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Improving project management capability with assistance of PMO in a technology company

Master of Science Thesis in the Master's Programme International Project Management

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Department of Civil and Environmental Engineering
Division of Construction Management

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ABSTRACT

Project management office (PMO) is an important and widespread phenomenon of organisational project management in the modern world. However, many questions remain about its role, implementation, relevance and value for the host organisations. The given research had a purpose to investigate if and how can PMO bring and sustain value, highlighting the specifics of the engineering customer services companies. The sub-questions of the research considered the reasons for PMO establishment, and its optimal implementation and responsibilities. 1 technology firm with 3 independent business units (corresponding to 3 cases) was investigated in the case study. The chosen methodology allowed to collect extensive data taking into consideration organisational environment (organisational features, organisational culture, and type of business) and project environment. In total, 9 interviews were conducted, and 37 survey responses were analysed. Existing PMOs and PMO-like initiatives as well as current challenges of project management were examined, and expected value of project management was identified. Basing on the organisational context and recommendations from the literature, suggestions were made for each business unit regarding establishment/development of PMO implementation and functional. Common for all the three cases, project-related competence development and cross-project learning were found to be a potential area of PMO responsibilities.

Key words: project management office; PMO; value of project management; PMO implementation; PMO responsibilities; customer services organisations.

Contents

Preface

This dissertation is the final part of the Project Management master programme at University of Northumbria at Newcastle, United Kingdom (dual award with Chalmers University of Technology, Gothenburg, Sweden).

This dissertation work was completed with Inger Bergman as supervisor. The research was based on the case of a technology company (the name is not mentioned for the confidentiality reasons). The topic of the research stems from the interests of me as a researcher, my supervisor, and the case organisation.

Most of the work was done in the company premises in Gothenburg. The research work has been carried out from February 2011 to August 2011.

I would like to thank everyone who has contributed with valuable information to this dissertation:

Inger Bergman as my supervisor for guidance, consulting and support throughout the study, and providing necessary contacts to make the research possible;

Study informants for their co-operation and involvement which was highly appreciated;

Company personnel for their support.

Göteborg August 2011

Ekaterina Gorshkova

List of Abbreviations

BU   Business Unit
DM   Department Manager
DPO   Department Project Office
HR   Human Resources
IR   Investor Relations
IT   Information Technology
PLM   Product Lifecycle Management
PM   Project Management
PMN   Project Management Network
PMO   Project Management Office
PMs   Project Managers
PO   Project Office
PR   Public Relations
Q&E   Quality and Environment
ROI   Return on Investment

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1 Introduction

1.1 Research scope

PMO as a widespread phenomenon

The interest of the organisations to develop and maintain organisational project management competency with the help of the specialised organisational entity (Project Management Office, or PMO) started in 1990s and stays significant nowadays (Hurt and Thomas, 2009; Hobbs and Aubry, 2007; Crawford, 2006; Hill, 2004). For example, the raise in number of established PMOs starting from 1995 was identified by Dai and Wells (2004). Other researchers found that many PMOs are recently established: Hobbs and Aubry (2007) state that 84% of the PMOs they portrayed were in the age of 1-5 years; the recent study of the global state of PMO by ESI International (2011) has shown that 60% are not older than 5 years. This also means gradual increase in number.

The formal definition of PMO given by PMI is the following:

> An organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of the PMO can range from providing project management support functions to actually being responsible for the direct management of a project. (PMI, 2008, p. 11).

APM (2006) suggests that organisation's project management needs are the drivers for implementing and running a PMO. PMI (2008) supports this stating that PMO efforts are aligned with strategic needs of the organisation.

The definition of PMI (2008) suggests rather high degree of freedom in the way of how PMO is organised, how much power it exercises and what responsibilities it takes; however, it supposes that the aim of PMO is to help to improve project management in the part of the organisation which is under its influence.

According to PMI (2008) functions performed by PMO can include administrative support of projects, resource alignment of project staff, competencies development of project managers, and facilitation of communication between project stakeholders.

Thus, nowadays PMO is a widespread phenomenon. However, the academics argue about the efficiency of PMOs.

The relevance of PMO is often questioned

Descriptive surveys portraying existing PMOs claim that value of PMOs for organisations is often questioned. For example, Hobbs and Aubry (2007) state that 42% of the respondents confirmed that the relevance or even the existence of the PMO been seriously questioned in their organisations in recent years. The study by ESI International (2011) indicates that 60% of respondents considered the value of PMO being questioned by at least one of the stakeholder groups: senior management, project/programme managers, or customers.

ESI (2011) indicated that 41% of respondents from non-PMO staff found role fulfilment by PMOs in their organisations moderately good or poor.

Given the young age of many PMOs, Hobbs, Aubry and Thuillier (2008) examined the instability and frequent transformations of PMOs. The authors observe considerable amount of mimicry processes behind setting up PMOs. They doubt that PMO

phenomenon would be institutionalised. Aubry et al. (2010) repeat those conclusions, adding that PMO transformations observed do not reflect PMO life cycle of gradual development.

Hurt and Thomas (2009) argue that PMOs are able increase value for the organisation by changing and re-inventing themselves provided that they stay focused on the purpose of improving project management. The authors suggest the framework of creation and sustaining value in the organisations and mention the PMO leadership, building a long-term ideology and appropriate staffing as significant aspects of PMO success.

The idea that PMOs have to transform and change functions and organisation in order to fit into the existing organisational needs and sustain value-adding into organisations was articulated by many researchers (for example, Thomas and Mullaly, 2008a).

Andersen, Henriksen, and Aarseth (2007) made an attempt to identify the best practices of setting up a PMO in the organisations. The authors stress the importance of stakeholder analysis so that the PMO would meet the real needs and expectations of those impacted by it. Along with it, they recommend to identify the leader of the PMO, plan gradual development, and carefully staff the PMO.

The recent study of ESI International (2011, p. 2) confirms the relevance of the topic: "the discourse is shifting from determining PMO maturity to the value the maturing PMO brings".

To adjust project management processes of an organisation to its strategic goals Dinsmore and Cooke-Davies (2006, pp. 82-84) recommend to consider what types of projects are typically undertaken (in terms of clarity of goals and clarity of methods used) and what perspective the organisation typically adopts (meaning customers and resources used being internal or external).

Customer services organisations

There are a large number of organisations for which the main business is to provide customer-ordered services or develop customer-ordered products using own resources rather than develop and support their own product or service. The deliveries can take the form of projects. The advantages of such customer-supplier partnerships for the customer are shorter time-to-market, competitive costs and improvement of quality due to access to a larger pool of skilled professionals (Apte et al., 1997; Kezner, 2009, p.346). Important issues when establishing a partnership are: competition between service providers, service specification, revenue model (for service providers), risk distribution, staff transfer, monitoring and communication, and value migration (Bröchner, 2010).

The specificity of business in such supplying companies is focus on customer relationship.

While some literature sources examining project management practices include customer services organisations (for instance, in the descriptive study of PMO population by Hobbs and Aubry (2007) organisations working for multiple external customers made up 37% of all the organisations), they do not highlight the specificities of organisational project management in those organisations.

<center>*</center>

Considering the described issues, the question arises: "Could PMO be useful and what characteristics should it have to bring value for a customer services organisation?"

The current study aims to investigate the potential value of the PMO and its characteristics and responsibilities. The research is based on a technology company running projects for external customers.

1.2 Research questions

The purpose of the research project is to investigate if and how establishment and performing of a PMO would bring value to a company dealing with external customers. For achieving it, the proposed research seeks to answer the following questions:

1. What kinds of issues/problems trigger the establishment of a PMO?
2. What responsibilities should the PMO have?
3. How should the PMO be organised in terms of structure, size, level of authority, and personnel?

Relation between the findings and existing theories, traditions and best practices will be explored.

This case study seeks to investigate if the PMO would be beneficial for the project management capability in an engineering customer services company, and which form of PMO would be the most appropriate.

1.3 Research method

Qualitative approach was chosen for the given research project, as it allows to collect more extensive and rich data, and ensures more flexibility rather than quantitative approach. The case study has been conducted in an engineering services organisation dealing with external customers. The organisation experienced the period of re-thinking its PMO. As the company has 3 rather independent business units, 3 cases were identified for the case study research.

The data were collected through interviews with different stakeholders, as well as via survey sent to project managers and line managers. Relevant company documentation was studied to increase the validity of findings.

First, the company background was overviewed to explain why the company management became interested in the PMO existence and work, how the organisation used to deal with projects, and how the functions traditionally associated with PMO were carried out during the research. Comparison is provided between the business units.

Then, it was identified what kind of needs exist in the company and explored if the establishment/modification of PMO could be a good solution. Since different PMO realisation ways exist, the researcher investigated what form would best suit the company.

1.4 Limitations to the study

Certain limitations to the study are related to the research methodology. The chosen research method (case study of 3 business units in one organisation) does not provide the ground for statistical generalisation of findings; however, it allows analytical

generalisation. The time and resources of the researcher were limited, which constrained the amount of the collected data and number of data sources. Nevertheless, the attempt was made to gather good-quality data and consider perspectives of different stakeholders. The case organisation is international; however, just the Swedish organisation was within the scope of the study.

1.5 Dissertation structure overview

The dissertation is structured in the following way. First, the existing literature (both academic and non-academic) was reviewed in the Chapter 2 in order to develop the framework of the study. Further, the research methodology is described and justified in the Chapter 3. Research findings and data analysis are presented in the Chapter 4. The case organisation is described in line with the research framework (including type of business, organisational features, organisational culture and project business). Existing PMOs are depicted. Further, challenges of project management and contribution of PMO into the project management value for the organisation are presented. The findings are discussed, and recommendations for the organisation are provided on how to organise PMO and what responsibilities should it have. The last chapter (Chapter 5) contains conclusions of the study.

2 Theoretical framework

In this chapter the researcher will overview the existing published material about PMO from theoretically- and evidence-based perspectives.

PMO is recognised to be a phenomenon widely applied in practice with no solid theories underlying (Pellegrinelli and Garagna, 2009; Hobbs and Aubry, 2007). The proponents of PMOs are typically practitioners and consultants (Pellegrinelli and Garagna, 2009). Hobbs and Aubry (2007) launched a multi-phase research programme sponsored by PMI aiming to provide better understanding of PMOs and the dynamics surrounding them in their organisational context, and develop theory. Aubry, Hobbs and Thuillier (2008) suggest historical approach for understanding PMOs: "The study of the organisational processes that are behind the instability of PMOs provides a better approach than trying to find what is wrong with the current PMO and the search for an optimal design." (p.43). Hobbs, Aubry and Thuillier (2008) stress the importance of the organisational context as PMO is embedded into the host organisation and both co-evolve.

Observations show that often PMOs are temporary organisations, and are either disbanded or subject to radical transformations after several years (Hobbs, Aubry and Thuillier, 2008). However, Hurt and Thomas (2009) in their research programme disagree that this is a negative issue and form an alternative view that PMO still can bring and sustain value for organisations. Pellegrinelli and Garagna (2009) confirm that PMOs are "agents and subjects of change and renewal rather than stable, enduring entities" (p. 653), and offer the notion of creative destruction of replacement one form by another and generation of new value.

What the academics agree about is "one size does not fit all", and PMO should be carefully fitted to the needs of every particular organisation (Aubry et al., 2010; Thomas and Mullaly, 2008a; Andersen, Henriksen and Aarseth, 2007).

The discussion on the value of project management and the concept of "fit" between the project management implementation and organisational context is still ongoing (Aubry and Hobbs, 2011; Cooke-Davies, Crawford and Lechler, 2009; Mullaly and Thomas, 2009; Thomas and Mullaly, 2008a). For example, Cooke-Davies, Crawford and Lechler (2009) suggest that strategic drivers influence what value is expected from project management, and to maximise the value resulting from projects project management system should be adapted to the strategic positioning of the particular organisation.

The literature review will highlight the following topics:

- Reasons and purpose of having PMOs in the organisations
- The ways of PMO implementation
- PMO life cycle
- PMO responsibilities
- Potential value of PMO for the organisations
- Challenges of PMO

2.1 Purpose of PMO and reasons for having PMOs in the organisations

Several literature sources discuss the objectives and reasons behind the establishment of PMO.

Dai and Wells (2004) name the following motivations for setting up a PMO: improving all elements of project management and achieving a common project management approach (through standards and methodologies); more efficient use of human and other resources in a multiple project environment; and improving quality and customer satisfaction.

The most popular purposes of establishment of PMO according to Dinsmore and Cooke-Davies (2006, p.77) are to standardise project management methodology, improve information flow, and administer control systems over the projects run concurrently.

Andersen, Henriksen, and Aarseth (2007) mention large differences in how projects are run, lack of qualified project managers, problems with cost and time overruns in projects, and lack of holistic practices regarding a project portfolio management as triggering factors of PMO implementation.

It is noteworthy that Dai and Wells (2004) found strong evidence that project management standards and methods correlate with project performance. Milosevic and Patanakul (2005) also detected that standardised project management (particularly, tools, process and leadership) may drive project success. Thus, assigning project management standardisation responsibility to PMO may lead to the goal of project management improvement.

Hobbs, Aubry and Thuillier (2008) identified primary drivers of implementation and reconfiguration of PMOs to be organisational tensions: economic (related to project performance and PMO cost), political (issues of power and control over projects), customer relationship, standardisation of project management methodology versus flexibility, raising or reducing organisational capacity to deliver projects. In addition, the authors noticed considerable amount of mimicry as an initial drive while setting up a PMO.

The further search for the logic leading to implementation or renewal of PMOs by Aubry et al. (2010) resulted in development of typology of drivers of PMO change: drivers from external context (such as industrial/market factors), and drivers from organisational context related to: project management processes (such as standardisation and control issues), human resources (such as project management skills development), organisational context (e.g., customer and stakeholder relations, change in strategy), project performance, and internal organisational events (company reorganisation, top management change, or new PMO manager).

To summarise, different triggers lead to establishment and transformation of the PMOs, but the general purpose of PMO stays invariable: it is improving quality of project management.

2.2 The ways of PMO implementation

There is large variety in the PMO characteristics: the way of organisation, position in the company, number and type of projects under its domain, level of authority, and staff. Several literature sources are overviewed below.

Regarding the ways to organise a PMO, Dinsmore and Cooke-Davies (2006, pp.78-82) describe staff approaches with no project managers, having only supportive role to projects (e.g., Project Support Office providing operational support to individual projects, and Project Management Centre of Excellence) and line approaches when project managers report directly to PMO (such as Programme Management Office and Chief Project Officer).

Andersen, Henriksen, and Aarseth (2007) also suggest some alternatives: an integrated staff function ("traditional" PMO integrated into one unit), a staff function (composed of resources located throughout the organisation), and distributed network of persons with interest and competence in project management. The authors were not able to find the link between the way of how PMO is organised and it's usefulness for the organisation.

Nevertheless, the quantitative study of Curlee (2008) provided evidence that centralised PMOs provide better support services for virtual project managers (such as project management training, use of standardised processes, electronic communication and collaboration technology, and leadership). However, the author stresses that study may be valid just for virtual project management and should not be generalised.

Dinsmore and Cooke-Davies (2006) mention that multiple PMOs could be set up in large organisations. Desouza and Evaristo (2006) suggest that PMO can be and independent group exercising power; a group reporting to an executive in a functional department; or groups based in diverse geographical locations. Andersen, Henriksen, and Aarseth (2007) suppose that PMO location depends on where in the organisation changes are desired; thus, the traditional integrated form does not have to be optimal. This point of view is in line with the situation observed in the case company and is employed further in the research.

