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p-Government – A Framework for Public Projects Management
by Stanislaw Gasik, PhD
Featured Paper

p-Government - A Framework
for Public Projects Management

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Abstract

Public project management is one of the basic tools for modern public administration. Currently there exists no integrated conceptual framework for this area of management. The article contains the results of the review of best practices of public project management from 93 countries. These practices were grouped into six areas: public project portfolio management, organizational units, processes and methodologies, knowledge management, actors of public project management, and the development of public project management. These areas together make a framework of public project management. The article introduces the concept of p-government, i.e. a government which bases its functioning on effective project management. The article prepares theoretical foundations for comparative public project management.

1   Introduction

A public project is a project executed by a public administration or with the participation of a public administration, or implemented with the involvement of funds from the budget of such an administration.

Public projects are of increasing interest to researchers. Entire books describe how to manage public projects (e.g., Kassel 2010; Wirick 2009). The differences between project management in the public and private sectors, as well as specifics of public projects, often in relation to particular countries, are examined (e.g., Bretschneider 1990; Abbasi and Al-Mharmah 2000; Olateju et al. 2011; Nagadevara 2012; Arnaboldi et al. 2004). The causes of inefficient public projects management are a subject that arouses great interest (e.g., Cats-Baril and Thompson 1995; Flyvbjerg 2007; Flyvbjerg et al. 2009; Sambasivan and Soon 2007; Assaf and Al-Hejji 2006; Iyer and Jha 2005; Yuttapongsontorn et al. 2008). The critical success factors for public projects (Moe and Pathranaraku 2006) and the impact of practices in public projects management on the success of these projects (Shah et al. 2011) are analyzed. Cultural factors are a special type of critical success factors in the implementation of public projects (Hall and Holt 2002). Mutajwaa and Rwelamila (2007) analyze the skills needed to carry out public projects in developing countries. Hallein and Bowman (2002) analyze the factors affecting quality management in public projects.

The number of publications devoted to public projects management, as well as their growing budget, point to increasing interest in this type of projects. However, to date there is no consistent framework of public projects management. This paper tries to fill the gap. The aim of

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my work is to identify and systematize public projects management practices. A structured description of these practices creates a framework of public projects management.

Public projects can be viewed from several perspectives. Project managers directly involved in their execution have another perspective than people accountable for the overarching systems of their execution: governments, ministers, heads of public institutions. Project managers are usually interested in the activities directly related to the implementation of projects: for example, the activities to be carried out to produce a specific product, ways to prevent specific risks, ways to build a project schedule. People and organizations accountable for the management of public projects see them in another way. These people are interested in organizing an effective system of public projects management as a whole. What is important to them is, for example: the organization of relevant institutions, developing and implementing a comprehensive process, the existence of mechanisms for project selection. The main questions that they ask may be: do we have an organizational unit supporting public projects? Have we defined the project selection process? Do we have an organized system for managing project subcontractors? This study is focused primarily on the second interest group: it tries to answer the question of how to organize the system of public projects management at the country level.

The focus of the study are the states and, in countries with a federal structure (e.g., Canada, Australia, United States), their main administrative components acting autonomously in the area of public projects management. All such units will collectively be called "countries".

The next six chapters describe the main areas of public projects management.

2 Public Project Portfolio Management

Public project portfolio management covers the processes of selecting, initiating and modifying the set of public projects in a given country.

2.1   Initiating a Public Project on the Basis of Strategies

An organization's strategy usually makes up the basis for project portfolio management (e.g., PMI 2013b). Government agencies must have strategic plans, for example, for periods of no less than five years (White House 1993), which set out the objectives to be achieved through the implementation of programs. The strategic plan must also include an assessment of ways to achieve these objectives, i.e. the ways to measure the effectiveness of the programs. The annual plan defining a set of programs to be implemented by the agency must be consistent with the strategy of the agency. This approach ensures that only projects aligned with the strategy of government agencies will be selected for execution.

The strategy can also be defined directly by identifying the programs that need to be implemented. In Hawaii, ten basic activities of state transition programs (e.g., governance, modernization of taxes, education, consolidated infrastructure) have been defined. To ensure the achievement of program objectives, rigorous rules of project and program management (OIMT Hawaii 2013) should be introduced – this is one of state's strategic goals.

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2.2 Initiating Special Public Projects

The predefined strategy is not the only reason to launch a project or a program. The other reason is the occurrence of a specific situation which necessitates a reaction. If there is a chance or if it is found that certain areas of public services operate inefficiently, the government outsources analysis to teams led by eminent scientists and experts in their fields. This approach is often used in the UK.
The Barker Report (Barker 2004), the final result of the Barker Review, consists of recommendations pertaining to housing needs. The Latham Report (1994) dealt with the situation in the building industry in the UK. The Byron Report (Byron 2008) dealt with the use of information technology, in particular, visual games, the Internet and social networks by children. The Byatt Report (Byatt 2002) dealt with the situation regarding contracts for local executive bodies. The writing of reports results in the development of recommendations describing new ways of running the administration. These recommendations are implemented through public projects.

