential eGovernment entities are defined and the exact metadata fields of them are identified. The mechanism and the templates to collect all the relevant to public services, documents, systems and organizations metadata are defined.

S6-Services Modeling Completion: All relevant details regarding the service execution are extracted and depicted in process diagrams with the help of enterprise modeling tools. The essential service data and metadata are collected and they are exploited using the relative tools.

**Goal Responsibility Chart**

A major part of project planning is performed with the help of the responsibility chart (Figure 9). The goal responsibility chart clarifies the role of the different participants necessary to achieve the goals. eGTPM provides a predefined pool of responsibilities which can be extended-modified by the user. The notion of roles is used because it brings some order to the chaos. Roles are related to project goals and define an abstraction layer separate from actual job descriptions and assigned human resources. All project team members take on one or more roles. The role concept establishes a commonly understood vocabulary, which has proven to be a powerful instrument at project-initiation time. A role does not imply that a specific individual person must execute the tasks that are associated with the role; instead it implies an identity that fulfils that part of the process. Appropriate formulation and agreement in goal responsibility chart clarified on one hand the commitment and on the other one the expected gain for each stakeholder. In order to complete the responsibility chart the following roles have been identified in the eGIF project: Management, Project Manager, Steering Committee, Working Group, Key Users, End Users, External Expert, IT Support, Service & Data Analyst, Service & Data Modeler, Security Expert, Business Consultant, Model Consultant, Application Consultant, Technical Consultant, Analyst / Programmer.

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**Figure 9: Responsibility Chart (automatically generated by the eGTPM Platform)**

**6.2.2 Operational Planning Level.** The goals are composed from activities that are presented using the relative activity plans. Activity planning is the drawing up of a detail plan to achieve the goals of the planning level. It is through activity planning that it was determined how to reach the goals within the time limits and with the resources allocated. Activity plan includes all the project goal information related to the corresponding activities and the expected deliverables. Goal analysis in their activities has taken place between the project manager and the work group.
members; there was not need to include decision makers in such a detailed planning level.

Exploiting the project data (Goals, Activities) significant value is added to project planning producing the project schedule. Use of goals and the relayed activities to them allows project management to much more accurately determining whether or not the project is on schedule. By constraining the dates associated with goals, the critical path can be determined for major schedule intervals in addition to the entire project. This segmentation of the project schedule into intervals allows earlier indication of schedule problems and a better view into the activities whose completion is critical to the project timeline.

6.3 Platform Assessment

Following, an eGTPM platform assessment takes place with respect to the stated e-Government management characteristics:

Goal-driven management nature
The break came when the eGIF project beneficiary requested some changes and additions to take place combined with some delivery dates changes. After a few days of hard work the project planning team had produced a coherent plan to achieve the new dates. The flexibility and adaptability of eGTPM goals formulation had permitted a complex government interoperability framework project to be re-planned in just a few days. As a result the lead time of the specific e-Government project had been reduced by 70 per cent as compared to similar projects and also a substantial reduction in the volume of rework and the project’s cost achieved. The focus on results and cross-functional planning had paid off. The project customer (public organization) also noticed a difference complimenting the contractor on its improved performance.

Multi-dimensionality
The use of eGTPM helped to ensure that eGIF project was in line with the public organization’s business plan, that the project team was committed to a realistic plan in which they had some ownership, and that the decision makers are aware and understand the different dimensions of the project and how they are interrelated. Roles and responsibilities of project team members were clearly defined and linked to activities and goals. Organization’s final aim for the project was reflected on 15 specific intermediate goals interrelated in 4 different project dimensions. The preparation of goal and activity plans, by the team, for the use of the team, yielded two significant benefits:

- The team had ownership of, and was committed to the plan. The commitment that comes from team planning was a tremendous motivational tool.
- The project manager did not get unnecessarily involved in the preparation or statusing of detailed activity plans. The project manager stayed focused on the accomplishment of the goals represented on the goal plan – not the activity plans.

Reusability of knowledge
The project contractor and the contracting authority are now equipped with an amount of eGovernment project implementation knowledge which is easy exploitable in future projects. Summarizing, eGIF project management was structured from the following reusable components which can be exploited from future e-Government projects: 4 result paths, 15 goals, 48 activities, 7 stakeholders, 8 responsibilities, 16 roles, 30 results and 20 templates.

