

Available online at www.sciencedirect.com**ScienceDirect**

Procedia Computer Science 100 (2016) 399 – 406

Procedia
Computer Science

Conference on ENTERprise Information Systems / International Conference on Project
MANagement / Conference on Health and Social Care Information Systems and Technologies,
CENTERIS / ProjMAN / HCist 2016, October 5-7, 2016

Are public projects different than projects in other sectors? Preliminary results of empirical research.

Stanisław Gasik*

Vistula University, Stokłosy 3, Warszawa, 02-787, Poland

Abstract

This paper presents the first results of original empirical research on differences between public projects and projects in other sectors. First we will define the very concept of a public project, before presenting the results of research performed in over 60 countries. The research shows a greater complexity of managing public projects than of managing projects in other sectors. Relatively, in comparison to projects of other sectors, the most complicated public projects management areas are stakeholder management, procurement management, and communications management. These management areas therefore require that special training programs be developed in public institutions. This article also contributes to the theory of public projects management by proposing the fuzzy dimensional model of differences between public projects and projects of other sectors.

© 2016 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of CENTERIS 2016

Keywords: Project management; public projects; private projects; complexity

1. Introduction

Are public projects different from projects in other sectors? And if so, what are the differences? Do these differences have implications for existing methods of project management? Are public projects more complex to manage than other projects? This article attempts to answer these questions.

* Corresponding author. Tel.: +48-693-90-60-30; fax: +48-22-457-2303.
E-mail address: s.gasik@vistula.edu.pl

Let us start with reflections on the essence of public projects. A public project is defined as a project that is undertaken, managed or supervised by one or more publicly funded organizations¹. Many authors equate public projects with government projects, or with projects in the public sector². This definition does not include any public projects that are implemented against the government, such as legal or illegal opposition demonstrations and projects aiming to overthrow the government. For example, the "Solidarity" movement in Poland was undoubtedly a public project and also certainly not a project of the government sector. It seems that a more appropriate definition of a public project should be:

A public project is a project carried out primarily for public benefit.

2. Models of differences between public projects and projects in other sectors

Projects are special types of organizations. So there may exist two groups of differences between public projects and projects of other sectors. The first group of differences may be due to differences between public organizations, and organizations of other sectors. For example, employees of public organizations are less committed to their work than employees of private sector organizations. The second kind of differences are differences specific only to projects. For example, in the gate review process there are fewer gates in public projects than in private ones.

In the research of organizations, there are three main models of the differences between public and private organizations³:

- The generic model
- The core model
- The dimensional model.

According to the Generic model, all organizations are similar; there are no fundamental differences between public and private organizations. At the project area, this approach would mean that there are no differences between public projects and private projects. Representative of this school of thought was the approach proposed by the Project Management Institute, at least until the publication of the Government Extension to PMBOK® Guide⁴. According to this, the guidelines for schedule development and rules of quality management are the same for projects in all sectors.

According to the core model, there are substantial differences between public sector and other sector organizations. These differences stem from the formal status of public organizations, which implies substantial differences in the processes implemented in organizations of different sectors. These differences were first identified in a statement by Sayre⁵ who proposed that "public and private organizations are similar in all unimportant aspects". In the project area, such an approach may manifest by stressing, for example, ways of procurement management and stakeholder management, where there are substantial differences due to legal regulations.

The dimensional model is one in which the "publicness" of an organization should be analyzed in several dimensions. For each dimension, a continuum of values exists between fully private and fully public. In this model, organizations can be more or less public on any dimension in relation to other institutions. The dimensions of the publicness are⁶:

- Ownership,
- Funding,
- Mode of social control.

The most public organizations are those that are owned by the state, funded by the state and are subject to public scrutiny exclusively by the state. This group includes all government agencies, e.g. ministries and central offices. The most private organizations are those owned and funded by private entities and controlled by market forces. However, according to the dimensional approach, there may exist organizations that are public in the dimensions of Ownership and Funding, but are private in the Mode of Social Control dimension. A good example may be a public university which, though owned and funded by the state, must regularly compete with private educational institutions. There are also organizations that are owned by private entities but may be funded by the state, and who are still subject to social control (not necessarily financial); for example, private companies responsible for the

maintenance of public roads. Energy companies are a good example of organizations that are owned and financed by private entities, but are still subject to state control.