Projects can be run in a standard way, on the basis of existing strategies *(basic project)*. They can also be initiated in exceptional cases, as a means of tackling emerging important issues that impede implementation of the strategy *(special projects)*. Sources of public projects are depicted on figure 1.

Figure 1. Sources of Public Projects
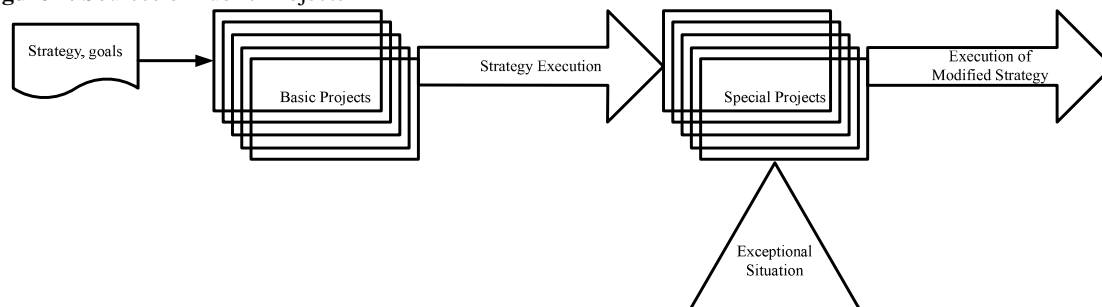
3 Organizational Units

Implementation of organizational functions is impossible without embedding them in organizational structures. This chapter describes organizational units engaged in public projects management.

3.1 Public Projects Management Offices

Institutions or agencies supporting public projects management – Public Projects Management Offices (PPMO) – have been established in many countries. The overall objective of a PPMO is always to improve public projects delivery. PPMO's are placed in different locations and at different levels of organization structures. For example, in the Australian state of Victoria there is the position of Minister for Major Projects, who manages the biggest state projects (MP Victoria 2013). In the United States, the Office of Management and Budget, which supervises

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the implementation of key projects (OMB USA 2013), reports directly to the president. In most countries, PPMO's are organizational units of ministries (e.g., PDD Vermont 2013).

3.2   *Services Related to Project Implementation*

Very often, PPMO's take full responsibility for the implementation of projects and manage them. These solutions have been adopted, for example, in the United Kingdom (MPA UK 2013) and the state of New York (EPMO New York 2013).

Another way a PPMO is engaged is in providing staff, particularly managers for public projects (for example, Project Management, Public Works of New South Wales (PS NSW 2013)).

PPMO's perform separate, well-defined project management services for other government units. In this variety of PPMO services they take responsibility for specific project management functions, and not for the entire projects. PPMO's generally provide advisory services to project management teams (SSC New Zealand 2011). At the beginning of the project life cycle, PPMO employees develop the business case and feasibility studies (e.g., PM Missouri 2013). PPMO's provide services in the area of determining project governance rules (POCD California 2013; MPV Victoria 2013).

After project initiation, the services of project plan preparation are delivered (e.g., PW Pakistan 2013), in particular for defining the scope (e.g., POCD California 2013), scheduling and defining the critical path (e.g., PMS Arizona 2013) or calculating project budget (PW Pakistan 2013).

Public projects implementation often involves many government agencies. Such involvement is coordinated by a PPMO through its planning (MPMO Canada 2013) and coordination of engagement (e.g., OPMP Alaska 2013; MPA UK 2013).

In the period of project implementation PPMO's provide various services, such as document management (PM Missouri 2013), management of time, resources, and quality (JKRM Malaysia 2013), and independent risk management (SSC New Zealand 2011). Risk minimization may be the objective of the Project Assurance Team (QAT Texas 2013).

PPMO's support other government agencies in collecting information about project progress. This information is used to monitor and control the implementation of projects (e.g., EPMO Vermont 2013; MPMO Canada 2013). The purpose of the special organizational cell may be the analysis of project data (MDoT Montana 2013).

PPMO's check whether projects and programs are implemented according to guidelines of the authorized bodies (SSC New Zealand 2011). They perform audits, reviews and project evaluations (e.g., MPMO Canada 2013; MPA UK 2013; EPMO Vermont 2013; PQ Queensland 2013). In order to control and monitor the projects, a special organizational unit may be created. In Maryland there is a team of Project Management Oversight (PMO Maryland 2013), in Texas, the Quality Assurance Team (QAT Texas 2013).

PPMO's incorporate their employees into project teams, having them participate in the project in a mainly supervisory role (e.g., EPMO North Carolina 2013; PW Pakistan 2013). They may evaluate both projects and entire institutions from the point of view of project management

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capabilities. The results are passed on to the agencies and departments in which the projects are implemented.