PMO can be a virtual unit, for example, "consisting of people with a special interest and expertise in project management, promoting good practices on behalf of the entire organization" (Andersen, Henriksen, and Aarseth, 2007, p.98). Pellegrinelli and Garagna (2009) also consider that virtual PMO, i.e. the "discharge of the functions of PMO in the absence of an organisational entity" (p.652), is the viable option for organisations. The disadvantages of such a solution, according to the authors, could be possible inability to bring gradual improvements in the capabilities within the organisation or meet the needs, and difficulty to stay up-to-date utilising the latest tools, techniques and technology.

In the descriptive study of 500 PMOs Hobbs and Aubry (2007) found great variety of PMOs. The researchers made an attempt to identify typology of PMOs relying on PMO characteristics, organisational context and PMO performance (Hobbs and Aubry, 2008). The result is illustrated in the Figure 2.1 (the arrows represent the found correlations).
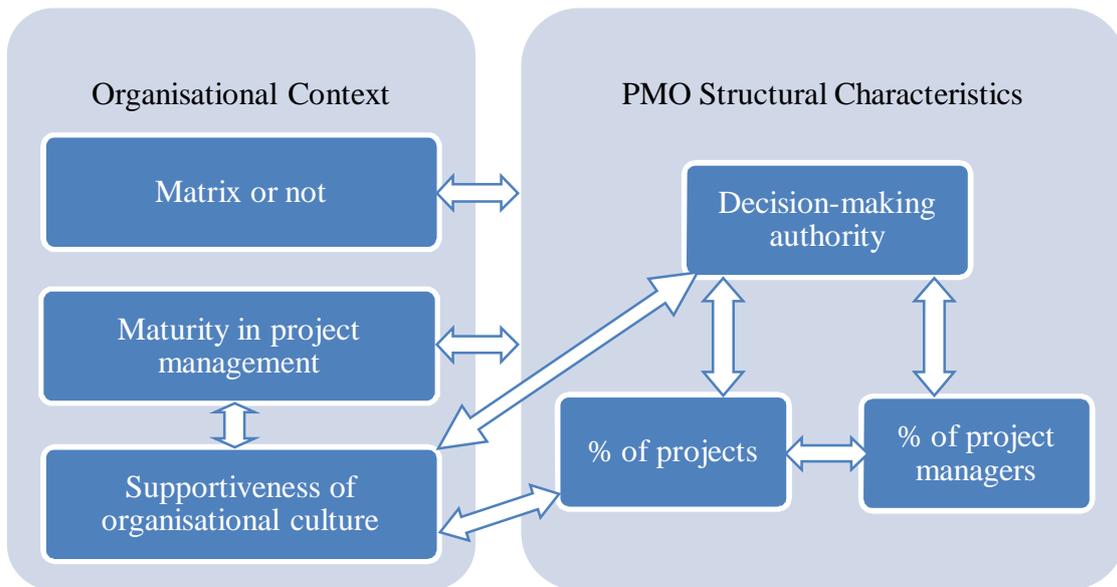
Figure 2.1. Variables for the PMO typology. Source: Hobbs and Aubry (2008)

Three types of PMOs were identified which grouped 60% of the population (see Table 2.1).

Table 2.1. Typology of PMOs (based on Hobbs and Aubry, 2008).

	Type 1	Type 2	Type 3
Decision-making authority	Considerable	Less	Moderate
Number of projects	Many	Few	Most
Number of project managers	Many	Few, if any	Few, if any

The findings suggest that PMOs of type 1 tend to be found more in organisations that are mature in project management and have supportive organisational culture. Also, they are more probably found in non-matrix organisations (where PMO and the human resources working on the projects are located in the same organisational entity). The authors identified that type 1 PMOs in those organisational contexts usually perform better than other PMOs. However, those PMOs may meet more challenges in the organisations as more "heavy" implementations (Singh, Keil and Kasi, 2009).

Singh, Keil and Kasi (2009) also attempted to understand the role of PMO structure in the implementation of a PMO. They considered PMO configurations as a spectrum with "PMO-light" (which has minimal staff, supportive role with limited direct responsibility for project execution) at one end of it and "PMO-heavy" (full-time project managers, direct control over individual projects) at the other; hybrid forms exist as well. They conclude that "light" PMOs cause lower resistance to change rather than "heavy" PMOs; thus, the light forms may be more appropriate on the initial stages of the PMO implementation.

To summarise, the aspects of the PMO implementation that should be considered when establishing the PMO are:

- What types of projects is it responsible for?
- How much decision-making authority it has?

- Is the entity distributed over the organisation or grouped in one unit? Is it virtual?
- Where in the organisation is it located?
- PMO staff (are the project managers included?)

Aubry, Hobbs, and Thuillier (2008) claim that organisation and responsibilities of PMO are not static; they constantly evolve along with the changing context, new organisational needs and maturity of project management capability. The notion of PMO life cycle is described in the next section.

2.3 PMO life cycle

Many researchers (e.g., Pellegrinelli and Garagna, 2009; Singh, Keil and Kasi, 2009; Aubry, Hobbs, and Thuillier, 2008; Andersen, Henriksen, and Aarseth, 2007) notify that PMOs develop dynamically in terms of responsibilities, size and staffing, organisational location and level of authority.

Frequently referenced five-stage competency model of PMO is suggested by Hill (2004):

1. Project Oversight
2. Process Control
3. Process Support
4. Business Maturity
5. Strategic Alignment

According to the model, the later stages of the PMO indicate the greater project management maturity level reached by the organisation, having more advanced role and functions and larger, more experienced, full-time staff.

However, in the recent descriptive study ESI International (2011) found that at moment most PMOs are not operating on strategic level. The evolutionary stages of PMO maturity they used were:

1. Stage 1: Gather and report on project progress and data
2. Stage 2: Develop and enforce standards, methods and processes
3. Stage 3: Manage, allocate and control PM resources
4. Stage 4: Manage dependencies across multiple projects and/or programmes
5. Stage 5: Track and report on project ROI and benefits realisation
6. Stage 6: Manage the health of the project portfolio

Only 15% of PMOs reported that they tracked ROI and benefits realisation, showing the stage 5 being the weakest. 20% of PMOs have stages 4 and 6 fully embedded.

Aubry et al. (2010) disagree that PMO transformations they observed in case studies could be seen as the life cycle and evolution. Referring to the following definition of life cycle: "an interval of time during which a sequence of a recurring succession of events or phenomena is completed" (Merriam-Webster, 2007, p.310 in Aubry et al., 2010, p. 775), they conclude that PMO is rather an organisational innovation which is unstable and still evolving.

2.4 PMO Responsibilities

As PMO implementations, PMO responsibilities vary greatly. PMI (2008) suggest the range from project management support to the direct management of projects.

APM (2006, p. 14) list the minimum functional of a PMO: administrative support and assistance to project managers; project information management; and assurance of project management processes.

Having analysed several literature sources suggesting possible range of PMO responsibilities (namely, company project management methodology, 2011; PMI, 2008; Andersen, Henriksen and Aarseth, 2007; Aubry and Hobbs, 2007; APM, 2006; Desouza and Evaristo, 2006; Dai and Wells, 2004), the framework was developed (see Table 2.2). The major part of the structure is adopted from Aubry and Hobbs (2007).

Table 2.2. PMO responsibilities framework.

	Area I. Project reporting and performance control
R1	Report project status to upper management
R2	Monitoring and control of project performance
R3	Conduct project audits
	Area II. Development of project management competencies and methodologies
R1	Develop, implement and manage a standard project management methodology and processes
R2	Provide a set of tools and templates for project management
R3	Promote project culture within the business unit
R4	Project-related coaching, training, mentoring, and competence development for the company personnel (including managers)
R5	Training, certification, consulting, mentoring, and competence development for project managers
	Area III. Organisational learning and project knowledge management
R1	Manage archives of project documentation
R2	Conduct post-project reviews
R3	Share project knowledge
R4	Manage a database of lessons learned
R5	Manage a risk database

	Area IV. Multi-project management	
R1	Coordinating communication across projects	
R2	Identify, select, and prioritise new projects	
R3	Project portfolio management	
R4	Allocate resources between projects	
	Area V. Execute specialised tasks while working with projects	
R1	Sales process	
R2	Managing customer interfaces	
R3	Project planning	
R4	Project budgeting	
R5	Performing risk assessments and calculations	
R6	Project staffing (including project managers)	
R7	Project administration	
R8	Communication facilitation and consulting	
R9	Quality assurance of projects	

This framework is used further in the research to identify currents responsibilities of PMOs, areas for improvement, and areas demanding support.

As a comment, governance and strategic management related responsibilities (being mentioned in many literature sources and being an important part of a mature PMO functional) were not included into the framework. This was in order to reduce the study complexity, considering that in the case organisation projects are not the main part of the business delivery (as will be presented in the Chapter 4).

2.5 Value of PMO

As indicated above, the project management value concept is a subject to active discussions nowadays.

Hurt and Thomas (2009) state that effective PMOs can bring value to an organisation by addressing specific problems of project management and, when those are resolved, sustain value by changing its' goals and objectives, structures and processes. Certain elements should be in place, between them: a long-term ideology (position PMO as most competent unit in managing projects and developing project managers); passionate, confident, focused and quickly demonstrating value PMO leadership; competent staff (it is discussed that accidental and contract project managers might not bring the best result); and a culture of discipline.

Investigating mega-projects, Zhai, Xin, and Cheng (2009) developed a project management value framework from the perspective of 4 key project stakeholders (enterprise, customers, subcontractors/suppliers, and community). Since PM value for the organisations is the focus of the current study, along with ordinary projects being

within the scope rather than mega-projects, only enterprise part of the framework was found relevant. Its elements include:

- Improve project performance (save costs, shorten duration, improve quality, realise commercial goals)
- Improve the competencies of the enterprise (enhance project management capability in projects and project portfolio management, enhance knowledge management, improve technology innovation, smooth organisation transformation)
- Increase revenue (increase the project income, broaden the business opportunities)
- Cultivate the personnel (clearer career path, better motivation and training)
- Improve customer relationship management (better customer communication, greater customer satisfaction, stronger customer loyalty, attract new customers)
- Cultivate favourable corporate culture

Aubry and Hobbs (2011, p. 3) suggest that performance is often used as the "ultimate dependent variable in the literature on organisations". They investigated the contribution of PM to organisational performance and applied "competing values framework" to PM in order to define the organisational performance in the context of PM and its assessment criteria. The authors suggest that their approach "bears directly on performance (objective variable) instead of bearing on success factors (explanatory variables)" (p.12). The authors came up with a framework comprising 4 conceptions (models) and 17 criteria; 79 unique performance indicators were identified to measure the presence of those 4 models in the organisations. The measurement can be made in various ways in different PMOs.

Empirical evidence (ESI International, 2011) shows that areas where PMOs are most valued are improved workflow, risk management and the provision of tools and processes. Same source lists key achievements of PMOs perceived both by PMO and non-PMO staff: improved processes, standards and methodologies; project performance monitoring; project measurement; to the less extent PMOs improved the areas of training, resource management and communication.

It is worthy to say that displayed measure of the PMO value is often expected by the stakeholders to justify PMO's existence. For example, ESI International (2011) state that more transparency is needed to measure PMO effectiveness.

Hurt and Thomas (2008) discuss 5-level model of value of PMO, starting from the lowest:

- Satisfaction (the key stakeholders perceive that the project management initiatives provided value)
- Aligned use of practices (the project management implementation resulted in the desired processes; it is assessed through a measurement of adherence to practices, policies, and procedures)
- Process outcomes (improved project management process; it could be demonstrated by numbers of change requests, budget performance, learning from past projects, and reliability of delivery)
- Business outcomes (related to the process improvements: improved customer satisfaction and retention; attraction of new customers; increased ability to achieve strategic goals)

- ROI (e.g., cost savings, revenue, etc., for investments into the project management initiative)

To summarise, there are different criteria of PM value for the organisations, and PMOs are able to contribute into it. The important issue for PMOs is measurement of value to justify their existence and ensure stakeholder buy-in.

2.6 Challenges for PMO

The researchers observed that not all PMOs are successful in reaching their goals. PMOs encounter numerous difficulties; some of them are listed below.

Singh, Keil and Kasi (2009) specifically focused on the challenges of implementing a PMO. They found top 13 challenges to be the following:

1. Rigid *corporate culture* and failure to manage organisational resistance to change
2. Lack of experienced project managers and PMO *leadership*
3. Lack of appropriate change management strategy
4. Failure to design a PMO around a company's *specific needs*
5. Lack of stakeholder commitment to common methodology and tools for the PMO
6. Poor definition and communication of PMO goals and purpose
7. Lack of full support of the senior management and various stakeholders to the PMO
8. Role, authority, and responsibility of the PMO is poorly defined or understood
9. Lack of defined scope and size of PMO implementation
10. Failure to align PMO implementation strategy to organisational strategy
11. Difficulty in *evaluating* the effectiveness of PMO in the organisation
12. Lack of training and communication on PMO implementation to all stakeholders
13. Difficulty in staffing PMO with most experienced personnel

The findings of Singh, Keil and Kasi (2009) highlight the importance of organisational culture in PMO success; for that reason culture was included into the conceptual framework of the research (see the Section 3.1).

Singh, Keil and Kasi (2009) proposed the strategy to overcome the first challenge: to have a strong PMO leader who promotes the value of PMO; start small and demonstrate the value of PMO with some early success; and identify and seek support from opinion leaders who favour the PMO implementation. Again, the concept of PMO leadership comes to light (also in Hurt and Thomas, 2009). In addition, the idea of showing value is repeated (also in ESI International, 2011; Hurt and Thomas, 2009).

Survey by ESI International (2011) found top three challenges facing PMOs to be: process, scope and methodology adoption; stakeholder buy-in; and a lack of resources.

Desouza and Evaristo (2006) identified 6 critical success factors of PMO success:
- Build a strong foundation (understanding how PMO will fit into the corporate culture)
- Establish the background (identify PMO drivers and goals)

- Assign right projects to the right managers (technology-oriented versus business-oriented)
- Clear reporting lines (roles, responsibilities, and accountability issues should be clearly identified and implemented)
- Ensure credibility providing mandate: PMO charter (specifying purpose, role, expectations, authority, customers, staff), PMO policy (objectives, guiding principles), and PMO methodology (tools, processes, metrics)
- Use metrics to evaluate PMOs

The finding of Singh, Keil and Kasi (2009) also detects the absence of hard metrics (for example, status of project portfolio and performance data: cost, schedule, quality, and meeting customer requirements) on the impact of investment. The authors found that mostly soft metrics is relied on, which hinders justification of PMOs. Desouza and Evaristo (2006) suggest a strategy to develop metrics. They mention that metrics cannot be pre-determined and has to be built over the PMO performance. Project-centric, PMO-centric, and business value-centric metrics can be applied depending on the organisational concerns. First, the process should be defined determining what to measure; further, attributes should be identified; and lastly, the measures have to be analysed (for example, comparing with history of the process, or with a benchmark).

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The study of the existing material about PMO has led the researcher to development of the conceptual framework of the study, which is presented in the next chapter.

3 Research Methodology

3.1 Scope of the study and the research goals

As a reminder, the purpose of this study is to investigate if and how establishment of a PMO would bring value to a company dealing with external customers. 3 research questions were formulated in order to attain this purpose:

1. What kinds of issues/problems trigger the establishment of a PMO?
2. What responsibilities should the PMO have?
3. How the PMO should be organised in terms of structure, size, level of authority, and personnel?