We cannot assume that researchers supporting one type of model of differences at the organizational level would support another model at the project level. Models of differences between public projects and projects in other sectors is outlined in Figure 1.

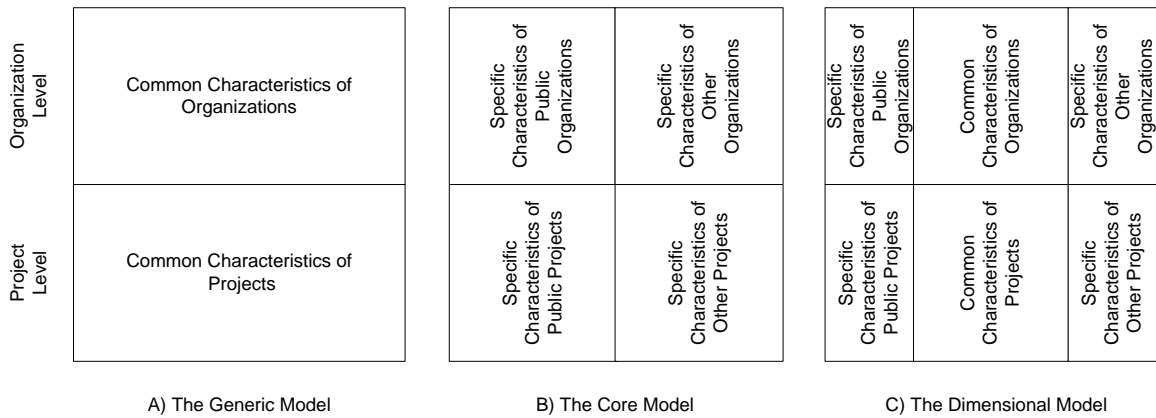


Figure 1. Models of differences between projects of different sectors (based upon Scott, Falcone3)

3. The research methodology

To find out which of these models most accurately describes the differences between public projects and projects in other sectors, we conducted a research survey of communities that deal in project management. Initially, project complexity was assumed to be the essential dimension differentiating public and other sector projects. Our research was based on the structure of project management knowledge described in the PMBOK® Guide⁴. The interviewees were asked ten questions about the relative complexity of public projects in relation to private projects. Each question had the following structure:

How would you assess the complexity of public projects in relation to private projects?

- 0. Private are more complex
- 1. Generally no difference or difficult to say
- 2. Public are more complex.

Respondents could also give detail as to how they arrived at their conclusions.

The survey was conducted in 2014 and was sent to members of the Project Management Institute Government Community of Practice (PMI Gov CoP), which brings together project management professionals from over 80 countries in which PMI has its branches. PMI is the biggest global association bringing together practitioners and theorists involved in public projects management.

4. The results

512 people from 61 countries across the world responded to our survey. We included respondents with varying levels of project management experience in both the implementation of public projects, and the implementation of projects of any kind. We have excluded from analysis those respondents who did not participate in public projects or did not participate in any other type of projects (47 people). Differentiation of the respondents in terms of their project management experience is presented in table 1.

Table 1. Experience in project management

Experience	Public projects		Any projects	
	N	%	N	%
Less than 1 year	24	5.2	2	0.4
1 year - 5 years	124	26.7	40	8.6
5 years - 10 years	120	25.8	93	20.0
More than 10 years	197	42.4	330	71.0
Total	465	100	465	100

The respondents worked in different business areas. The most numerous were workers of IT / Communication and Construction / Infrastructure areas.

Table 2. Area of activity

Business area	N	%
IT / Communication	89	19.1
Construction / Infrastructure	70	15.1
Health / Social Welfare	45	9.7
Education / Research	38	8.2
General administration	34	7.3
Army / Police	27	5.8
Finance / Treasure	26	5.6
Transport	15	3.2
Trade / Commerce	11	2.4
Mining / Natural resources	8	1.7
Industry	8	1.7
Agriculture / Forestry / Fishing	5	1.1
Chemistry / Pharmacy	2	0.4
Culture / National heritage / Entertainment	2	0.4
Other	85	18.3
Total	465	100

The respondents were from 59 countries, with majority from the USA, from all six continents. Table 3 presents the distribution of nationalities.