PPMO services do not terminate at the end of the projects. EPMO Vermont (2013) supports the measurement and reporting of benefits after project completion.

3.3   Project Facilitation

A very important feature of a PPMO is that of facilitating project implementation. In particular, infrastructure projects generally require obtaining multiple permits and are implemented in a complex organizational and legal environment. Obtaining permits, acceptance and support is very difficult for outsiders of that environment. Efficient collection of all of this requires the support of the people operating there. PPMO's support creation of the main documents needed for project implementation (DSD WA 2013) and remove administrative obstacles.

Facilitation in implementing a public project is performed by the public agency employee assigned to the project, sometimes called the "patron" (e.g., DSD WA 2013; OPMP Alaska 2013; MPFU Australia 2013; MPV Victoria 2013). Patrons provide advice about which permits are needed by the project, give support in obtaining these permits, manage and facilitate contacts with government agencies, and interact with them. Patrons can mediate when political issues arise. Another role of a patron is to represent the project at the government.

3.4   Maintenance and Development of Methodologies

Maintaining and developing the environment of public projects management is among PPMO tasks. PPMO's define and uphold policies and methodologies related to the projectized approach to management. Methodologies deal with the management of project portfolios and individual projects.

Policies include general guidelines on project management. For example POCD California (2013) and PQ Queensland (2013) deal with their definition and maintenance.

Methodologies related to portfolio management, e.g., to the process of application for authorization of projects and to their initiation, are defined for example by the EPMO Vermont (2013) and EPMO New York (2013).

Full project management methodologies covering the whole process of project implementation are maintained by a PPMO for instance in PMSC Missouri (2013). They are based on recognized standards, such as the PMBOK ® Guide in the version developed by TenStep (EPMO Vermont (2013)). POCD California (2013) uses for this purpose the CMMI ® maturity model (SEI 2006). Some PPMO's define methodology without reference to recognized project management standards (PW Pakistan 2013).

PPMO's, as organizations most heavily involved in the implementation of projects, promote project management in their countries (e.g., EPMO Vermont 2013; MPMO Canada 2013).

PPMO's perform functions related to the maintenance and utilization of project management software applications. DIT Michigan (2000) described the standard for software support of project management that is mandatory for the state of Michigan. PPMO's run web portals, which

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provide project management tools for public agencies (PS NSW 2013). It is possible to maintain, supervise and share systems and technology that support project management (MPV Victoria 2013, VITA Virginia, 2013c).

Knowledge that can be useful later in the project or in subsequent projects is generated as public projects are implemented. The task of PPMO's is to store and transfer such knowledge (e.g., CPPM Singapore 2013). This knowledge mostly has the form of "best practices", i.e. optimal solutions of particular problems, or ones that facilitate smooth process implementation. Knowledge can be obtained as a result of encountering a problem (IPMD India 2013). PPMO's support the exchange of knowledge between the contractors and other stakeholders (PMSC Missouri 2013).

3.5   Advisory Groups

In addition to Public Project Management Offices, public project execution involves bodies whose task is to advise on project management. These bodies perform particularly important functions related to the system of public projects implementation and usually are not directly involved in the management of individual projects.

Advisory bodies have specific tasks, such as general consultation in projects management (PMAC Tasmania 2013). These bodies are involved in promoting and supporting project management (PMOAG Montana 2013c; PMAC Tasmania 2013), removing obstacles to project management and supporting project managers (PMAG North Carolina 2013). They may review applications for the most important projects (ITAC Arizona 2013). The advisory bodies can define and improve processes, procedures and project document templates (EPMO North Carolina 2013; EPMO Kansas 2008, p. 18).

3.6   Organizational Public Project Management Maturity

The skills and capabilities of public agencies concerned with public projects management are at different levels. Some institutions base their approach to project management solely on the ability of project managers. Others, at the opposite level of capabilities, have deliberate, efficient organizational systems. Organizational project management maturity models are applied for assessing and improving their capabilities.

In Canada, five levels of public projects management capabilities have been defined (TBoCS Canada 2013):

1.   Limited, relying on the skills of individual project managers.

2.   Sustaining, with implementation of projects supporting the basic functions.

3.   Tactical, with implementation of projects adjusting operations to meet plans.

4.   Evolutionary, with implementation of projects to achieve the evolving strategic objectives.

5.   Transformational, with implementation of projects that change the organization's way of doing business.

All ministries and government agencies are evaluated using this standard for assessing management capabilities in the area of project management. Based on this assessment, the

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Treasury Council Secretariat advises Ministers about possible project implementation by the individual agencies.

In Australia, the British P3M3 ® (OGC 2010) model is applied to assess project maturity. Maturity assessment is carried out in each of the three main areas: project management, program management and project portfolio management.

4 Processes and Methodologies

Projects are implemented through activities that are grouped into processes. In this chapter, I describe the processes and the groups to which they are assigned: national public projects management systems, business processes and management methodologies.