On the basis of the existing knowledge review, the framework of the current research was developed. It is illustrated in the Figure 3.1.
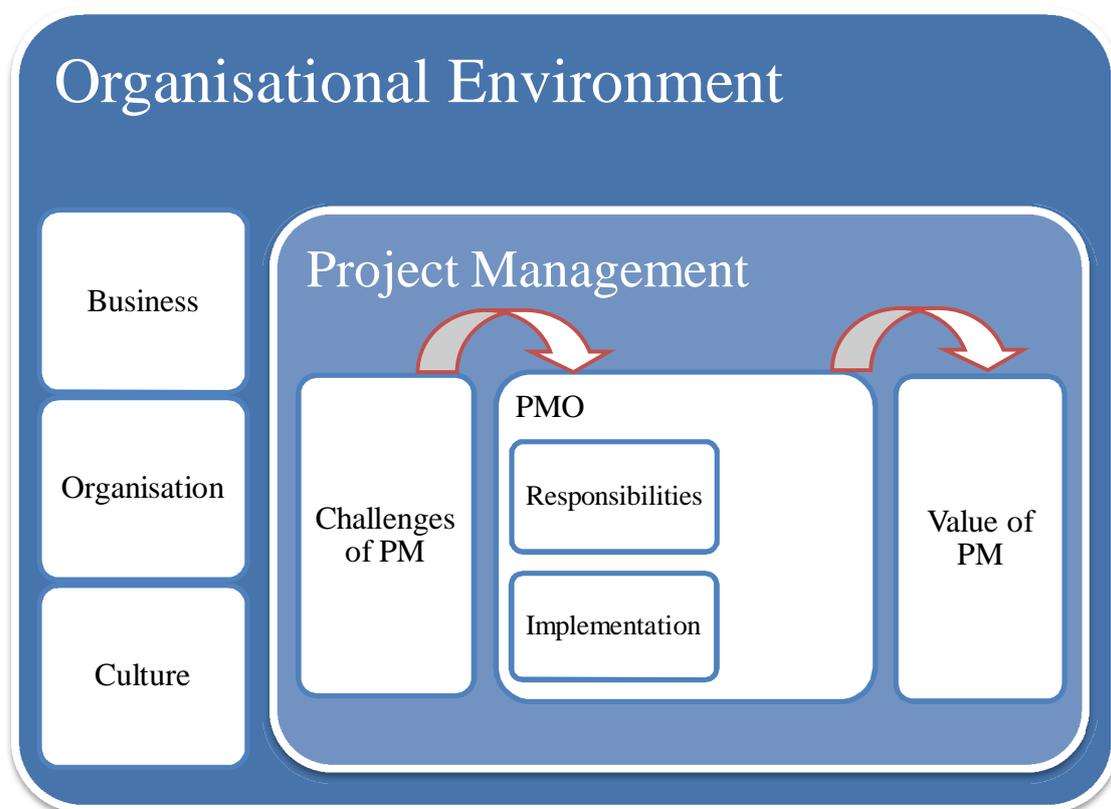
Figure 3.1. Conceptual framework of the research: what characteristics of PMO would ensure increase of PM value for the organisation?

The study framework implies considering PMO as a part of the project management context, which is in turn placed into a wider organisational context. The first research question therefore touches upon the organisational environment (namely, such aspects of it as business, organisational features and organisational culture) and existing challenges of project management. The second research question relates to the responsibilities of PMO, while the third research question deals with the way of PMO implementation. The arrows indicate the assumption that PMO should address the needs and challenges of project management, and perform in order to ensure value of project management.

Thus, the current PMO initiatives and their effects on the project management in the organisation will be highlighted, and the future possibilities will be explored (if and how the existing PMO initiatives could be transformed in order to ensure the value of project management for the organisation).

The outcomes of the research will be the description of the current situation in the company in terms of project management and the justified recommendations for the company regarding the development of role, responsibilities and implementation of PMO.

3.2 Research method

For the deeper understanding of the problems related to research subjects, particularly PMO, the *qualitative approach* was chosen for the research (for its flexibility, possibility to reflect upon, focus on the subject's reality, and comprehensiveness).

Aubry, Hobbs and Thuillier (2008) suggest that PMO is a complex phenomenon that could be understood as part of a historical process within an organisational context, as it is embedded into the host organisation and both evolve simultaneously. Thus, case study method is considered to be more appropriate for the research, because it allows collecting highly detailed data about the processes and events (Coventry, 2010). Moreover, case study method is recommended to be applied in the following cases (based on Yin, 2009):

1. The research questions are formulated as "how" and "why": why the establishment of PMO could bring value to the organisation? How is it possible to achieve that?
2. The research aims to cover contextual conditions relevant to the phenomenon under study.
3. The research is dealing with contemporary events.
4. The researcher cannot manipulate the behaviour of those involved in the study (however, recommendations are provided to the company based on the conclusions made in the research).

Taking into consideration aforesaid, a *case study* has been conducted in an engineering services organisation dealing with external customers. The organisation experienced interest in growing project management maturity.

The criticism often addressed to the case studies are lack of rigour and fairness, as well as they give little basis for scientific generalisation while their goal is to expand and generalise theories (Yin, 2009). However, case study is appropriate for the given research as it gives the opportunity to collect reach data as well as receive deeper understanding of both phenomenon and context. It still serves as a basis for analytical (not statistical) generalisation of how PMO reflects the specificities of organisation serving external customers.

According to Yin (2009), examination of multiple cases allows replication of logic and increases external validity of the findings. Therefore, *3 cases* corresponding to 3 separate business units of the organisation were studied. In spite of just one organisation was explored, the study is multiple-case. 3 business units (further referred to as BU1, BU2 and BU3) are rather independent and separate (this point was supported by the different informants), so in the given study they are considered as 3 different cases. Documents reviewed showed various content and structure for

different business units (for instance, besides the common strategy, mission and vision there are special ones for BU2, but there are no for other business areas; management processes also differ in the three business units).

The conducted case study is rather *descriptive* and *exploratory*. It portrays the organisational background, existing PMO and current challenges related to project management, as well as future vision and expectations of the PMO stakeholders, and reveals possible cause and effect relationships between the notions (Yin, 2009).

The research design was developed according to Yin (2009). 6 stages were identified to carry out the case study, as illustrated in the Figure 3.2. During the research work, stages 2-5 partly overlapped.

Figure 3.2. The flow of the case study research.

1. At the planning stage rationale for the case study was provided, advantages and limitations of the method were considered, and applications of the study (which are "describe" and "explore") were identified.
2. At the design stage case study questions were specified. Yin (2009) recommends to develop theoretical propositions for the study; however, for the given research being rather exploratory, no propositions were suggested before the data gathering. Instead, the researcher specified what is to be explored, the purpose of exploration, and the expected outcomes of the research (see section 3.1 for the details). The units of analysis were decided upon. The way of data interpretation was thought through. At this stage, the literature on the subject was reviewed in order to decide what kinds of data are necessary to be collected. The design of the study still allowed flexibility (for example, later preparation and data collection stages were overlapped as it was decided to include survey into the data collection method).
3. At the preparation stage key information sources and participants were identified. Further, preliminary set of questions for the interviews was developed and reviewed by the research supervisor.
   The potential interviewees were invited to take part in the research, and the interviews were scheduled.
4. At the data collection stage the company documentation was reviewed; as well as interviews were conducted. The decision was made to complete the data collected through the interviews with survey data. The questionnaire was developed and validated (for more detailed information on the data collection process, see the Section 3.4).
5. Qualitative data were reduced and categorised according to the study framework. For the survey data analysis, quantitative methods were applied (PASW Statistics software was used). However, only few statistical dependencies were found; mostly the quantitative data served for producing descriptive statistics. Combined data were used for analysis (for the details, see the Section 3.5).
6. At the last stage the given report was produced and prepared for publication. The study findings were presented in the case company and in Chalmers University of Technology, Sweden.

Further, more specified description of the case organisation, data collection and analysis processes is provided.

3.3 Case organisation

The company provides engineering services for external customers. It exists more than 30 years; it operates in several countries and counts 2500-3000 employees worldwide. The given study was limited by the Swedish region.

Due to the customer-oriented type of the organisation, the biggest part of the project portfolio is determined by customer orders; there is no or little project portfolio management applied.

Organisational structure of the whole company is shown in the Figure 3.3.

Figure 3.3. Organisational structure of the case company.

The business units (BUs) have further quite complex division both by type of the business and by geographical location. Particularly, BU2 is divided into 5 departments providing different types of services. The organisational environment is described in more details in the Chapter 4.1.

3.4 Data collection

As an advantage of case study method, dealing with contemporary events allows the researcher to use full variety of evidence: documents, archival records, observations, interviews with the people involved, and artefacts. According to Yin (2009), using of multiple data sources mitigates the potential problem of construct validity. Thus, 4 types of data sources were used in the research project:

1. Documentation. Relevant document sources such as organisational charts, organisational culture survey results, the company project management methodology, and the company general management methodology were accessed via the company intranet.
2. Direct observation. Internal news published in the intranet and press-releases were reviewed in order to overview strategic goals, organisational changes and new directives and initiatives related to project management.

3. Interviews. Potential stakeholders of PMO were identified in each business unit, and the subject area was discussed with them.
4. Survey. The data collected via questionnaire were used descriptively; no relevant statistically significant correlations were found (the reason for it might be the small number of respondents).

The interviews and survey conducted are described in more details in the following sections.

3.4.1 Interviews

In accordance with and the Ethics Policy and Procedures of Northumbria University and School of the Built and Natural Environment, formal consent forms were gained from every participant of the research. The informants participated in the research in a voluntary way. They were fully informed about the purpose, methods and intended possible uses of the research, and what their participation in the research entailed.

Interviews were conducted on a confidential basis. No names or personal details are mentioned in this report.

In order to map the potential interviewees, some investigation was required to understand the existing PMO initiatives and identify the PMO stakeholders.

Figure 3.4 shows the main stakeholders of the PMO according to the project management methodology used in the organisation.
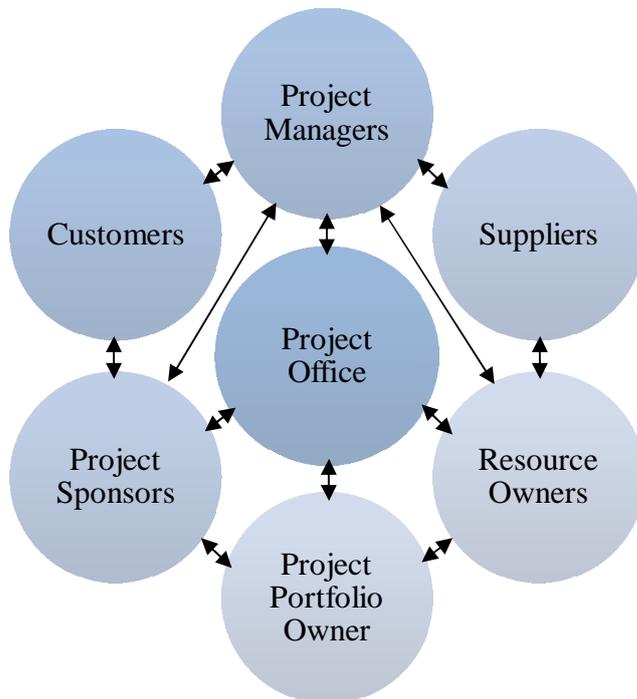

Figure 3.4. PMO stakeholders. (Source: company project management methodology, 2011).

In addition to this, the informants recommended to the researcher to identify an owner for the project management process, and people involved into a recent initiative called project management network (PMN).

The project management process as a part of the general management process is owned by Quality & Environment organisation (Q&E) (see Figure 3.3). Its representatives sometimes have the title of PMO.

It was also found relevant to interview PMN representatives. The network was created for senior project managers across all three business units with purpose to develop project management capability of the organisation.

As it was found during the case study preparation stage, there was no explicit project portfolio owner role (sometimes those responsibilities were taken care of by some other roles). It was also identified that project sponsors' and resource owners' roles are often combined by department managers (due to the functional organisational structure prevailing).

Moreover, some Project Office initiatives with smaller domains were revealed in the lower levels of the organisation.

To summarise, the following PMO stakeholder groups were recognised:

- Process Owners (Q&E/PMO)
- Resource Owners (department managers)
- Project Sponsors (department managers, Q&E/PMO)
- Project Managers
- PMN responsible
- Project Office representatives

Not infrequently one person takes on more than one role.

In order to limit the complexity of the research project, such categories of stakeholders as project team members, customers and suppliers (subcontractors), as well as supportive departments lying out of main business areas (Investor Relations & Public Relations, Purchase & Security, Human Resources, Finance, Legal and IT) were not interviewed. This is not critical as they are not of prime importance in project management environment.

Along with time constraints, the limitations of the study included limited availability of potential interviewees. In addition, there was only one researcher carrying out the study. For those reasons, it was impossible to interview all potential stakeholders. This issue was mollified by using a survey tool intended to cover most stakeholders from 3 of the stakeholders groups (project managers, resource owners, and project sponsors). The survey is described in the following section.

9 face-to face interviews were conducted in total. The roles and positions of the people interviewed are shown in the Figure 3.5.

Yin (2009) recommends to use unstructured or semi-structured interviews in case studies: they must be more "guided conversations rather than structured queries" (p.106). The questions in such type of interviews better suit the respondents; it is easier to identify the important areas that require deeper investigation. In the given case study semi-structured interviews were conducted. Preliminary list of questions was developed (which is provided in the Appendix A), but it was used as a guideline. Open questions were asked first; to facilitate the conversations, probing was used. In case the questions from the list were not relevant for particular interviewees, they were skipped; vice versa, some issues popped up during the interviews and were discussed in more details. This technique allowed using more flexible approach and realisation of the advantage of case study – collecting rich and deep data.
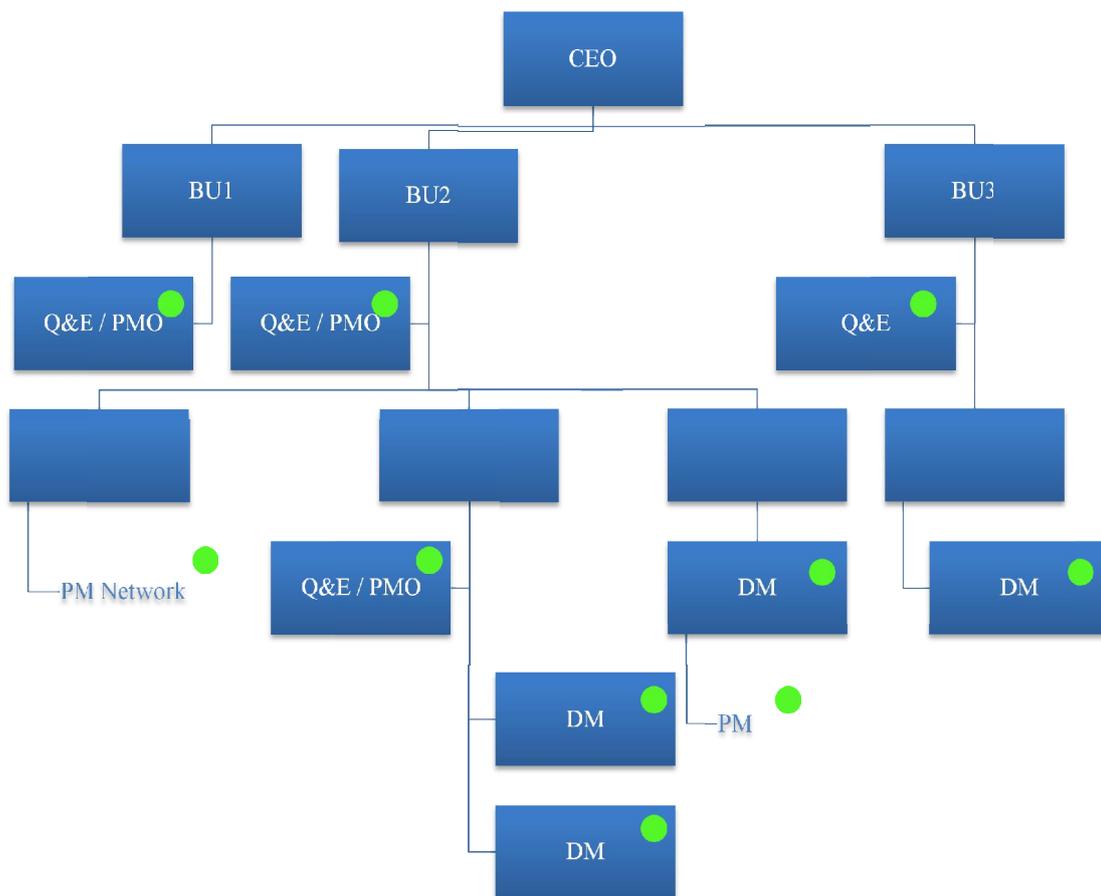
Figure 3.5. Roles and positions of the interviewees.