Table 3. Countries

Country	N	%
USA	186	40,0
Canada	55	11,8
Brazil	23	4,9
Ghana	20	4,3
Poland	18	3,9
Other / no info	163	35,1
Total	465	100

The participants reflected a broad range of project management roles, which we placed into three categories. The first was decision-makers, who influence the overall project management goals, structure and processes within their organizations. PMO managers and executives responsible for project delivery are good examples of the constituents

of this group. The second group were those who are directly involved in project management, e.g. project managers and sponsors, whilst the third group included project team members – people directly or indirectly subordinated to project managers. Table 4 presents the survey participants distribution of roles.

Table 4. Role distribution

Group	N	%
Executives	106	22.8
Managerial roles	216	46.5
Team members	115	24.7
Other	28	6.0
Total	465	100

The result of the assessment of the relative complexity of public projects versus private projects shows table 5.

Table 5. Relative complexity of public projects management

Area	Mean	Median	Dominant	Std. deviation
As a whole	1.58	2	2	0.58
Stakeholder Management	1.77	2	2	0.51
Procurement Management	1.74	2	2	0.53
Communications Management	1.59	2	2	0.58
Human Resources Management	1.44	2	2	0.66
Scope Management	1.41	1	2	0.61
Integrity Management	1.41	1	2	0.60
Cost Management	1.36	2	2	0.73
Time Management	1.35	1	2	0.66
Risk Management	1.35	1	2	0.70
Quality Management	1.15	1	1	0.69

5. Discussion

Public project management as a whole is considered by respondents to be significantly more complex than private project management. Respondents also believe that the management of public projects in all management areas is more complex than private project management. Among the areas of management, we can identify three groups from the perspective of public projects relative complexity:

- The group displaying the largest difference in respondent assessment score showed variation between 1,77 and 1,59. Stakeholder management, procurement management and communication management belong to this group. The dominant and median of responses for this group was equal to 2.
- The medium group is made up of those areas where relative public project management complexity falls between 1,44 and 1,35. Human resources management, scope management, integrity management, cost management, time management, and risk management belong to this group. The dominant for this area is 2, but the median is 1 or 2.
- The group of smallest relative public projects management complexity consist of only one area: quality management. Its relative complexity equals 1,15, both the dominant as well as median are equal to 1.

Below we explore the possible reasons for the greater relative complexity of public projects management within the group of largest variation.

There are many reasons for the greater complexity of public stakeholder project management. Public projects are more exposed to external factors than private projects⁷. Therefore, the number of public projects stakeholders is

greater than the number of private projects stakeholders^{8,9}. The most important stakeholders of public projects are the communities for which these projects are undertaken², and to which public projects are responsible and are accounted for^{8,10}.

The way of public projects execution, and especially criticism to which they are exposed, often affects the public image of the government accountable for these projects⁹. Public projects must therefore take into account the interests of politicians⁹ who may have different political affiliations and may not always fully understand the principles of project management¹⁰. Other important stakeholders include legislators whose requirements must be met, as well as project shareholders¹ whose requirements must be subordinated to the interests of the two aforementioned groups. Other types of external public projects stakeholder include public agencies with which inter-agency agreements must be established⁹. Managers of public projects must take into account a higher level of interdependence between these organizations¹¹. Business communities may also be stakeholders of public projects⁹. Public projects operate under the control of the media².

The oversight mechanisms of public projects operating on many levels, which may have conflicting interests, also increase the number of public projects stakeholders². Public projects must generate public support both internally and outside the organization¹². Simultaneously, public projects must be coordinated with operational activities within the performing organization⁹.

The number of internal customers may be greater in public projects than in private ones¹³. Public projects are more difficult to perform because they may rely on the cooperation and effectiveness of teams within the organisation beyond the project team, e.g. in the areas of procurement, human resources etc.². Project team members may be internal employees of an organization. Due to frequent management changes in the public sector, and due to added restrictions resulting from regulations, the need to convince employees to change their processes in projects within public organizations is greater than in other sectors¹⁴. Generally, the large number of stakeholders and specific public project management processes mean that stakeholder management in public projects is particularly complex. This was confirmed by our survey.