4.1   Classifications of Projects

Variants of processes and methodologies may be used, depending on project complexity and importance. The set of managerial documents that must be created in a project depends on the assignment of the project to the appropriate category.

Estimated project budget is used as a basis for project classification. This criterion is used in states such as Michigan (PMRC Michigan 2004) and Virginia (Virginia VITA 2013b), in Norway (NTNU Norway 2013) and in Australia (DoF Australia, 2013). The expected workload of the project, expressed in hours, is a similar criterion (PMO Maine 2013).

The cost criterion is used in combination with other criteria, such as the reach of the project (the number of agencies involved), the technology used, attention from state authorities and the media (PMRC Michigan 2004), criticality to business, the number of project product users, complexity, stakeholder support, size and experience of the project team (SIT PMO Montana 2013), complexity (VITA Virginia 2013), risk (DoF Australia 2013c), duration (DIR Texas 2013). The specific method of project classification is its identification as important by the relevant authorities (DIR Texas 2013; Procure Point NSW 2013).

4.2   National Project Implementation Systems

The broadest approach to the implementation of public projects is the introduction of a National Project Implementation System (NPIS). Project management methodologies are the essential components of such systems. Such systems are applied to all projects or to projects of a specified type that are implemented in the country (technology projects and real estate projects in Canada (NPMS Canada 2013), technology projects in Texas (SPD Texas 2013)).

The key principles and guidelines may be the main components of the NPIS. They also provide roadmaps, products and tools needed to successfully complete projects within budget and on time, and methodologies for project delivery and implementation processes of these methodologies (NPMS Canada 2013). Guidelines, best practices, project management tools, particularly for project risk assessment, for project and portfolio management, for governance and reporting methods are provided by such systems (SPD Texas 2013). National projects are implemented by executing a set of projects, which together constitute a program of NPIS implementation. Coordinated cooperation procedures dealing with approval and review of

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projects, with information about the suppliers and with the development of policies and guidelines are produced as a result of carrying out such programs (SPD Texas 2013).

4.3   The Governance Processes

Governance processes are sequences of operations, usually conducted at planned intervals, checking project status and taking on this basis the key decisions, in particular regarding their initiation, and checking during their implementation the reasonableness of continuing to implement the project.

4.4   Project Initiation

Project initiation is a result of running a one- or two-stage procedure. Outcomes of the evaluation of organizational project management maturity may be used for assessing the project proposals. The result of the assessment decides whether the project will be implemented this year, re-examined next year, or rejected (e.g., DoF Australia 2013). Project risk evaluation is a component of project initiation. Such evaluation may be performed twice: within the first assessment the most important risks are identified and mitigation plans are developed. The second evaluation includes evaluation of anti-risk measures that are applied as a result of the first evaluation (DoF Australia 2013b).

The initiation process may consist of one or two steps. The two-stage start-up process is one in which decisions about the project are taken as a result of two assessments, each of which may lead either to transition to the next phase or to rejection. The first evaluation is usually related to compliance with the strategy, the second to business effects of the proposed project (e.g., NTNU 2013; AGIMO Australia 2013).

The one-step process is one in which there is only one decision on project initiation (e.g., DSD Western Australia 2013b). This does not mean that there are no well-defined components within this process, but the execution of each such component does not end with a formal decision being made.

4.5   Project Implementation

Public projects are subject to business supervision during their implementation. The compatibility of the project with its business case, and viability of expected business results are the main areas of interest during such verification. The verifications are performed at certain points of the project (or program) life cycle, called "gates".

The ordered set of such verifications is called the "gateway review process." This process has been defined by the British Office of Government Commerce (OGC 2007) and has been implemented, among other places, in Australia at the federal level (DoF Australia 2013), in Texas (DIR Texas 2013), and in New Zealand (SSC New Zealand 2013).

Major projects and programs must pass through six gates:

   0. Strategic Assessment - The gate for programs only. Verification that the program is needed and that is likely to achieve its objectives.

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1. Business Justification - Verification that business requirements can be satisfied. Is it possible to finance the project? Determination of the effects which will be gained for invested money.

2. Delivery strategy -Verification that the production or purchasing strategy planned for the project is appropriate for achieving project results. Verification of implementation plans or of tender documentation.

3. Investment decision - Another verification whether the project is still needed, the funds exist, the implementation plans are appropriate, and the investment decision is appropriate to the current situation.

4. Readiness for service - Verification that the organization is ready to implement project products.

5. Operations review and benefits realization -Verification that the project products are used properly and the business results have been achieved.

Passing each gate is a result of the review.

4.6   Public Project Management Methodologies

Project management methodology is a structured collection of guidelines describing the ways of project management. Methodologies may be associated with the governance processes. From this point of view, the methodology describes activities that must be performed in order to effectively pass the governance process gates. In Texas, for each of the gates of the Texas Project Delivery Framework process (DIR Texas 2013) the processes necessary for passing these gates have been developed, together with the techniques, tools and applicable forms. With this approach, the methodology is complementary to the process of governance.