The list of questions included the following sections:

- information about interviewee's employment background
- information about the business unit
- information about the business unit projects
- historical and current situation about project management capability (maturity) in the business unit
- the current project management performance
- potential benefits and losses from establishment of PMO
- functions that could be potentially performed by the PMO
- characteristics of PMO that would potentially best contribute to the improvement of project management capability in the business unit
- potential challenges for establishment of PMO

The interviews took from 1 to 2 hours. The interviews were held in English; they were audio taped and transcribed.

3.4.2 Survey

The purpose of the survey was to supplement data collected from the other sources. It was aimed to reach 3 stakeholder groups: project managers, resource owners and project sponsors.

The questions were grouped into 5 areas:

- Demographic data
- Project Management Performance
- Organisational Culture
- Project Management Maturity
- The development of PMO

In addition, one open question was suggested in the end prompting to share respondents' thoughts about important topics or to provide feedback on the survey.

The questions of the survey were validated by two project management professionals working in the Project Management department in the case company. The questionnaire can be found in the Appendix B.

The survey was distributed between senior project managers and line managers in all three business units. It was available in the company intranet during 10 days in June 2011. The respondents received the invitation to participate through e-mail; 3 reminders were sent later to boost the response rate.

The total response rate accounted 30% (23% in BU1, 33% in BU2 and 36% in BU3). 37 responses were received in total. The population characteristics are shown in the Figure 3.6.
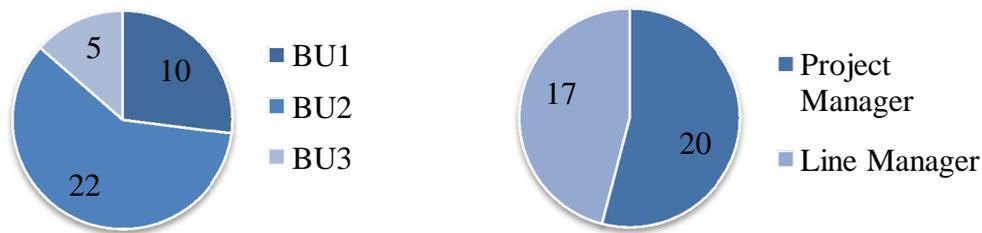

Figure 3.6. The survey population sample.

As can be seen in the Figure 3.7, most project managers participated in the survey had 4 to 10 years of experience.
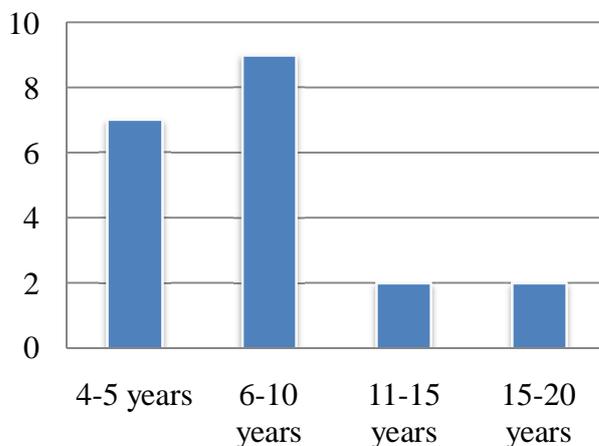

Figure 3.7. Experience of project managers participating in the survey.

3.5 Data analysis

Both inductive and deductive analytical procedures were used in the research.

According to Saunders, Lewis, and Thornhill (2009, p. 490), there is no standardised procedure to analyse qualitative data due to their diverse nature. However, usually 3 processes are applied: summarising, categorisation, and structuring of meanings.

For the survey data analysis, quantitative methods were applied depending on the type of variables (DataStep Development, 2004a; DataStep Development, 2004b).

Mostly the quantitative data served for producing descriptive statistics. Only few statistical dependencies were found; they were not considered significant for the study scope. The amount of the data collected (especially for the case 3) might be considered too small for making solid statistical generalisations. Small population size makes the statistical test insensitive (Saunders, Lewis and Thornhill 2009, p.450).

For identification areas for improvement in project management (based on the survey data), Importance-Performance Analysis was applied (see, for example, Garver, 2003, pp. 456-459). Considering criticism on the classical IPA (Tontini and Picolo, 2010; Bacon, 2003; Garver, 2003), the modified approach was used. It is described more thoroughly in the Section 4.4.2, where its results are also presented.

Data display and analysis was chosen as an analytical procedure. It is inductively based and described in Saunders, Lewis, and Thornhill (2009, p. 503), summarising the work of Miles and Huberman (1994). For this process, three steps are identified: data reduction (with the purpose to transform and condense the data), data display, and drawing and verifying conclusions.

At the end of the data reduction step, the combined data from the company documentation, interview transcripts and descriptive survey data were summarised, partly coded and divided into categories following the conceptual framework of the study (Figure 3.1).

At the data display step, the matrix in a form of comparative table of data corresponding to the three cases was produced. The columns related to business units, and the rows contained categories according to the conceptual framework of the research.

Out of the clearly displayed data conclusions were drawn; they were compared to the existing literature.

<p style="text-align:center">*</p>

The issues of the research quality were addressed the following way. As could be observed from the previous chapter, construct validity was ensured by using multiple sources of evidence, considering the views of different PMO stakeholders groups, discussion and verification of the interim results with key informants. External validity was secured by examining several cases and use of replication logic between the cases. The clear organisation of secondary and primary data and supplementary material in the form of case study database was applied in order to increase reliability of the study.

4 Results and Data Analysis

Further, the researcher will present and discuss the research findings comparing the specificities of the cases and applying existing theories found in the literature. As a conclusion, recommendations will be provided for each of 3 cases how to establish, transform or enhance the existing PMOs and PMO-like initiatives in order to increase value for the organisation.

4.1 Organisational environment

The case study is based on the customer-services company providing engineering services and technology solutions to the external customers. 3 principal business areas are described in the following sections.

4.1.1 Type of business

The organisation is principally divided into 3 business units (BU). The business areas of each unit are summarised in the Table 4.1.

Table 4.1. Type of business in the different cases.

BU1	BU2	BU3
Services to customers in the automotive industry, including design, construction, testing and simulations	Diverse business, including 5 areas: • Software and Hardware Development • Product Development (industrial design, mechanical design, production technology, automation) • Pharmaceuticals / biotechnology and medicine technology • Product Lifecycle Management (PLM) • Project Management (training and consulting)	Information solutions (such as product documentation) throughout the product life cycle for the wide range of customers (energy, construction, medical, telecom, automotive, offshore, defence) Interactive marketing It is less product development than in the other 2 BUs

It is notable that BU2 has the most diverse business.

For each business unit there are a number of competitors on the market.

The company sees the opportunity of cooperation and combining the expertise of separate divisions, departments or business units in order to provide more complex solutions to the customers.

4.1.2 Organisational features

The structure of the whole organisation is shown in the Figure 3.3.

The BUs have further division both by type of the business and by geographical location. See Table 4.2 for more detailed information on BU size and organisational structure.

Table 4.2. Organisational features of different cases.

BU1	BU2	BU3
320-330 people Line organisation Division by products/services	750-800 people Line organisation 5 major functional departments Further division by regions	250-260 people Shift towards matrix organisation (when it comes to projects) Division by regions An independent part doing online marketing

As it was identified during data collection phase, the organisation as a whole is very fragmented. As one of the interviewees informs, "3 different business areas are run as 3 different companies with too little connections in between. The group management, the CEO and his staff are not able to fully bridge between those different business areas. There are historical and political reasons for that". Moreover, each division within business units has its own target for revenues.

The organisational structure is quite complex (especially for BU2, which is the biggest business unit combining many types of industries). It was rather difficult to understand the whole picture because of high diversity; in addition, the organisational charts published in the intranet were not always up-to-date; some of them were not published at all. Apart from division by regions/products/services, there is also division into manageable groups up to 20 people. Department managers own the resources; project managers can be found within most departments.

Observations have shown large power over projects exercised by line managers in BU2. One interviewee mentioned that it was the case in BU3 as well, but they have noticed the difficulties in project delivery: "People… mix up their line position with the project position... and that creates projects that are poorly run, have quite low effectivity". Another interviewee informs: "We have a slight problem with empowering project managers, because historically all business decisions have been made by department managers, which should be the sponsor… You cannot run a project effectively if you don't have a complete responsibility including resources and money." At moment, BU3 tries to deviate from line business when undertaking projects and empower project managers. In BU1, there is a small but active PMO performing on the business unit level, moderating the "line" way of working with projects (for example, previously it was a neutral owner of some cross-functional projects in the BU1).

According to one of the informants, BU1 seems to be historically prioritised and supported by top management.

4.1.3   Organisational culture

As one of the interviewees mentioned, the organisation as a whole experienced quite rapid growth during the 2000s, transforming from a smaller customer-services company into a corporation. This resulted in some lag in development of organisational culture. The initiative of articulation of corporate culture (particularly, identification of corporate values) is rather new (it was started by HR department in 2010).

Some other cultural problems are associated with customer-oriented profile of the company. There is not infrequent when the employees work for the external customers on an ongoing basis; thus, for example, career path is not supported. Personnel have rather weak "company feeling", as many interviewees mention. This is also confirmed by the internal study conducted by HR.

Relevant findings of the cultural study conducted by HR (2010) are the following: the employees lack inspiring leaders, skills development, collaboration between business units, and commitment through common objectives.

Some of the characteristics of organisational culture identified by the survey are presented in the Table 4.3.

Table 4.3. Organisational culture of different cases.

	BU1	**BU2**	**BU3**
Main values	Customer satisfaction	Profitability	Customer satisfaction and Professionalism
Result or Process	Result-oriented	Result-oriented	Result-oriented
Control from the top	Considerable	Some	Some
Development pace	Rather slow/average	Average	Controversial result
Importance of personal relationship in business	Considerable	Considerable	Considerable

In total, top values proved to be *profitability* and *customer satisfaction* with half of the respondents mentioning them as business unit priorities (see Figure 4.1). However, the prioritised values within business units differ (see Table 4.3).

The high focus on customer satisfaction is not surprising for a customer services organisation. However, importance of profitability (moreover, in combination with result-orientation) reveals potential challenge of PMO to show value for investment.
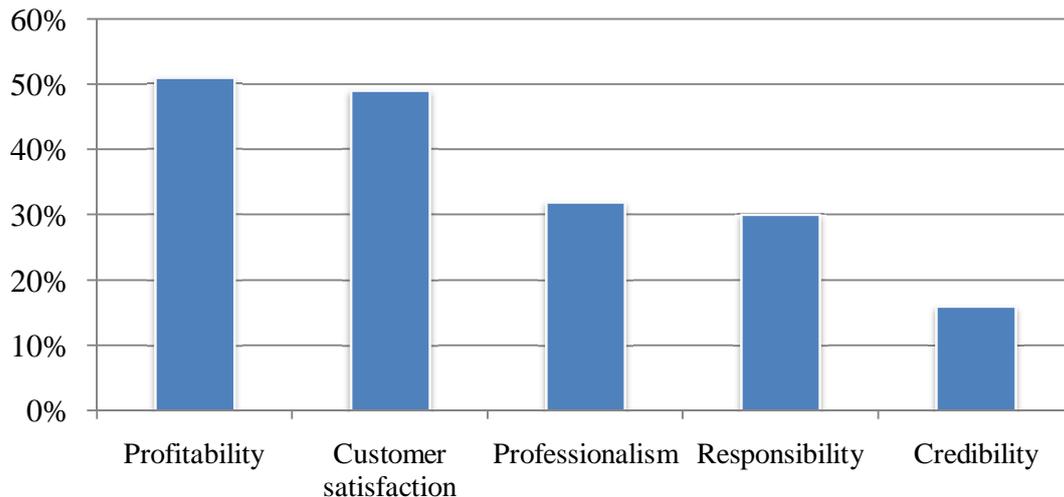
Figure 4.1. Organisational values of the case company.

The focus on profitability in the BU2 is recognised and criticised by some interviewees: "The culture in [the company] is based on this sales-driven environment… This means that if you put a lot of energy in that activity, it might be that the delivery of what you are selling, for example, projects, will be second thing to think about." A survey respondent suggests to "establish a mind set of "customer first', not "profit first" as one of the means to improve project management capability in the organisation.

The survey results show moderate control from the top in the organisation, which is slightly higher in BU1 (see Figure 4.2). In average, project managers feel less control from the top comparing to line managers, which could be explained by the prevailing line structure of the organisation. "I think it's a very flexible company, you can work with high level of your own responsibility", informs one of the interviewees.
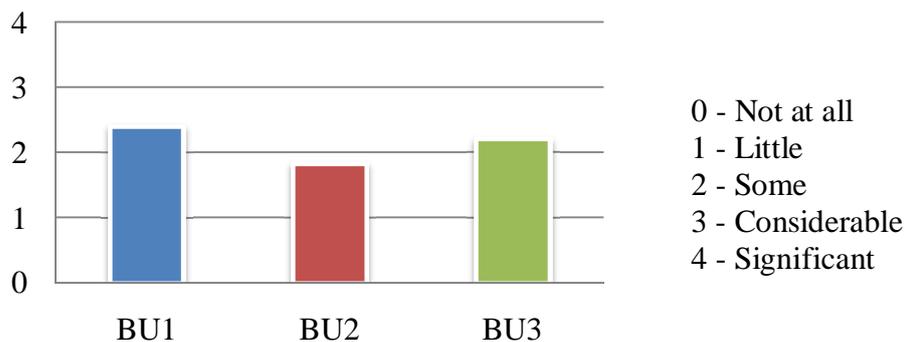
Figure 4.2. Control from the top in different cases.

The survey also attempted to measure resistance to change in the organisation. Most of the respondents chose the option "I accept change moderately easily"; however, this result could be a subject to bias and is ignored. According to one of the interviewees, managers do resist changes, while the non-senior personnel accept them more easily.

In addition, in the survey there was a try to measure leadership in the organisation by suggesting to assess the leadership ability of the respondent's closest superior manager. However, the number of answers was considered too small to draw conclusions.

4.2 Project business

Projects are not the essential way of running business in the company. Along with projects, there are direct services (when the resources are sold to the customers for performing everyday activities and are paid by man-hours), satellites (customer-managed projects with company resources), and managed services (when customers outsource some parts of their business to the company).

Some statistical information about projects run in each BU is given in the Table 4.4 (it is based both on interviews and survey findings).

Table 4.4. Characteristics of project business of different cases.

	BU1	**BU2**	**BU3**
Projects part of business	~30-40%	~ 30%	~ 30%
Project length	3 months – 2 years	1month – 2 years	1 – 2.5 months
Project budget	0.5M - 10M SEK	0.5M - 10M SEK	0.15M - 1M SEK
Part of development and research projects	30-40%	30-40%	30%
Project management capability	Rather high	Average	Rather low
Project management performance (ranged from highest to lowest performance rate)	*Customer Satisfaction* *Quality* Time Scope *Cost*	*Quality* *Customer Satisfaction* Scope *Cost* Time	*Customer Satisfaction, Quality* Time Scope *Cost*

As can be seen from the table, project delivery is secondary for all the BUs. When unable to engage resources into projects, direct services are provided to the customers (which are easier to arrange, less risky, but do not bring about certain advantages that projects do). However, most of the interviewees agreed that project part of business is favourable to grow for several reasons:

- Higher profits. Given the projects are completed successfully, it is an opportunity to enjoy larger margins
- Effective use of resources. Working in projects, there is a possibility to create teams with different level of experience, and provide the people with opportunities to learn

- Meet customer demands and stay competitive. The company has to offer projects to be able to compete with other companies, as certain customers prefer to get the delivery of bigger and more complex parts of business through a single contact point

Moreover, top management of the company is also supportive to the project business. Increase of the project delivery is a part of the company strategy.