Different viewpoints
eGTPM application on the specific project resulted to a project that have satisfactory covered the expectations of all the stakeholders (public administration, IT industry, government, citizens, enterprises etc.) involved in it. Even though there were significant cooperation issues among the different public authorities the goal oriented nature of the approach gave the opportunity of covering all the different aspects and issues that have arisen during the implementation in a timely and cost efficient manner. The use of cross-functional teams with clearly defined roles and responsibilities ensured that channels of communication and decision taking responsibility and authority were understood by all stakeholders.

6.4 Limitations of the Platform

eGTPM platform enables easy and flexible configuration of a public organisation specific e-Government project plan and its deliverables. It satisfies the following objectives:

- Efficient preparation of comprehensive and consistent project documentation (milestone chart, milestone list, responsibility chart, project schedule)
- Provide Project configuration based on data gained through experience
- Enable Knowledge Management (by using one central place for archiving historical project data)

The project plans that are configured with the eGTPM platform can be transferred automatically to Microsoft Office and deliver the following documents:

- Project Schedule (MS Project document)
- Milestone Chart (MS Excel document)
- Responsibility Chart (MS Excel document)
- Milestone List (MS Word document)
In order to use this framework successfully in practice, the following are essential requirements:

- Close work and collaboration with team members
- Understanding of the stakeholder needs
- Commitment of organization’s management and political leadership before starting
- Close monitoring of the development progress
- Utilization of the appropriate indicators in order to measure and evaluate goals progress
- Re-evaluation while change appears

Further work is needed to test the validity of the platform. This could involve historical and longitudinal studies of the government to e-government transition projects in different governments around the world.

7. Conclusion

An e-Government project management platform that improves on most existing commercial tools in three ways was presented. First, by using the goal oriented principle, it allows project goals from the project definition process to be expressed clearly and explicitly in an easily understandable form. This reduces misunderstandings and unclear descriptions of project needs. Second, by integrating existing e-Government project knowledge with the project needs facilitates collaborations among managers, at various levels, and project teams, eGTPM enhances capability for gathering, updating and sharing information. It helps alleviate problems due to changes in requirements, one of the major causes of e-Government project failures. Finally, by encoding experiential knowledge about project control, eGTPM can assist not only novice managers but also experienced managers overwhelmed by project complexity, large amounts of information and time constraints.

eGTPM approach presented in this paper introduces a tool supported framework (not just a paper-based proposal) that aims to constructively complement traditional methodologies on successfully managing government transformation projects. To this end, it attempts to cover a number of specific key issues concerning project management of such type of projects, such as:

- Projects goal driven nature
- Exploiting knowledge transfer
- Use of specific patterns-scenarios
- Multidimensional project nature
- Efficient stakeholder management

The proposed platform aims to support decision makers, practitioners, project managers and public organizations officials at various levels towards implementing government transformation projects. Standardization is provided at the higher level for analysis of eGovernment projects and at the lower level for details, time is saved in setting up a schedule by building on predefined scenarios, a common language and a common base of knowledge is built through the use of knowledge repository and lessons learned from previous projects are used to improve patterns and the templates. Initial application of eGTPM framework showed better management of the strategic aspects of eGovernment projects, better management and change of project structure, as well as easier development of standardized deliverables, through the use of the predefined templates.

eGTPM framework, after its application in a number of eGovernment projects, has been already populated with data, amounting to 40 goals, more than 100 activities, 50 deliverable templates and more than 20 individual roles – thus being able to assist the structuring of a number of key eGovernment projects, like Interoperability Framework Development, Service Portal Creation, eGovernment Survey development and so on.

Future work along the framework includes continuation with data population, eGTPM platform refinement, further research on the existing distinct gaps and coverage of issues that have not yet been encountered such as budget management, quality management, risk assessment and project evaluation – currently covered through generic methods. Finally, another future goal is to communicate eGTPM framework to practitioners through the introduction of a practical guide. The guide will provide direction to practitioners as they consider, make a case for, and implement government transformation initiatives.

Furthermore, the KBS may be further refined from use by project managers engaged in actual projects, by their feedback on its usability and effectiveness. The pursuance of these goals comprises a potentially productive agenda for further research.

8. References