Methodologies can also be constructed and applied without reference to the governance process. Then the process of governance does not exist alone. The methodologies contain the actions conducive to and verifications of the conformity of the project with the business case (e.g., PMBOK ® Guide, PMI 2013). In this case, the project management methodology can be regarded as an extension of the governance process. In Montana, the Project Lifecycle Framework is the parent methodology (SIT PMO Montana 2013b), which includes a project governance cycle, project management cycle, procurement cycle and product development cycle.

Project management methodologies may be characterized by the standards on which they are based, by their sets of phases, and by their scope of application.

ANSI PMBOK ® Guide (PMI 2013) is used as the basis for building project management methodology. For instance, New York (OITS New York 2013) and Michigan (PMRC Michigan 2004) project management methodologies are based on it.

The set of methodology phases (together called "project life cycle") may cover, for example, the preliminary evaluation phase, business case development phase, sourcing suppliers phase, establishment of service capability phase, and services delivery phase (QTF Queensland 2013). The life cycle of the project, according to the PMBOK ® Guide, can be divided into initiation,

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planning, execution (with monitoring and control) and closure of the project (CDOT California 2013). Transportation project management methodology (WSDOT Washington 2013d) describes the project's life cycle, consisting of five phases: initiation and alignment to business objectives, planning the work, endorsement of the plan by engaged agencies, implementing the plan, transition of the product to operations, and closing the project.

The scope of methodology application may be defined in different ways. It can be recommended for all public projects implemented by the government and its agencies (OEG Tasmania 2011). It may be applied more broadly, so as to include both government agencies and suppliers implementing public projects (CDOT California 2013).

Methodologies can be developed for different types of projects, such as IT, software, engineering, business development (SOT NY 2013). The general schema of governance processes and methodologies have been shown in figure 2.

Figure 2 - Governance and project management methodologies
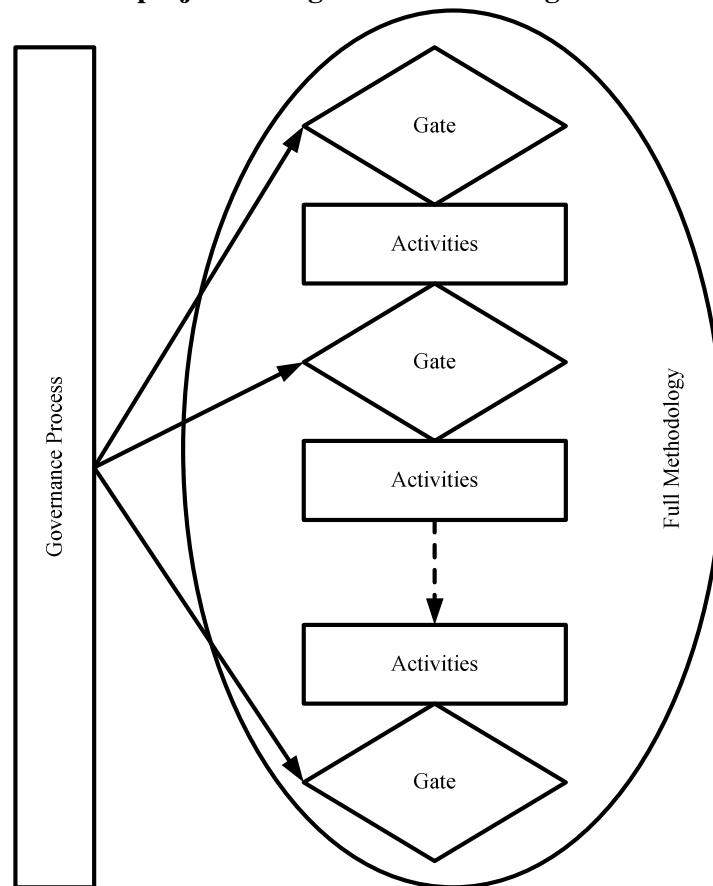
Program management methodologies have been developed and implemented in some countries in addition to project management methodologies (e.g., VITA Virginia 2013; EPMO North Carolina 2010).

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5   Knowledge Management

Knowledge is the basic resource necessary for the implementation of public projects (as for other types of projects, too). This knowledge may have codified form (as, for example, in project management standards) and can also be distributed through contacts of members of communities involved in the implementation of public projects.

5.1   National Project Management Standards

Project management standards may be treated as a source of knowledge about project management. Standards in the area of project management are not used directly as methodologies. Public institutions use the standards as sources of knowledge needed to develop their project management methodologies.