In spite of advantages of projects, the organisation does not aim to deliver 100% of in-house projects (meaning customer-ordered projects using internal resources and managed by the company). Direct services are necessary to satisfy customer needs; in addition, having personnel in the customer organisations prompts communication and finding of new business opportunities.

Comparing the typical projects in different business units, it is evident that BU3 projects are shorter and involve less monetary turnover (being rather different from the projects of BU1 and BU2).

The minor part of projects is related to development and research; the major part repeats the known patterns. While the percentages are nearly the same, all the informants agree that there are less development projects in the BU3; probably, they also consider scale and complexity.

Liu and Yetton (2007) claim that when the projects repeat the known patterns (in the low task uncertainty environments) project reviews facilitate project performance, the role of PMO being supportive and less significant. In high uncertainty environments (such as research and development projects) the role of PMO becomes crucial for coordination of organisational resources.

Project management capability in the business unit is assessed as perceived maturity of the business units by the interviewees. Besides, the analysis of the survey data related to improvement of project management related responsibilities showed only few areas for improvement in the BU1, average number in the BU2, and larger number in the BU3 (see the Section 4.4.2, Figures 4.3, 4.4, 4.5), which is consistent with the subjective assessments given by the interviewees.

It is visible that perceived project management capability is higher in the BU1; it should be noted that it is the only one with PMO on a business unit level functioning relatively long (see the Section 4.3). BU2 representatives say to be rather mature managing smaller projects, but certain problems arise while managing larger projects. "We are more successful in managing smaller projects, run within one department and economically set up. We are less successful with larger and fixed price projects," sais a department manager from the BU2. BU3 is rather different from the other BUs as its business implies undertaking of smaller and less complex projects. People often mix up the notions of projects and assignments (the latter do not require the coordination of numerous activities, as the former do). The self-assessment of BU3 in project management capability is rather low.

All BUs are more successful in projects quality and customer satisfaction, while they are not so satisfied with project costs. This fact could be related to the point that profitability is the main measure of success in the company, and managers are not fully satisfied with the profits gained.

As investigation has shown, most difficulties in running projects arise when several departments and/or business units are involved. When this issue was identified, it was discussed during the interviews in more details (see the Section 4.4.1).

4.2.1 Common project management methodology

In August 2010 top management prescribed to use common project management methodology throughout the company (the similar version of it was implemented earlier). The company PM methodology is a product developed by Project Management department in the BU2.

The interviewees see the advantages of using the common PM methodology such as use of the same terminology (and "speaking the same language"), common understanding of project processes, that ensures flexibility of the personnel (for example, when the project resources have to be switched); and easy access to the project information.

Criticism to the PM methodology could be that it was designed for the organisations with internal, in-house projects, rather than dealing with external customers; thus, it requires some modifications. The trainings on the methodology are not free of charge.

Some interviewees mentioned less commitment to the PM methodology in their domains.

Interviewees in all 3 BUs agree that the methodology is rather general and has to be applied to a particular product development process to be usable and beneficial. For example, BU3 mentioned that if it is applied to smaller projects (which prevail in the business unit), a lot of time is being spent for project administration. So-called PM matrix was suggested to project managers, which determines what parts of the methodology are to be applied depending on project size and complexity.

Talking about project control, milestones and tollgates in the PM methodology have to be linked to those of the customer projects.

Different applications are being developed for different industries (including adjustment of processes, tools and templates). This work is ongoing. Neither of the departments (as indicated by the survey) considers it as an area for improvement. Nevertheless, project managers from BU1 seek for external support in managing the PM methodology and process, and BU2 expect support in provision tools and templates for project management.

4.3 Existing PMOs and PMO-like initiatives

PMO initiatives existing in the company were mentioned in the Section 3.4.1 where the stakeholder identification process is described. To remind, PMO roles are spread over the organisation and have different forms. Below the reader will find the description of PMO initiatives in each business unit.

BU1: there is rather well-functioning PMO on the business unit level with extensive experience. The PMO exists since 2002; in 2007 it has been extended over the regions but centralised in Sweden. In 2010, both due to economical downturn and increase in capacity of the regions, the PMO was detached into regional Project Organisations. The Swedish PMO is staffed with only one person (also taking on Q&E manager

responsibilities). The PMO took care of larger, cross-functional projects (including ownership). At moment some of historically performed responsibilities of PMO were terminated, but will be recommenced in the future. No organisational change is planned; the existing PMO has clear plans for the future.

BU2: the PMO is declared but is rather new and not so mature. Quality and Environment manager and PMO roles are usually embraced by one person; they are both on business unit and department levels. There is a need to clarify the role and responsibilities of PMO in order to improve project management capability in the organisation: "We must establish a culture, or an organisational platform that can support the projects in a correct way by manning up from the line organisation." This work is ongoing (particularly, the given research will contribute into it). The purpose is to create the platform for effective project delivery. Certain problems exist with project management maturity.

In addition, lower in the organisational chart there is a division comprising several professional project managers (established in 2010); the purpose of this department is to provide project management services internally, across the business units, and to external customers. However, the performance of this department in the company does not seem to be visible. Possible reasons for it will be discussed in the Section 4.6.1.

As already mentioned before, one of the five major departments in the BU2 deals with project management; this might be confused with PMO. To clarify, the business of this department is mostly developing and selling the product (project management methodology) and associated services (such as training and consulting). It is oriented to external customers mostly (while the services could be purchased internally as well).

BU3: there is a role of Q&E manager, but no PMO role exists. There is an ongoing initiative of establishing a Project Office on a department level. The objectives and implementation strategy were being defined when the data were collected.

In addition, the PMOs in BU1 and BU2 made step to the organisational level establishing an organisation-wide initiative (*PMN*) earlier in 2011. The network was created for senior project managers across all three business units with purpose to develop project management capacity of the organisation by professional development of project managers (such as experience exchange, competences development, career path building) and promotion of project culture. The criticism of the network relates to high costs of membership and no visible results (possibly due to short period of performing). According to some interviewees, more inspiring leadership must be in place to assure the success of the initiative. In addition, BU3 consider experience exchange based on whole company not applicable to their business (due to smaller size and complexity of projects, and small number of experienced project managers). It is notable that in the BU1 similar network existed before the recent financial downturn.

Probably, there are more project offices lower in the organisational hierarchy dealing with individual projects administration; informal professional networks might exist as well. Due to the smaller scale and influence domain, they are not in the scope of the given research.

For the responsibilities currently carried out by PMOs and similar initiatives, see Table 4.5 ("Currently performed" column for each business unit). The abbreviations in the cells of those columns mean which role is responsible for each function (BU Q&E

- Quality and Environment manager on the business unit level; BU PMO - PMO on the business unit level; D Q&E - Department Q&E/PMO manager; DM - Department Manager; DPO - Project Offices in some departments; PMN - Project Management Network). Possibly, this information is not exhaustive due to the study limitations, but the main focus of the research is the target project management situation.

Table 4.5. Project management related responsibilities: currently performed, needed to be improved and demanding support.

		BU1			BU2			BU3		
		Currently performed	Needs to be improved	Demands Support	Currently performed	Needs to be improved	Demands Support	Currently performed	Needs to be improved	Demands Support
Area I. Project Reporting and Performance Control										
R1	Report project status to upper management	BU PMO		**5**	BU PMO		13			
R2	Monitoring and control of project performance	BU PMO, DM	**3**	6	BU PMO, D Q&E, DM		19	DM	16	
R3	Conduct project audits	BU PMO, DM	**4**	7	BU PMO, DM		11	DM	8	
Area II. Development of Project Management Competencies and Methodologies										
R1	Develop, implement and manage a standard project management methodology and processes	BU Q&E		**1**	BU Q&E, D Q&E			BU Q&E		

R2	Provide a set of tools and templates for project management	BU Q&E			BU Q&E, D Q&E		14			
R3	Promote project culture within the business unit	PMN		10	PMN	7	**2**		6	**4**
R4	Project-related coaching, training, mentoring, and competence development for the company personnel (including managers)			8		**2**	**5**		10	**1**
R5	Training, certification, consulting, mentoring, and competence development for project managers	PMN		**2**	DPO, D Q&E, PMN	**4**	**1**	DPO, DM	12	**5**
Area III. Organisational Learning and Project Knowledge Management										
R1	Manage archives of project documentation		**1**	11		**5**	**3**		**4**	**2**
R2	Conduct post-project reviews					3	6		**5**	
R3	Share project knowledge	PMN		**3**	D Q&E, PMN	1	**4**		13	
R4	Manage a database of lessons learned		**2**		D Q&E	8	8		**3**	**3**
R5	Manage a risk database					6	16		9	6
Area IV. Multi-Project Management										
R1	Coordinating communication across projects					11			21	

R2	Identify, select, and prioritise new projects				9	18			
R3	Project portfolio management	BU PMO			14	9	DM	17	
R4	Allocate resources between projects				10	15		18	
Area V. Execute Specialised Tasks while working with projects									
R1	Sales process	BU PMO, DM	**4**	DM			DM	19	
R2	Managing customer interfaces	BU PMO		DM			DM		
R3	Project planning	DM		DM				11	
R4	Project budgeting	BU PMO, DM	9	BU PMO, DM		10		**1**	
R5	Performing risk assessments and calculations	DM	12	BU PMO	13	12		**2**	
R6	Project staffing (including project managers)	BU PMO, DM		DPO, DM	12	7	DM	14	
R7	Project administration							15	
R8	Communication facilitation and consulting	BU PMO		DM				20	
R9	Quality assurance of projects					17		7	7

4.4 Challenges of project management

The challenges of existing practices in project management are drawn both from interviews and survey material.

4.4.1 Cross-department projects

Most informative discussions about cross-department projects took place in BU2 and BU3, both of them identifying a number of difficulties undertaking them.

Representatives of BU2 mentioned some potential benefits of cross-department projects:

- Increase competitive advantage and satisfy customer needs (by providing more complex solutions and using combined expertise)
- Spread knowledge and develop expertise
- Opportunity for better profits (for some!)
- Reduce the risk of one department
- Support for project sponsor in managing resources, deliverables, quality and financials (for the reason that often a panel of department managers from the involved departments is formed to steer the project).

Interviewees from BU3 mentioned just the first advantage. In addition to this, cooperation with departments helps to reduce project costs while working over the country boundaries.

It is worthy to mention that the last 3 advantages are not obvious and depend on the circumstances and particular ways to manage the project, as it is no guidelines or regulations on it. Ad hoc approach is used to manage cross-department projects.

Cross-department projects can be initiated by any department that found the business opportunity. Further, if the necessary resources and competences cannot be ensured by one department, it either sells a part of the project as fixed-price to another department (with the adhering risks), or buys the resources and owns the risk itself. Since the process depends greatly on the negotiations outcome between the customer, owning department and other departments involved, the questions arise:

- Who is the project owner?
- Who is the customer interface? (Who should be the point of contact, which application of the company project management methodology to use? Trust from the customer is often built upon personal relationship and is hardly transferable)
- How to share the risks?
- How to share the profit?

This uncertainty leads to some challenges related to the cross-department projects. BU2 interviewees mentioned the following:

- Risks increase as more parties are involved
- Part-time resource allocation. Project manager seeks to decrease the cost of the project; resource owner aims to provide full utilisation of resources (thus, switch the resources to the other, more stable types of business)
- Communication problems can arise if the departments did not work together before and/or lack understanding of each other's businesses

- The economical set-up is controversial (revenue/turnover ratio is assessed, cooperation is not rewarded), decreasing the motivation of some managers to work across departments. Nevertheless, this internal competition could be perceived as positive encouraging departments being proactive in doing business and finding new customers

BU3 representatives mentioned that there is more difficult to cope with cross-BU projects. It is easier to reach common understanding within the BU: firstly, some regulations are being set up (e.g., for resource allocation), secondly, in conflict situations upper management helps to make the decision.

As a conclusion (mostly related to BU2), there could be political reasons for absence of common rules and regulations on cross-department projects delivery. Some departments sounded positively for this fact interpreting it as an opportunity for higher profits in case of successful negotiations (remember that profitability is the number one value for this BU, and individual profitability targets for the departments). Others notify of more challenging environment for those projects and poorer performance.

To verify this finding from the interviews, further in the survey project managers were asked to assess project management performance of their last completed project that could fall to one of the categories: "One department involved" or "Several departments involved". However, independent samples T-test did not show any significant differences. Probably, this was because of small number of projects (13 in total) and/or possible bias of self-assessment.

In the BU1 cross-department projects were taken care of by PMO; no particular difficulties were mentioned during the interview (the vulnerability is that the other points of view were not examined).

The survey confirmed that cross-department projects are the area to be potentially handled by PMO (see the Section 4.6.1).

4.4.2 Areas for project management improvement

The areas for project management improvement were identified by analysis of the survey data. The following approach was used.

For each project management related responsibility (see Table 2.2) the respondents assessed:

- the current level of the responsibility fulfilment
- the desired level of the responsibility fulfilment
- the level of support needed by the respondent in the responsibility fulfilment (used to identify areas demanding support, see Section 4.6.2)

The following scale was applied: 1-Low, 2-Rather low, 3-Average, 4- Rather high, 5-High, "N/A" was treated as missing value.

Further, Importance-Performance Analysis (IPA) was applied to those data. However, considering problems of the classical approach, such as identification (and reliability) of importance measure; neglecting of possible interdependency of importance and performance; implication of linear dependency between performance and satisfaction (Tontini and Picolo, 2010, pp. 568-570), modifications were done. Garver (2003)

suggests that some best practice firms use relative instead of actual performance measure, for example, gap analysis or performance ratio. Either actual performance of the best competitor or satisfaction goals can be used as the standard. Similar approach was used in this study. Desired level of responsibility fulfilment was interpreted as *importance* measure, and the gap between desired and actual levels served as measure of relative *performance* improvement according to internal goals. The high values of the product of importance and performance gap tell that the responsibility needs to be fulfilled better. The threshold values for importance and significant difference in performance were chosen arbitrary (average values for each attribute: 3 for importance, and 1 for performance gap).

The results are illustrated in the form of scatter charts for each business unit separately (see Figures 4.3, 4.4, 4.5).

The different markers represent responsibilities belonging to different responsibility areas. Markers lying to the left of the border line (in the blue area) are interpreted as healthy responsibilities perceived as well-fulfilled or not important (product below the threshold). Markers to the right of the border line (in the red area) show the responsibilities that require attention to be paid. The responsibilities which need to be improved are marked with their codes on the scatter charts (for the reference, see Table 2.2).