Public projects are based largely on contracts executed by external companies. It is therefore necessary to ensure the efficient cooperation of the project team with staff involved in the procurement process⁹. In the area of procurement management, the evaluation criteria for purchasing goods in public and private projects are different¹¹. In the private sector, the decision is usually based solely on price, whilst in the public other factors may come into play. This is often because there are many measures of success for the public project, not necessarily related to finance; for example, the satisfaction of communities for whom public projects are executed, the development of specific sectors activities, or preferences for disadvantaged social groups. Therefore, a selection of products purchased by public projects must also take into account several criteria, many of which are not always easy to measure. The so-called 'red tapes' – the formal regulations procedures and rules associated with this sector – often complicate purchasing and commodification processes. The phrase 'red tapes' dates from 17th-century England, where official documents were banded with red tape¹⁵. Red tapes most readily affect two management areas: procurement management and personnel management. So far, studies of permanent organizations have shown a greater impact of red tapes on the functioning of managers in the public sector than in the private one¹⁶. In other words, public organizations are more bureaucratic^{17, 18}. The amount of red tapes varies depending on the level of political impact a project has, especially with regards to personnel. The greater political scrutiny of an organization, the more red tapes they have¹⁹. Red tapes can be considered positive if they contribute to the protection of workers or clients, or if they assure greater accountability¹⁷. Generally, however, they complicate the procurement process.

Communication management may be considered to be a tool that supports stakeholder management. Communication is a key way to influence project stakeholders – in particular, the management of external stakeholders, with whom the project team has no other means of influence. Therefore, the complexity of communication management may increase in line with the complexity of stakeholders management and growth in the number of stakeholders. Furthermore, public organizations are more transparent; they transmit more information regarding their processes and decisions to external parties²⁰. The more frequent occurrence of red tapes that characterize the public sector, is associated with a lower efficiency of communication²¹.

6. Conclusions

6.1. Practical conclusions

The study showed that management of public projects is more complex than in other sectors. Stakeholder management is the most difficult area to manage in public projects. Therefore, the public sector should develop procedures and methods for managing stakeholder projects specific to this sector. Project managers, other project team members, and decision-makers responsible for the general organization of project management in public institutions should be trained differently than those in private companies. It is necessary to take into account mechanisms other than those based on traditional client–contractor relationships to ensure satisfactory implementation of public projects. For example, they must be aware that the issue of low product pricing does not have to be a factor influencing customer satisfaction of public products, since the recipients of public services do not pay project contractors directly. Also, it is not usually possible to reduce the complexity of stakeholder management simply by reducing the number of stakeholders.

The complexity of procurement management, in turn, stems from another characteristic of the public sector – its highly developed governance structure. Public project execution methods, including procurement processes, are usually defined outside institutions that implement purchases, and therefore neither the institution that implements the project, nor the project team, may affect these processes. It is therefore necessary to train staff in public institutions to specialize in implementation or purchases processes, including training in the associated red tapes. An additional consequence is the formation of similar groups in private companies, dealing with supplies for the public sector.

Transparency is one of the fundamental characteristics of public institutions, so project managers must pay particular attention to the form and content of communication. One of the reasons for which so much importance should be attached to communication management is its auxiliary role of stakeholder management. The relatively high complexity of communications can be interpreted as added precision to ensure the success of stakeholder management, and thus the success of the project.

The altogether high relative complexity of the above three management areas indicate which management areas project managers and other responsible personnel, should pay particular attention to. At the organizational level it is essential to establish appropriate management practices, whilst on the project level, building the right team and acquiring the necessary knowledge is of utmost importance.