National standards usually deal with knowledge needed for the management of individual projects (e.g., PMBOK ® Guide, PMI 2013; Prince 2 ®, OGC 2009). In addition to such general standards, there is a standard pertaining only to public projects management. This is the government extension of the Project Management Institute's PMBOK ® Guide (PMI 2006). This standard takes into account specific features of public sector projects such as dependence of the complex regulations in the sector, responsibility of the project team members before the communities that are relevant for projects of public interest, or the use of public resources.

5.2   Exchange of Knowledge on Public Projects Management

Knowledge about project management is being promoted in various ways by public institutions. The group of techniques based on a social approach to project management include meetings (PSPMF 2013), conferences (Expotrade 2013), and preparatory seminars (IPMD India 2013) for project managers of the public sector, in which they can establish contacts and exchange knowledge. Such events also provide a forum for the exchange of knowledge between the public and private sectors.

The techniques based on knowledge codification include running web portals that enable exchange of knowledge between the managers of public projects (e.g., NYS Forum 2013) and web portals containing best practices and knowledge gained from the projects (VITA Virginia 2013b). Websites describing methods of public projects management oriented specifically at project managers, owners, sponsors or public project team members (DTMB Michigan 2013) are maintained. Public institutions run mailing lists devoted to public projects management (OEG Tasmania 2013).

5.3   Education and Training

Increasing the level of knowledge on public projects management among people involved in such projects is a form of knowledge management. At the most advanced level of education, studies of public projects management are conducted (University of Oxford 2012).

The institutions involved in public projects implementation designate professional development of their employees as their statutory goal (e.g., ITSD Missouri 2013b; IPMD India 2013). They provide training in public projects management. The Washington State Department of

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Transportation maintains the Academy of Project Management (WSDOT Washington 2013b). Comprehensive training for project managers, including the basics, soft skills and advanced topics is done in the state of Michigan (DTMB Michigan 2013). Training is provided both in the traditional (e.g., EPMO Vermont 2013; IPMD India 2013) and the e-learning mode (WSDOT Washington 2013).

5.4   Information about Projects

Public projects typically have multiple stakeholders: administration, contractors and, above all, communities of administrative units for which they are implemented. Due to the large number of stakeholders, it is important to provide efficient, easily accessible channels of information transfer between actors implementing projects and other stakeholders. In order to gather such information, repositories of information on public projects are maintained (e.g., EPMO Vermont 2013).

Internet tools are used as communication tools. In the simplest case, only the project identification data are published (e.g., DTPR Alaska 2013). The portals also contain data on major projects, their annual reports (MPA UK 2013) and information on project status (e.g., POCD California 2013; VAT Vermont 2013). Portals may be a source of knowledge about prospective contracts for subcontractors (e.g., MeO Sakatchewan 2013), as well as about awarded and executed contracts (e.g., MPMO Canada 2013b).

6   Actors

The main actors involved in public projects implementation, in addition to the Public Projects Management Offices, are project managers and external companies implementing projects. Public institutions incorporate such entities into projects in various ways.

6.1   Contract Management

Including external stakeholders in public projects implementation is based on existing legal regulations on public procurement (e.g., President of the Republic of China 2011). Such regulations usually define the general rules of conduct for the conclusion and execution of contracts between a public and a private party, not only in the area of public project implementation. These regulations form a complex legal system and their detailed analysis is beyond the scope of this study.

Public Projects Management Offices provide contract management services. Contracts are planned, tenders are organized, contracts are implemented, assistance in resolving disputes is provided (PS NSW 2013; PM Missouri 2013).

6.2   Qualified Companies

The requirements to be met by companies implementing public projects are defined in order to facilitate the management of contracts by contracting their execution only to qualified companies. Such requirements concern the experience and the characteristics of the company –

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in which case we are dealing with the *direct qualification* – or they specify certifications required from the companies implementing public projects – an approach I call the *indirect qualification*. To directly enter the register of qualified suppliers, companies must provide evidence of having qualified managerial staff, experience in implementation of projects and good financial standing (DB Hong Kong 2013). The condition of indirect qualification (DoFD Australia 2012) is met by having CMMI ® (SEI 2006), or OPM3 ® (PMI 2008), or P3M3 ® (OGC 2010) certification. Based on directly or indirectly defined requirements, registers of qualified public project contractors are maintained (PM Missouri 2013; DoFD Australia 2012).

6.3   Qualified Project Managers

In addition to companies, project managers have significant influence on public projects. For them too, as for companies, the pertinent requirements are formulated. In some countries, only people who meet these requirements may manage public projects.

Requirements for public project managers usually focus on three areas: general project management skills, specific skills needed to manage public projects (e.g., knowledge of the applicable regulations) and knowledge of local realities.

Having a certificate issued by a recognized body (like the Project Management Institute's PMP®) may be the basis for recognition as a qualified project manager (Darlymple 2011; PMO Maine, 2013).