This information is also reflected in the Table 4.5 (columns "Needs to be improved"). The numbers in the cells signify the priority of the need for responsibility improvement (1 being the highest).
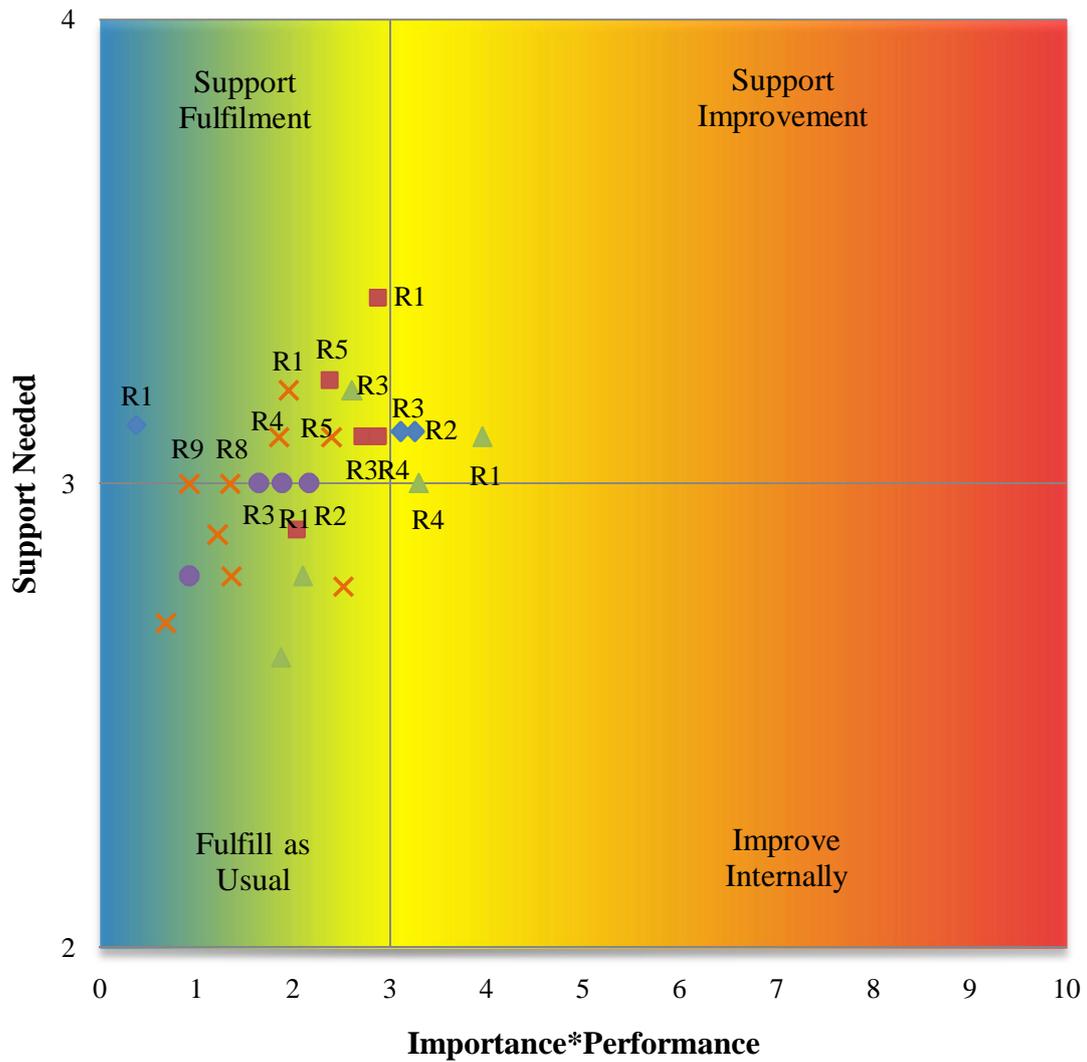
◆ A I. Project Reporting and Performance Control

■ A II. Development of Project Management Competencies and Methodologies

▲ A III. Organisational Learning and Project Knowledge Management

● A IV. Multi-Project Management

✕ A V. Execute Specialised Tasks while Working with Projects

*Figure 4.3. Areas for project management improvement and support in the case 1.*
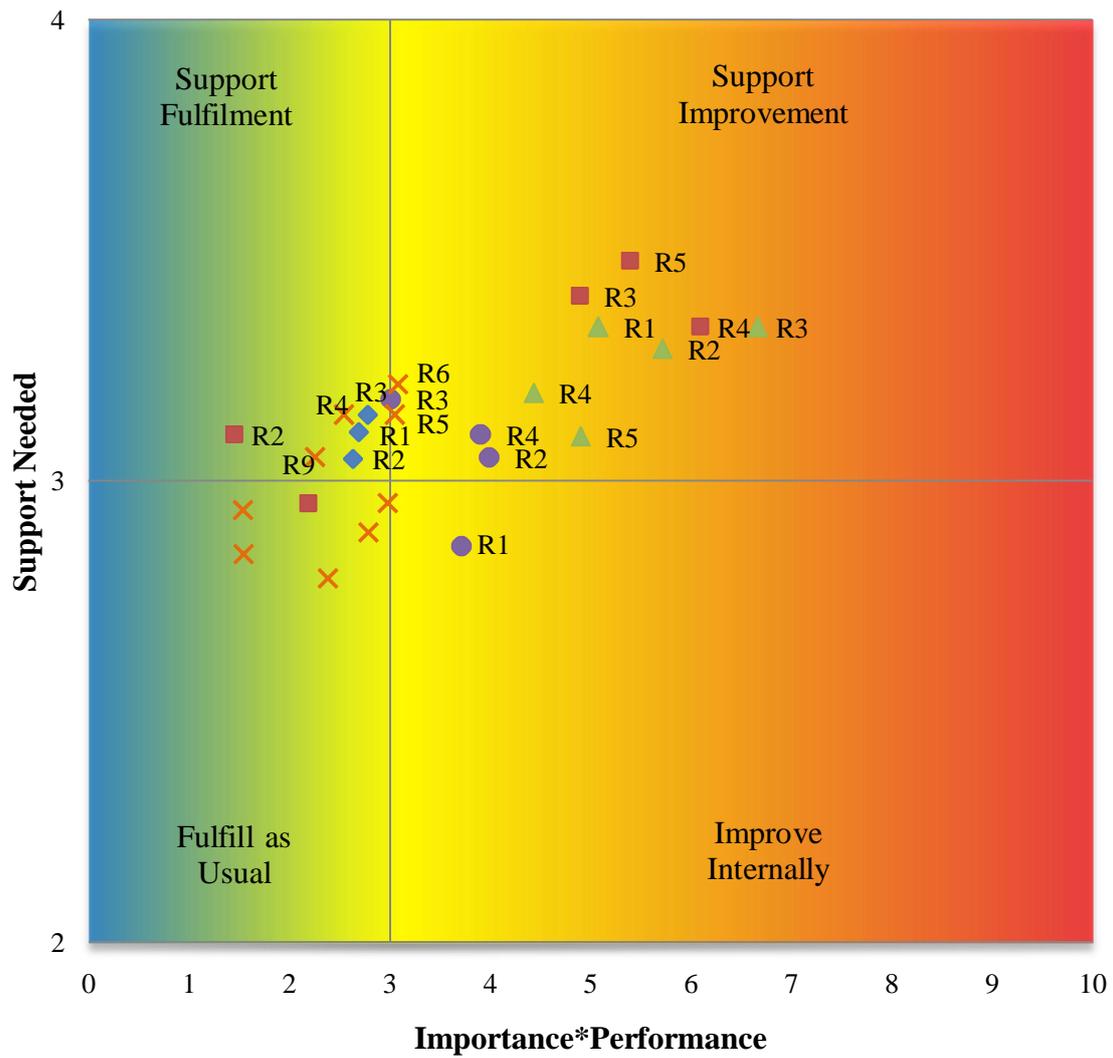
◆ A I. Project Reporting and Performance Control

■ A II. Development of Project Management Competencies and Methodologies

▲ A III. Organisational Learning and Project Knowledge Management

● A IV. Multi-Project Management

✕ A V. Execute Specialised Tasks while Working with Projects

Figure 4.4. Areas for project management improvement and support in the case 2.
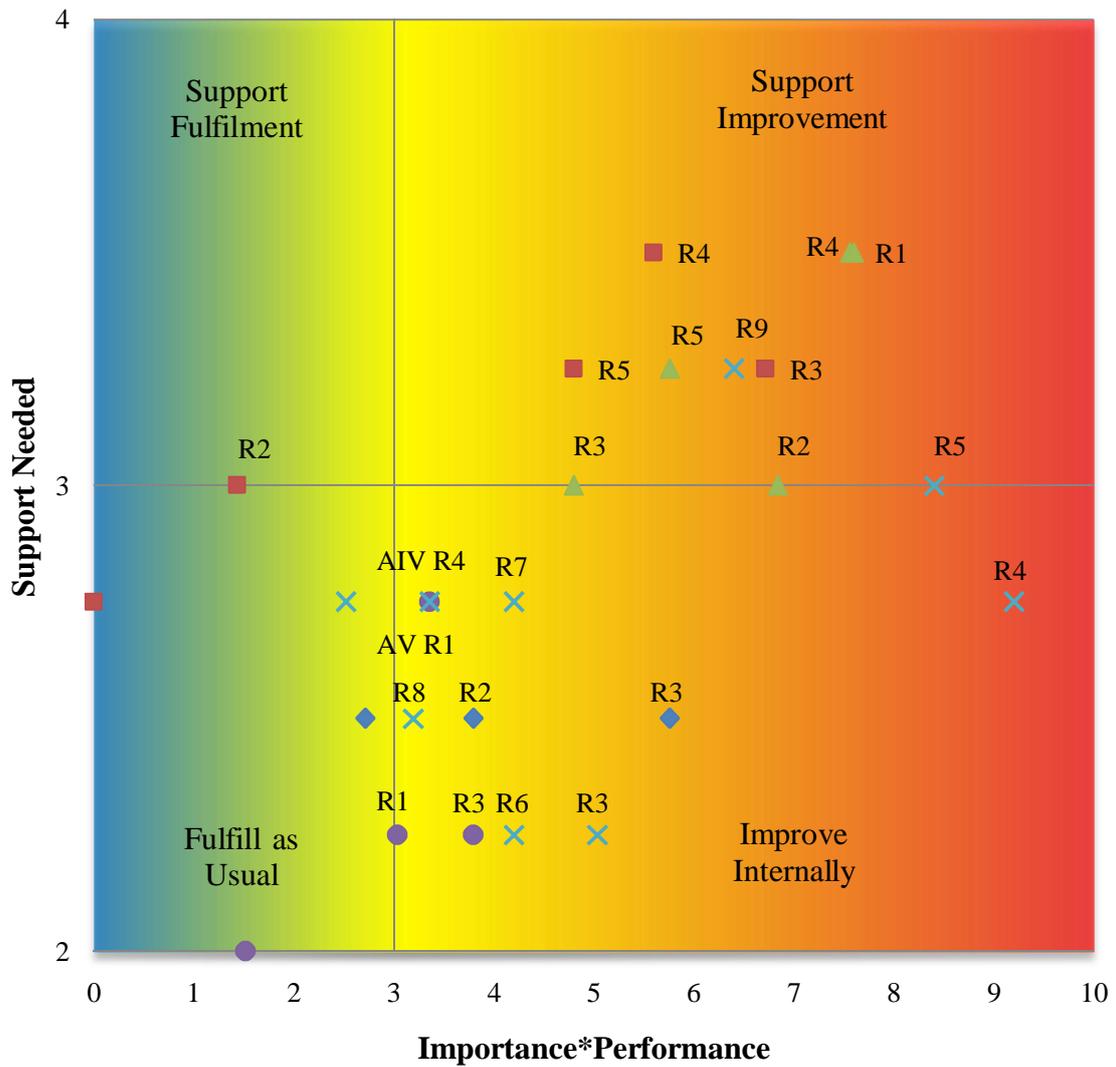
Figure 4.5. Areas for project management improvement and support in the case 3.

To comment the Figures 4.3, 4.4, 4.5, it is notable that there are relatively few areas for improvement in the BU1 with most responsibilities perceived as healthy. In the BU2 managers evaluated project management maturity more critically and identified more issues to be considered. There is even larger number of responsibilities for improvement in the BU3. More spread distribution of the responsibilities could be due to the small number of respondents.

It can be observed that *Organisational Learning and Project Knowledge Management* is perceived as a potential area for improvement in all 3 business units.

Apart of it, in the **BU1** monitoring and control of project performance are expected to be improved. Interesting that this finding underpins the statement of the PMO responsible about temporarily freezing of projects supervision which took place before. The plan is to restart this activity: identify project portfolio and categorise projects, and apply the right methods to guide the project managers.

In the **BU2**, promotion of project culture and competencies development are recognised to require improvement. In addition, interviewees identified the problems related to resources availability (since there is no continuity of the projects, competences are sold as direct services), estimation of time/cost/resources required for the projects (which is difficult and may cause poor profits), and importance of using a good risk management approach.

In the **BU3**, additional areas for improvement are promotion of project culture and competencies development (same as in the BU2), plus some operational-level tasks (such as project budgeting, quality assurance, and risk assessment). This supports the idea of establishment of a simple, first-stage (according to Hill, 2004) project office which is an ongoing initiative in one of the departments. Besides, the interviewees stress the importance of distinguishing between projects and line assignments, empowering project managers to take on business decisions, and generation of examples of good projects that would facilitate the possibility to learn (coming back to the areas identified in the survey).

In addition, some findings of the cultural survey done by HR (2010) still seem to be relevant. In order to improve company performance, its respondents suggested change of the sales organisation to avoid internal competition; ensuring skill-set and organisational pre-requisites to handle projects; and support functions focusing more on business needs.

4.5 Value of project management

As many researchers suggest, PMOs are considered successful and reasonable in case if they add value in the organisations. Further potential value of project management is discussed for each of 3 cases based on the interview findings as well as survey results. Particularly, the researcher considered those areas of project management related responsibilities with high desired level of the responsibility fulfilment, interpreted as importance of the responsibilities.

To describe the value of project management for the organisation, enterprise-related part of the framework suggested by Zhai, Xin, and Cheng (2009) was adjusted to the case. Based on the research data, the potential (or expected) value provided by PMO is the following (see Figure 4.6).
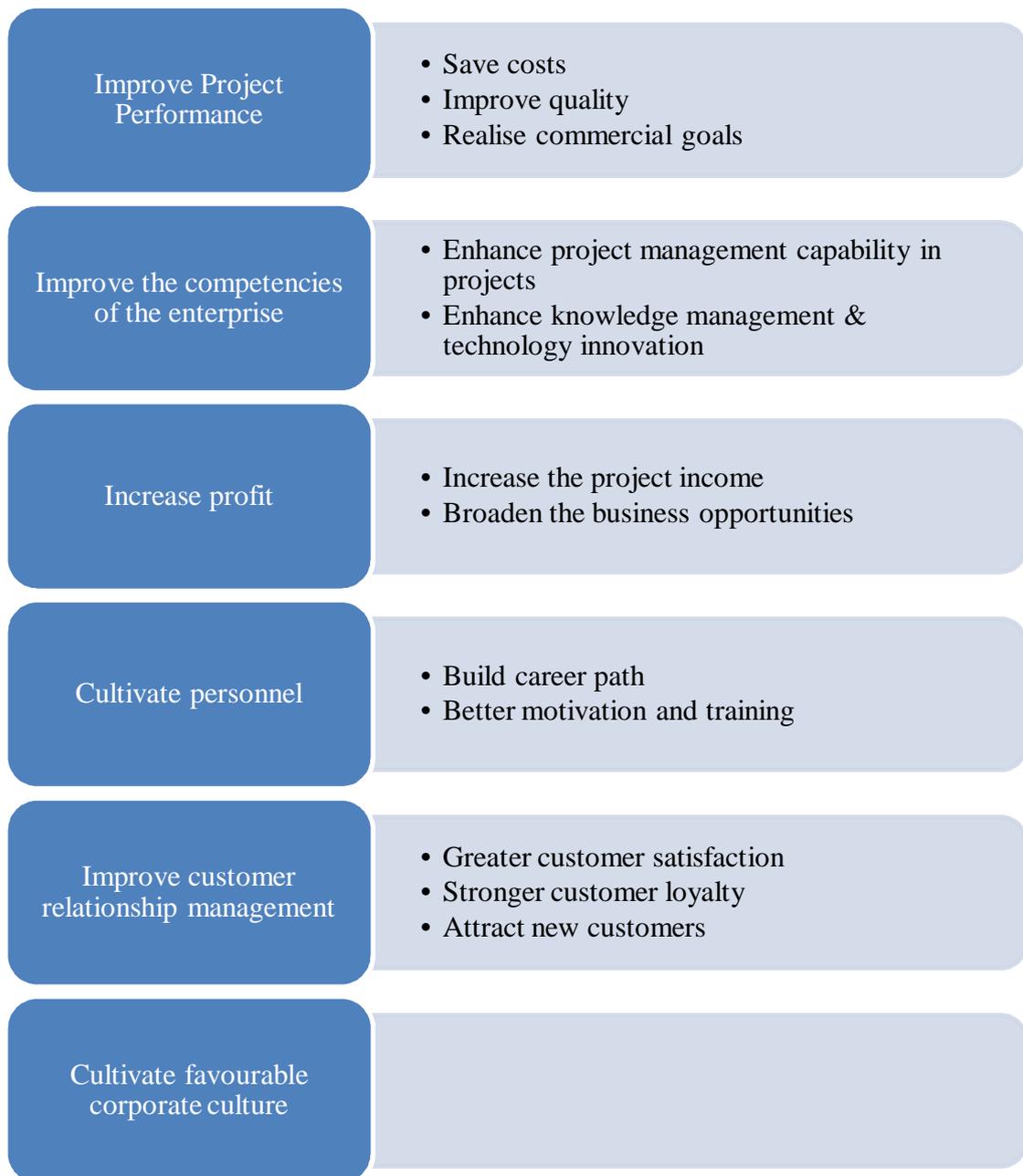
Figure 4.6. Project management value framework.