6.2. Theoretical conclusions

This article describes the results of the first comprehensive studies of differences in the complexity of public sector projects in comparison with projects in other sectors. Studies have shown that public projects are more complex. As for building a model of differences similar to that developed for the differences between public organizations and other types of organizations, the answer is not so simple. The existence of differences in complexity in all areas except one might suggest the adequacy of the core model. However, many of the techniques and processes of project management are common for public projects and other types of projects. For example, in all sectors the same methods of schedule development, scope management, and quality management may be used. Even in the most varied area of stakeholder management, similar processes of stakeholder identification should be carried out in all sectors. Regarding the description of differences between public projects and projects of other sectors, the most appropriate model would most likely be a "fuzzy dimensional model" – a model which allows for both similar and different techniques and management processes.

Acknowledgements

The article includes part of the results of the project "National Public Projects Implementation Maturity Model ", performed under the grant UMO-2012/07/D/HS4/01752 of National Sciences Center of Poland.

References

1. Kassel D. S. (2010), *Managing Public Sector Projects: A Strategic Framework for Success in an Era of Downsized Government*, CRC Press, Boca Raton, USA
2. Wirick D. (2009), *Public-Sector Project Management: Meeting the Challenges and Achieving Results*, John Wiley & Sons, New Jersey, USA
3. Scott P. G., Falcone S. (1998), Comparing public and private organizations. An exploratory analysis of three frameworks, *American Review of Public Administration*, 28 (2)
4. PMI (2006), *Government extension to the PMBOK® Guide Third Edition*, Project Management Institute: Newtown Square, PA, USA
5. Sayre W.S. (1953), Premises of Public Administration. *Public Administration Review*, 18 (2)
6. Perry J. L., Rainey H. G. (1988), The Public-Private Distinction in Organization Theory: A Critique and Research Strategy, *Academy of Management Review*, 13 (2)
7. Gomes C. F., Yasin M. M., Small M. H. (2012), Discerning Interrelationships among the Knowledge, Competencies, and Roles of Project Managers in the Planning and Implementation of Public Sector Projects, *International Journal of Public Administration*, 35 (5)
8. Mihăescu (Demeter) Ch., Țapardel A-C., (2013), A Public Administration Based on Project Management, *Administration And Public Management*, 20
9. Kwak Y, H., Liu M., Patanakul P., Zwikael O. Allison G.T. (2014), *Challenges & Best Practices of Managing Government Projects & Programs*, Project Management Institute, Inc. Newtown Square, PA, USA.
10. Pülmanis E. (2015), Micro-Economical Aspects Of Public Projects: Impact Factors For Project Efficiency And Sustainability, *PM World Journal*, 4 (6)
11. Bretschneider S. (1990), Management Information Systems in Public and Private Organizations: An Empirical Test, *Public Administration Review*, 50 (5)
12. PMI (2014), *Projects fit for purpose: delivering more with less in the public sector*, Project Management Institute: Newtown Square, PA, USA
13. Hobbs B., Aubry M., (2008), An empirically grounded search for a typology of project management office, *Project Management Journal*, 39 (Suplement)
14. Cats-Baril W., Thompson R. (1995), Managing Information Technology Projects in the Public Sector, *Public Administration Review*, 55 (6)
15. Kaufman H. (1977), *Red tape: Its origins, uses and abuses*, Brookings Institution, Washington, DC, USA
16. Baldwin J. N. (1990), Perceptions of Public versus Private Sector Personnel and Informal Red Tape: Their Impact on Motivation, *American Review of Public Administration*, 20 (1)
17. Bozeman B., Reed P. N., Scott P. (1992), Red Tape and Task Delays in Public and Private Organizations, *Administration & Society*, 24 (3)
18. Boyne G. A. (2002), Public And Private Management: What's The Difference, *Journal of Management Studies*, 39 (1)
19. Bozeman B., Bretschneider S. (1994), The "Publicness Puzzle" in Organization Theory: A Test of Alternative Explanations of Differences between Public and Private Organizations, *Journal of Public Administration Research and Theory*, 4 (2)
20. Meier K. J, O'Toole Jr. L. J. (2011), Comparing Public and Private Management: Theoretical Expectations, *Journal of Public Administration Research and Theory*, 21
21. Pandey S. K., Garnett J. L. (2006), Exploring Public Sector Communication Performance: Testing a Model and Drawing Implications, *Public Administration Review*, 66 (1)