Certificates that qualify to conduct public projects are also issued upon completion of training organized in a given country (e.g., PAI Ireland 2013; DTMB Michigan 2013b). A more advanced requirement is the completion of studies of public projects management (University of Oxford 2012).

Criteria which must be satisfied by public project managers are formulated (VITA Virginia 2011). These criteria may include, for example, the ability to identify project products and services, or the ability to develop and implement a project plan (OPM 2013).

7 Development of Public Projects Management Systems

What is the desired target state of public projects management? The countries that want to optimize the benefits gained from public projects, clearly define their strategic goals in this area and prepare plans pursuant to achieving these goals.

The goals and methods of developing public projects management systems are defined in different ways in different countries. The future course of development for project management can be determined on the basis of results from customer satisfaction surveys about these services (Mays and Bromead 2012), as well as audits of public projects management (ANAO 2011). In most countries, such strategies are worked out on the basis of analysis of public projects management systems, often in the broader context of the country's strategic development (e.g., Brewer et al. 2013).

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The following development prospects for public projects management systems may be defined: general goals, business goals, management goals, operational goals, and knowledge-related goals.

7.1   General Goals

The general goals may include a recommendation that a public projects management strategy be developed (ANAO 2011). Strengthening the national path of public projects and program management (Brewer et al. 2013), increasing the capacity to implement ICT projects (DoF Australia 2011), or developing and streamlining processes and guidelines for public projects management (TBCS 2010) may be treated as very general strategic goals.

7.2   Business Goals

In the group of business goals I include the goal of public projects management planning in a way that guarantees the highest possible return values (WSDOT Washington 2013c). Projects must be related to the strategy of the country (ICU Maine 2004). This group also includes achieving the desired outcome of projects and programs while limiting their risk to stakeholders and taxpayers (TBCS 2010). Projects should be implemented in a way that achieves the objectives of time and budget (OCIO Washington 2011; OIT Maine 2009; TBCS 2010).

7.3   Management Goals

The largest group of public projects management goals relate to the methods of project implementation. Improvements should target the various phases, such as planning (ANAO 2011; EPMO Kansas 2008b) and closing projects (EPMO Kansas 2008b).

The projects are to be implemented in a manner transparent to their stakeholders (Brewer et al. 2013). Reports on the implementation of public projects should be available to the public (Cabinet Office 2013). Documentation and reporting should be simplified (Brewer et al. 2013; Mays and Bromead 2012). Projects should manage risk, configuration (EPMO Kansas 2008b) and contracts (OCIO Washington 2011; OIT Maine 2009).

7.4   Operational Goals

In the group of operational goals I include those goals that require the implementation of specific organizational solutions, such as the establishment of an academic institution that educates public project managers (University of Oxford 2012), the creation of a Major Projects Authority, or the plan for defining the major projects portfolio, the implementation of which will be reported directly to the government (Cabinet Office 2013).

7.5   Knowledge-related Goals

The group of goals related to knowledge management includes a plan to impart knowledge about project management, for example through the implementation of training (Mays and Bromead 2012; OIT Maine 2009) or the promotion of knowledge management models (Mays and Bromead 2012). Recommendations should be drawn up for collecting knowledge developed in projects for the purpose of reusing it in the future (ANAO, 2011). The development of public

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projects management knowledge may stem from the activities of specially created teams (e.g., NTNU 2013).

8 Summary and Conclusions

Many countries have practices of public projects management, which they systematically apply. These practices can be grouped into six well-defined, interrelated functional areas.

The area of public projects portfolio management covers identification and maintenance of a set of projects that are being executed. Projects can be initiated on the basis of a strategy operating in a specific area, or as the result of an emergency situation disrupting strategy execution, which requires intervention by public administration. Portfolio management is supported by activities of Public Projects Management Offices.

The organizational area includes structures involved in the implementation of public projects. The most important of them are the Public Projects Management Offices. These offices support and assist other agencies in public projects implementation. PPMO's support the implementation of public projects directly: they implement projects by themselves, they provide management personnel for a project, they provide specialized project management services (e.g., risk management, preparation of project plans). They can also coordinate projects between public authorities, as well as facilitate their implementation. PPMO's monitor and oversee the implementation of public projects on behalf of other government units. PPMO's also define and develop project management methodologies, promote project management and maintain project management tools. There exist also bodies which goal is to provide advises in the area of public project implementation systems (Advisory Groups). This area also includes assessment and development of public administration maturity in the discipline of project management.

The area of governance and methodologies includes activities related to the management of public projects implementation methods. The most general and mature way to manage them are the national systems of public projects implementation. In order for public projects to implement their activities, the governance processes are defined and executed. At certain points they test whether the project is compatible with its business justification and whether the project may bring the expected benefits. Governance processes are complemented by project management methodologies that define processes and activities required to implement projects.