Further, the evidence is provided to support the values identified.

Improve Project Performance

This value is associated with Area V ("Execute specialised tasks while working with projects") of the responsibilities framework (see Table 2.2).

Specifically, BU3 interviewees mentioned the benefits they expect after establishment of a project office: control resources; improve sales-to-delivery and delivery-to-sales processes (i.e., create and stick to project specifications); structured, well-defined and documented way of working. In the BU2, the interviewees mentioned that the need for high project performance is self-evident. In all 3 business units a number of responsibilities from Area V ("Execute specialised tasks while working with

projects") are rated highest in terms of desired quality of fulfilment, meaning that high project performance is greatly appreciated.

Improve the competencies of the enterprise

Enhance project management capability in projects is associated with Area II ("Development of project management competencies and methodologies").

Interviewees in all three business units mentioned reinforcement of organisation project management capability as a goal: increase project management expertise (BU3); improve delivery of bigger projects (for example, through hiring more experienced project managers), use project management methodology and tools more efficiently (including development of industry-specific applications) (BU2). BU1 named improvement and refinement of the project management processes, and preparation of project managers with leadership and administrative skills prevailing over technical skills (more appropriate for bigger projects) as a future task. The establishment of PMN also reflects prioritisation of project management capability improvement.

Moreover, according to the survey, the responsibilities from Area II can be found at the top of the importance list in BU2 and BU3.

It is noteworthy that Zhai, Xin, and Cheng (2009) included enhancing project portfolio management in this part of the value framework. However, this study did not show that portfolio management is prioritised in the case organisation (only resource allocation between the projects is highly assessed by the BU2 and BU3 survey respondents). This can be partly explained by the researchers' focus on mega-projects while smaller projects prevail in the case company. Another reason can be customer-oriented and sales-driven environment, as one of the interviewees in the BU3 notifies: "We are not so much developing things, we are more performing things for the customers, and the project portfolio owner cannot terminate projects: that's up to the customer to do." This probably applies to all business units to some extent. Another quotation from the BU2 representative demonstrating company willingness to satisfy customer needs: "When I have a question from the customer: "Could you solve this for me? I want a delivery like this." – "Yes, I can do that", I always say."

Enhance knowledge management and technology innovation relates to the Area III ("Organisational learning and project knowledge management"). As survey showed, in each business unit there is one responsibility from Area III with a high importance rate. Improvement of the knowledge spread within the organisation as a benefit was also mentioned by the interviewees.

Increase profitability

This is probably the ultimate goal of the company and was mentioned by nearly all interviewees. For example, BU1 expects to increase the portion of projects and satellites; BU2 aims to deliver more in-house/fixed-price/cross-department projects; and BU3 wish to raise the portion of projects and managed services, as forms of business providing opportunities to increase profits. The extension of the offered solutions for the customers through combined expertise and in the form of bigger projects is also a goal.

Cultivate the personnel

Increasing the attractiveness of the company as an employer is one of the strategic objectives of the company. As an example, building career path (for project managers

as well as for other personnel) was mentioned as a desired change by the interviewees in all three business units. The desire to provide professional trainings and development of existing project managers, increasing their leadership and administrative skills were articulated in the interviews in the BU1 and BU3. Responsibilities AII R4 and R5 (training, mentoring, coaching, and competence development of project managers and project-related staff) have the highest importance in the BU2 (according to the survey results).

Establishment of PMN is a step to invest into the project management personnel.

Improve customer relationship management

Customer satisfaction proved to be the major organisational value (see Figure 4.1). Moreover, in the interviews ideas of creation a portfolio of successful projects aiming to make customers trust to buy larger and more complex solutions, and attraction of new customers were expressed in the BU2 and BU3. In the BU3 future vision includes augmentation of the number of development projects for better competitiveness.

Cultivate favourable corporate culture

Promotion of organisational culture and better motivation of personnel was mentioned in the BU1, BU2 and BU3.

As a remark, the values mentioned in the framework do not seem to be independent; improvement in one part potentially encourages the growth in another parts (for example, cultivation of the personnel facilitates development of the organisational competencies, which in turn helps to increase project management performance and improves profits). Enterprise value contributes to value creation for shareholders, customers and employees and thus leads to the company goal.

4.6 Suggestions for PMO development

The next two sections describe possible changes in order to improve the existing PMO initiatives based on interviews and survey findings.

4.6.1 Implementation of PMO

To remind, the following aspects of the PMO implementation are considered:

- What types of projects is it responsible for?
- How much decision-making authority it has?
- Where in the organisation is it located?
- Is the entity distributed over the organisation or grouped in one unit?
- PMO staff (are the project managers included?)

The survey included some questions related to the way of how potential PMO should be organised. Also, the information from the interviews was used; as a result, the comparative table summarising the ideas for future PMO implementation is provided below (Table 4.6).

Types of projects under PMO mandate

As could be observed from the table, all the respondents agree that PMO could take care of cross-department projects (90% of the survey respondents in BU1, 64% in BU2, and 60% in BU3 chose this alternative). Moreover, 80% and 50% of the

respondents in the BU1 and BU2 respectively also consider strategically important projects as the area of PMO responsibility.

Table 4.6. Informants' suggestions for PMO implementations.

	BU1	**BU2**	**BU3**
Type of Projects	Cross-department Strategically important Large	Cross-department Strategically important	Cross-department
Decision-Making Authority	Survey: Some	Survey: Some; Considerable	Survey: Some; Considerable
Responsibility Level	Survey: The whole organisation; BU	Survey: The whole organisation; BU; Department	Survey: BU
	Interviews: BU level	Interviews: no common opinion	Interviews: Department level In case of many and/or complex projects running, go up to the BU level
PMO Organisation and Personnel	Small organisation PMs should not be included (as at the moment PMs are mostly technicians)	Options: Small organisation (PMs not included) Self-standing, separate group (PMs included) Temporary/virtual organisation	Small organisation; could include part-time resources

PMO decision-making authority

Regarding decision-making authority, BU2 and BU3 survey respondents consider that PMO needs to have more decision-making authority over projects ("some" and "considerable" being the most popular answers). In the BU1 the mean value of suggested decision making authority is less than average, the mode value still being "some" (or average).

As an example of explanation of lower values, one interviewee from BU2 remarks that power and authority are not as crucial the internal motivation for cooperation: "You could keep the mandate or the profit in the department still, but you have to ask these department leaders to cooperate. I think they will if they understand how they should and they see the benefit to do it." Another reason could be the issue of power distribution between the project manager, line manager and PMO.

In the BU3 the long-term vision is to appoint a portfolio owner that would have the budget for development projects and rather much authority.

The literature suggests that organisations adapt different levels of PMO authority. Andersen, Henriksen, and Aarseth (2007) state that assuring higher authority leads to PMO success; also Hobbs and Aubry (2008) found positive correlation of PMO decision-making authority with supportiveness of organisational culture and organisational project management maturity; they found also that traditional PMOs (with high authority) tend to be more effective. At the same time, if PMO takes away some power from line managers, tensions are likely to arise.

One survey respondent from BU1 suggests that approaches to handle projects by PMO must be adjusted to the size and complexity of the projects. Another BU1 survey participant supports this idea emphasising viability of the current organisation: "if PMs are spread over and employed at different [divisions], the PMO would be perhaps involved only in the biggest projects but also support the PMs in smaller projects." Since this scheme shows to be quite efficient, possibly, it could be adopted in BU2 and BU3.

PMO responsibility domain

It is notable that BU1 and BU2 survey respondents expressed the strongest wish for a PMO on the organisational level (see also Figure 4.7). This reflects the challenge of dealing with cross-department projects (the contribution of the variable corresponding to this type of projects was found statistically significant in the linear regression analysis).

However, the discussions during the interviews showed different preferences: mostly, they concerned PMO on the business unit level. One of the challenges for an organisational-wide PMO is separation of the business units: "It is very fragmented company, which means that it's quite difficult to align people, managers in different branches around one way of working."
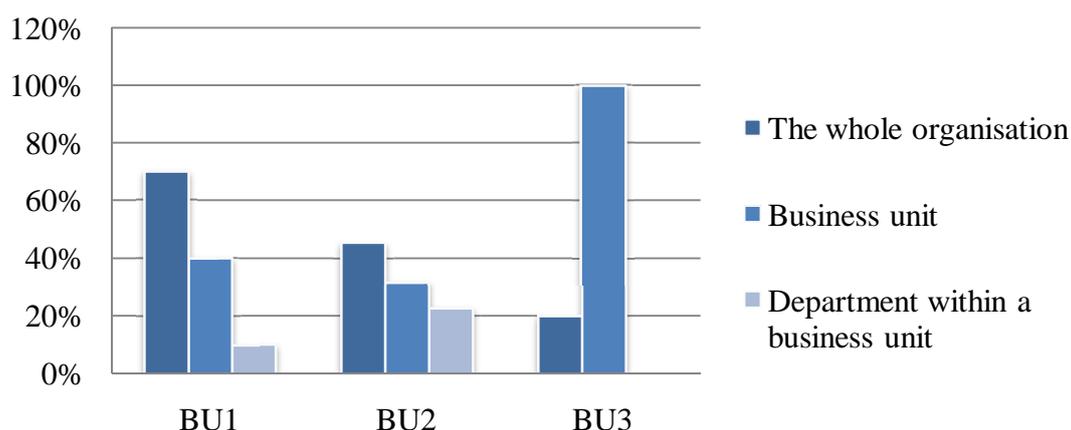
Figure 4.7. Desired PMO responsibility level in different cases.

BU3 clearly express the wish to stay separate as they position their needs, requirements on PMO and ways of working differing greatly from the two other business units. Moreover, given the early stage of building project management capability, business unit-level PMO is a long-term goal; department-level project office is considered at moment. One interviewee communicates:

I don't see any point of having [PMO] separate unless we need to. As it looks right now, it works perfectly fine to run it as a part of a department. But if we had more mid-size and large-size projects, then it would be a good idea to appoint a dedicated portfolio owner and other functions within that PO, but that's not the case yet.

These finding is in line with the idea expressed by Andersen, Henriksen, and Aarseth (2007) that PMO should be located there in the organisation where the need exists.

Possibly, the organisation is not ready for a full-functioning company-wide PMO yet. In this context, the initiation of PMN having only few (but important) objectives aimed to align BU1 and BU2 seems quite reasonable.

PMO organisation and staff

Another issue of interest is to choose between line and staff approach (to include project managers into the PMO or not), or to have a virtual PMO.

Desouza and Evaristo (2006, pp. 419-420) suggest that successful PMOs typically segment project mangers in the organisation based on their knowledge and orientation. The authors distinguish between technology-oriented managers (having deep knowledge about the technology, able to assure quality, and enjoying respect of their peers), and business-oriented managers (who are incompetent in technology issues, but have a profession to manage projects). The discussions during the interviews had similar context.

BU1 interviewee believes that project managers should be included to the PMO just when the project management maturity of the organisation is grown:

We are a technical company mainly, and we need technical project managers mostly… as long as we are playing [on the technical level], [PMs] are better off in different home organisations, because these are technical areas, so they can prosper... If we are playing [on the higher level of PM maturity], yes, we should set a PMO where the profession is project management… We are moving this way.

Same issue was revealed in the discussion with a line manager in the BU2:

I wouldn't give a PMO the role to run our projects at all. It wouldn't work with the modern approaches to [business specifics]… We can't give that responsibility to an office; a person - yes, an officer... to have an overall scope. I don't think it makes sense to have an office on [company] level for small projects.

It can be interpreted as the interviewee prefers supportive role of PMO rather than direct control over smaller projects where technical skills of a project manager are of high importance.

Thus, it could be an appropriate solution to leave technical project managers inside their divisions and assign them smaller, within-department projects. But the question remains how to organise the more mature, business-oriented project managers that are more appropriate for cross-functional projects. Comparing to the other two business units, there are more such project managers in the BU2.

BU2 have no common opinion about the way of PMO organisation. One option is to keep it the current way. Another option is "a group of senior project managers… not connected to a department or the line manager, which can be used to manage large

and complex projects". The third alternative is temporary organisation: "When there is a need, you can appoint a PMO or a programme manager… It has to do with the skill of the person itself". This suggestion is similar to the idea of composite organisation (PMI, 2008, pp. 31-32).

As we could see from the overview of existing PMO-like initiatives (Section 4.3), keeping senior-level project managers within a smaller division (DPO) did not entail the intended use of those human resources (employ them in larger cross-functional projects). The problems are not so many larger cross-department projects, low visibility and communication, but also lack of trust from the other departments and an issue of profit sharing (since the initiating department would have to "buy" this resource; they would rather prefer to use their own, possibly, lees mature project manager, thus, engaging their own resources and enjoying the profit). The advantage of this approach, however, is better fit to existing organisational culture. Cross-department projects problem could be addressed by reinforcing the existing PMO giving it the responsibility to support such projects, up to being a neutral owner.

Another alternative is to group business-oriented managers in a BU2-level PMO. The advantages of this approach are solving the problem of cross-department projects (providing a neutral project manager with high authority over the project); better possibilities for professional development and growing project management maturity. The drawbacks are possible political tensions with line managers related to relocation of decision-making authority and power, resistance to change, and the need for sponsorship on the senior management level.

The third suggestion was to appoint a neutral owner when there is a need for it (for example, for certain cross-functional projects). It implies less additional investments; but the question arises who will be that person, and how to ensure his/her neutrality and credibility.

Thinking about an externally hired project managers, the researcher agrees with the perspective of Hurt and Thomas (2009, p. 68): "An organization that relies heavily on contract project managers is more focused on immediate project needs rather than organizational competency development". To pursue the long-term goal to raise organisational project management maturity, relying on temporary solution is not enough.

According to recommendations of Desouza and Evaristo (2006, p. 419), for a decentralised organisations with less control from the top "it would do better with a PMO that is a result of voluntary collaboration of project managers (who are "owned" by the business or functional units)"; they call it "a bottom-up approach". In contrast, PMO that includes project managers and executes projects directly fits better to more centralised organisations. Mixed forms may be implemented as well (which seems to be the case in the investigated company).