The area of knowledge management covers activities related to generating, collecting and distributing public project information and knowledge. Knowledge may be preserved in the form of standards. Organization of conferences and other forums for contacts within the community involved in the implementation of public projects is a tool for exchanging knowledge about public projects management. Knowledge is imparted to project managers in training programs. A particularly important function of public projects is that of informing their stakeholders about projects, which is usually done by maintaining repositories and web portals of such projects.

The area of actors engaged in public project execution encompasses activities of companies and managers involved in public projects management. Signing and implementing contracts for public projects execution is governed by relevant local laws. Registers of qualified companies and managers authorized to manage public projects are maintained.

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The area of development of public projects management includes developing strategies and plans for project management, seen as a tool to be used for achieving the goals of public administration. There are several types of goals in the development of public project implementation systems: general, business, management, operational, and knowledge-related goals.

A set of public project management practices is determined by the needs of each country. Implementation of solutions in this area should be carried out as a project, in the first phase of which the needs of public project management systems are defined in detail. The result of this analysis constitutes a basis for defining a set of actions that will lead the public administration to the desired state of public project management.

The framework of public projects management is shown in figure 3.

Figure 3. A framework of public projects management
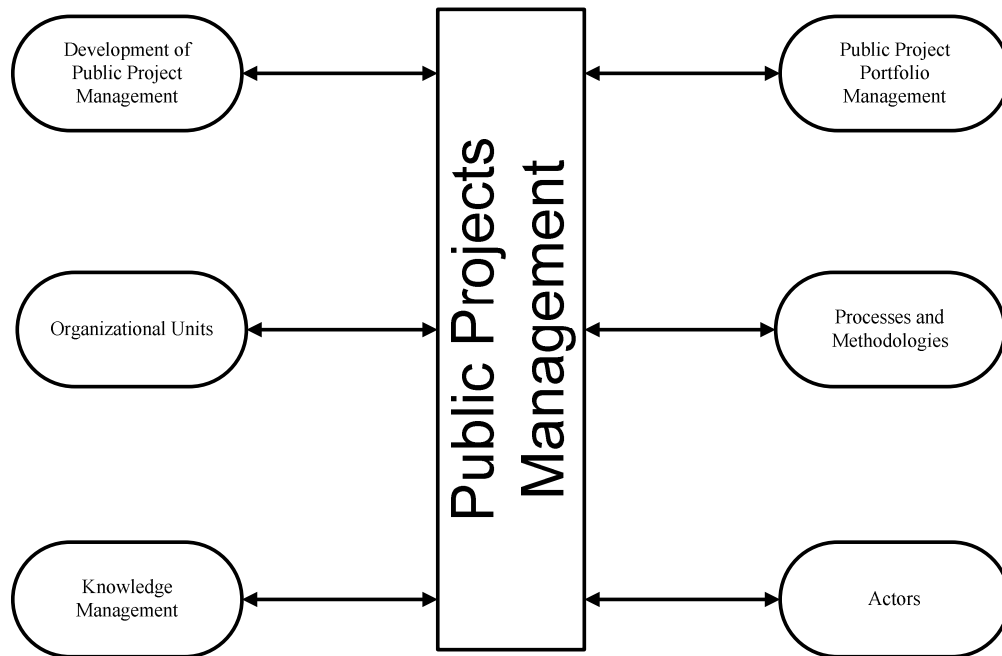
A government that regularly carries out activities in all these areas can effectively achieve its objectives, in particular those satisfied directly by project implementation (e.g, road construction) and those related to transforming modes of action in such a way that statutory goals are better implemented. Such a government is a *government based on the realization of the projects.* I will call it *p-Government*.

Key recommendations for the creation of *p-Governments*, based on the results of this paper, may be formulated as follows:

1. Define and implement rules for public projects portfolio management
2. Organize institutions supporting public projects management

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3. Define and implement the governance processes and project management methodologies

4. Create mechanisms of public projects knowledge management, including those of informing project stakeholders

5. Create an environment of actors engaged in public projects implementation

6. Define and implement the strategy for the development of public projects management systems

The results of this paper may be used by public administrations to study and improve methods and ways of managing public projects.

From the theoretical point of view, the paper describes the first attempt to systematize the whole area of public projects management. It focuses not only on processes of public projects management, but on all of their environment. The results of this paper may be used to establish the fundamentals of the domain of Comparative Public Projects Management (CPPM). This will be a well defined sub-domain of comparative public administration (CPA, e.g., Jreisat 2011; Heady 2001). "CPA is an applied, intercultural, interdisciplinary, explanatory field of study which carries out cross-cultural investigations in order to provide solutions for management problems sooner and develop management technologies further (…) CPA is in many ways about identifying "best practices" which promote the most desirable organizational structures and processes. This idealistic goal involves finding functional patterns of organization and management that are transferable from one system to another" (O'Connor 2014). So CPPM will be this sub-domain of CPA which deals with such an important domain of public administration like public project management. CPPM may significantly contribute to economic development of many less-developed country, as projects are just one of the main tools of such development.

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