To remind, according to the typology of Hobbs and Aubry (2008), "traditional" PMOs with many project managers, many projects under its domain, and high decision-making authority tend to perform better. But they also tend to be in more mature organisations. However, Andersen, Henriksen, and Aarseth (2007) did not find dependency between the organisation of PMO and its effectiveness. The researchers stress the difficulty to identify the reasons for using one or another pattern. Given the reality of the case organisation, PMO implementations different from traditional would be more appropriate at the moment.

4.6.2 PMO responsibilities

The material in this section is based on the survey data. For each responsibility (see Table 2.2) the respondents were asked to assess the level of support (possibly provided by some other role or entity) needed by the respondent in its fulfilment (in case of the respondent is actually responsible for a particular function).

The researcher assumed that project managers and line managers had different preferences in terms of support needed. However, the independent samples T-test identified no statistically significant differences except of the sales process support (project managers need for support being higher). It may be due to the small population size.

For the list of responsibilities demanding support, see the Table 4.5 (the columns "Demands support"). The numbers in the cells identify the priority order according to the survey data, "1" meaning the highest priority. In addition, see Figures 4.3, 4.4 and 4.5 (the markers above the border line). The boundary value for the level of support was chosen arbitrarily (the average value, 3, was used).

As can be observed from the Table 4.5, all the business units to some extent demand support in promotion of project culture and project-related training and competence development of both company personnel (including managers), and project managers. Another common area for support is organisational learning and project knowledge management.

Basing on the interviews with 20 PMO leaders, Julian (2008, p. 48) found the responsibilities mentioned above to be the ways how PMO leaders facilitate cross-project learning. The author analysed enablers and barriers to cross-project learning and stressed importance of accumulating social capital by establishing a network of strong relationships, support from senior management, and organisational culture as facilitators, and defensive routines as hinders. Julian (2008) recommends to use both successful and run off-course projects for learning; reflect during the project as well as at project closure; and introduce a skilled, neutral facilitator in lessons-learned sessions for more productive reflection. These findings could be also applied to the case organisation.

Specific recommendations on PMO development in each of the 3 business units are provided in the following section.

4.6.3 Recommendations for PMO development

Considering the material from the previous two sections, the following recommendations are made by the researcher.

In these recommendations the best practices and success factors identified in the literature (Chapter 2) will be considered. Summarising the findings of Hurt and Thomas (2009), Singh, Keil and Kasi (2009), Andersen, Henriksen, and Aarseth (2007), and Desouza and Evaristo (2006), the following ideas have to be considered.

1. Design a PMO around a company's specific needs and focus on improved project management practices. Conduct a stakeholder analysis prior to designing the PMO (the current research is believed to contribute into it)
2. Understand how PMO will fit into the corporate culture; create a culture of discipline; manage organisational resistance to change

3. Clearly define PMO goals, purpose, role, authority, and responsibility and communicate them to all stakeholders
4. Implementing or transforming a PMO, use appropriate change management strategy. Plan gradual development of PMO: start with some core tasks and demonstrate the value of PMO with an early success, and let the PMO to progress through the life cycle. Do not automatically turn to an organisational form of a centralised staff unit
5. Have a strong PMO leader who promotes the value of PMO
6. Staff the PMO with senior project managers (if included) and other competent personnel with broad skills and project experience
7. Ensure support of the senior management and various stakeholders to the PMO as well as opinion leaders who favour the PMO implementation. Find a sponsor to support or run the implementation process (this is especially relevant in the bottom-up approach)
8. Let the services of the PMO be free of charge for the projects
9. Be able to demonstrate value, use metrics to evaluate PMO performance

Following these recommendations would address the most popular challenges PMOs run into, including some mentioned during the interviews: being an overhead cost; being a bureaucratic control unit focusing too much on administration.

BU1

It seemed that the existing PMO is rather confident and clear about the future; it is backed up by several years of experience and rather good effectiveness.

The vision of the PMO is to stay a small organisation (not including project managers), provide support to smaller projects and supervise large, strategically important and cross-functional projects (thus, categorisation has to be applied to the project portfolio). Namely, it is demanded to resume to monitoring and control of project performance and conducting project audits, and improve cross-project learning (managing archives of project documentation and database of lessons learned). The support expected by project managers and line managers from PMO relates to standard project management methodology and processes, project reporting and performance control, managing archives of project documentation, sales process, project budgeting and risk calculations. Another group of functions for support is related to project knowledge and experience exchange, and project-related competencies development; this group is going to be covered by PMN (which is an initiative of PMO) both for BU1 and BU2.

To remark, the PMN target is only senior project managers, but to promote project culture, junior project managers also have to be trained and coached.

BU2

The suggestion for BU2 is also to differentiate level of authority over projects (from support to direct control) depending on the types of projects: cross-department and strategically important projects deserve more attention. Thus, project categorisation has to be applied. The current scheme of multiple PMOs at different hierarchical levels is reasonable. Technical project managers do not have to be arranged into one separate unit.

There is an option to integrate senior project managers under the BU-level PMO. This will prompt solving the problem of cross-department projects; create better

possibilities for professional development and growing project management maturity. The difficulties are associated with possible political tensions with line managers due to power relocation, resistance to change, and the need for sponsorship on the senior management level.

Another alternative is to leave all project managers in their home units; this approach better fits to existing organisational culture. In this case, cross-department projects problem could be addressed by giving the existing PMO more proactive role up to being a neutral owner of such projects (or assigning a similar role to some party temporarily). It is still a subject for additional investments from the business unit management in case of extending staff; and tensions still may arise given the result- and profit-oriented culture and stronger focus on short-term rather than long-term goals. In this case, credibility, authority and leadership of the PMO are crucial issues to ensure success.

With this approach, the issue of professional development of project managers and knowledge sharing where support of improvement is highly demanded still can be taken on by PMN (for the senior project managers) and lower-level PMOs (for the junior project managers).

The other functions that PMO should take care of are cross-project learning and project knowledge management, multi-project management, risk calculations and project staffing (support improvement). The responsibilities demanding PMO support are also project quality assurance, budgeting, standardisation of project management (providing tools and templates), and project reporting and performance control.

PMN

An issue to consider is the costs of membership in the PMN. On the one hand, since provision of project managers to the network is not obligatory, the line managers are resistant to contribute with many; this approach also positions competence development as optional and possibly downgrades the idea. On the other hand, making an investment into senior project managers from the department side raises motivation and expectation on the results.

According to some interviewees, PMN must be more inspiring, proactive and visible to assure the success of the initiative; again, this brings the notion of leadership.

BU3

Talking about BU3, their vision is to start PMO as a small project support office on a department level in order to improve project delivery. There is no concern about taking direct responsibility over projects yet; thus, project managers should not be integrated into separate department at the moment. Possibly, the PMO should have more control over larger projects including several parties.

The need to improve many aspects of project management process is indicated by the survey findings; however, they are not considered to be an area for external support.

The suggested areas for PMO responsibilities are competence development, training, and promotion of project culture; management of archives of project documentation, database of lessons learned and risk database; and help with quality assurance of projects. Possibly PMO could also provide support with project budgeting and risk assessments and calculations (as in two other business units).

Since participation in the PMN was not found relevant, competence development and cross-project learning have to be taken care of by some other party, for example, department PMO or a network of people interested in project management throughout the business unit.

Gradual development of project managers and increasing number of projects would bring the question if to centralise PMO at the business unit level; but the department-level PMO has to demonstrate value first.

5 Conclusions

PMO is a widespread and important phenomenon of organisational project management nowadays. However, uncertainty level about its role, implementation, relevance and value for the host organisations is still considerable. The present research aimed to identify if and how can PMO bring and sustain value, highlighting the specifics of the engineering customer services companies.

The case study methodology allowed to collect extensive data taking into consideration organisational environment (organisational features, organisational culture, and type of business) and project environment, including flow of the events. Certain limitations still apply to the study; in particular, the number of informants might be higher.

The drivers of PMO establishment or re-thinking were found to be the intention to increase project management maturity; the expected value comprises such elements as increase of profits through improved project delivery, strengthening competitive advantage and finding new business opportunities, growing competencies of the organisation and developing personnel.

The ways of PMO implementation were discussed regarding the type of projects, decision-making authority, location in the organisational chart, and PMO personnel. The main ideas drawn from the investigation are assigning different responsibilities and level of authority over different types of projects (and the need for their categorisation), location of PMOs in the organisational units understanding a need for it, and keeping technology-oriented project managers within their home organisational units. The more staff is involved into PMO, the more important it becomes to justify expenses and demonstrate the value.

Regarding PMO responsibilities, the analysis has shown that project-related competence development and cross-project learning are a potential area of PMO responsibilities in all the three cases.

Specific of customer-services organisations influences the type of PMO: for example, the strategic role of the office is not a goal (even if the informants did not show to be totally indifferent to the project portfolio management concept). Focus on customer satisfaction brings about other concerns related to project management methodology (the selection of methodology highly depends on the customer, thus, the role of PMO in standardisation of project management decreases), control procedures (may be influenced by customers), and customer interfaces (importance of personal relations also impacts).

The obstacles for PMO can be in organisational culture and politics. For instance, in one of the cases importance of profitability (moreover, in combination with result-orientation) reveals potential challenge of PMO to show value for investment.

The success factors of PMO are addressing specific needs of the company, clear definition and communication of PMO goals, purpose, role, authority, and responsibilities, gradual development, strong leadership, competent personnel experienced in project management, support of the senior management, and ability to demonstrate value.

References

Andersen, B., Henriksen, B., and Aarseth, W. (2007) Benchmarking of project management office establishment: extracting best practices. *Journal of Management in Engineering*, Vol. **23** (2), 97-104.

APM (2006) *Association for Project Management Body of Knowledge*. 5th edn. Buckinghamshire: APM Publishing.

Apte, U., Sobol, M., Hanaoka, S., Shimada, T. S., Salmela, T., and Vepsalainen, A. (1997). IS outsourcing practices in the USA, Japan and Finland: a comparative study. *Journal of Information Technology*, Vol. **12** (4), 289-304.

Aubry, M., and Hobbs, B. (2011) A fresh look at the contribution of project management to organizational performance. *Project Management Journal*, Vol. **42** (1), 3–16.

Aubry, M., Hobbs, B., and Thuillier, D. (2008) Organisational project management: an historical approach to the study of PMOs. *International Journal of Project Management*, Vol. **26** (1), 38–43.

Aubry, M., Muller, R., Hobbs, B., and Blomquist, T. (2010) Project management offices in transition. *International Journal of Project Management*, Vol. **28** (8), 766–778.

Bacon, D. R. (2003) A comparison of approaches to Importance-Performance Analysis. *International Journal of Market Research*, Vol. **45** (1), 55-71.

Bröchner, J. (2010) *Contracting strategies, IT contracts, maintenance services by manufacturers.* [Lecture for Service Contract Management course in Chalmers University of Technology]. 25 March.

Cooke-Davies, T. J., Crawford, L. H., and Lechler, T. G. (2009) Project management systems: moving project management from an operational to a strategic discipline. *Project Management Journal*, Vol. **40** (1), 110–123.

Crawford, L. (2006) Developing organizational project management capability: theory and practice. *Project Management Journal*, Vol. **37** (3), 74-97.

Curlee, W. (2008) Modern virtual project management: the effects of a centralized and decentralized project management office. *Project Management Journal*, Vol. **39** (Supplement), 583–596.

Dai, C. X. Y., and Wells, W. G. (2004) An exploration of project management office features and their relationship to project performance. *International Journal of Project Management*, Vol. **22** (7), 523–532.

DataStep Development (2004a) *SPSS Step-by-Step. Tutorial: Part 2.* [Online] Available at: http://www.datastep.com/SPSSTutorial_2.pdf (Accessed: 4 July 2011).

DataStep Development (2004b). *The DataStep statistical selection guide.* [Online] Available at: http://www.datastep.com/StatisticalSelectionGuide.pdf (Accessed: 4 July 2011).

Desouza, K. C., and Evaristo, J. R. (2006) Project management offices: a case of knowledge-based archetypes. *International Journal of Information Management,* Vol. **26** (5), 414-423.

Dinsmore, P. C. and Cooke-Davies, T. J. (2006) *The right projects done right! : from business strategy to successful project implementation.* San Francisco: Jossey-Bass.

ESI International (2011) *The global state of the PMO in 2011: its value, effectiveness and role as the hub of training.* [Online]. Available at: http://www.esi-intl.com/~/media/Global-Web-Site/Files/US/PDF/Research-Reports/ESI-2011-PMO-global-survey-FULL-REPORT-US (Accessed: 10 August 2011).

Garver, M. S. (2003) Best practices in identifying customer-driven improvement opportunities. *Industrial Marketing Management.* Vol. **32** (6), 455–466.

Hill, G. M. (2004) Evolving the project management office: a competency continuum. *Information Systems Management*, Vol. **21** (4), 45–51.

Hobbs, B., and Aubry, M. (2007) A multi-phase research program investigating project management offices (PMOs): the results of phase 1. *Project Management Journal*, Vol. **38** (1), 74-86.

Hobbs, B., and Aubry, M. (2008) An empirically grounded search for a typology of project management offices. *Project Management Journal*, Vol. **39** (S1), S69–S82.

Hobbs, B., Aubry, M., and Thuillier, D. (2008) The project management office as an organisational innovation. *International Journal of Project Management*, Vol. **26** (5), 547–555.

Hurt, M., and Thomas, J. L. (2009) Building value through sustainable project management offices. *Project Management Journal*, Vol. **40** (1), 55–72.

Julian, J. (2008) How project management office leaders facilitate cross-project learning and continuous improvement. *Project Management Journal*, Vol. **39** (3), 43–58.

Kezner, H. (2005) *Project Management: A Systems Approach to Planning, Scheduling, and Controlling.* 9th edn. New Jersey: Wiley.

Liu, L., and Yetton, P. (2007) The contingent effects on project performance of conducting project reviews and deploying project management offices. *IEEE Transactions on Engineering Management*, Vol. **54** (4), 789-799.

Milosevic, D., and Patanakul, P. (2005) Standardized project management may increase development projects success. *International Journal of Project Management*, Vol. **23** (3), 181–192.

Mullaly, M., and Thomas, J. L. (2009) Exploring the dynamics of value and fit: insights from project management. *Project Management Journal,* Vol. **40** (1), 124-135.

Pellegrinelli, S., and Garagna, L. (2009) Towards a conceptualisation of PMOs as agents and subjects of change and renewal. *International Journal of Project Management*, Vol. **27** (7), 649–656.

PMI (2008) *A guide to the project management body of knowledge*. 4th edn. Pennsylvania: Project Management Institute, Inc.

Saunders, M., Lewis, P., and Thornhill, A. (2009) *Research Methods for Business Students.* 5th edn. Harlow: Prentice Hall.

Singh R., Keil M., and Kasi V. (2009) Identifying and overcoming the challenges of implementing a project management office. *European Journal of Information Systems*, Vol. **18** (5), 409–427.

Thomas, J. L., and Mullaly, M. (2008a) *Researching the value of project management*. Newtown Square, PA: Project Management Institute.

Tontini, G., and Picolo, J. D. (2010) Improvement gap analysis. *Managing Service Quality*, Vol. **20** (6), 565-584.

Yin, R. K. (2009) Case Study Research: Design and Methods. 4th edn. California: SAGE Publications.

Zhai, L., Xin, Y., and Cheng C. (2009) Understanding the value of project management from a stakeholder's perspective: case study of mega-project management. *Project Management Journal*, Vol. **40** (1), 99–109.

Bibliography

Bonham, S., Scudder, R., Morrato, B. and Pashak, J. (2006) The Molson Coors Operational Portfolio Architecture: A Case Study. *Communications of the Association for Information Systems,* Vol. **18**, 710-745.

Martin, N., Pearson, M., and Furumo, K. (2007) IS Project Management: Size, Practices and the Project Management Office. *Journal of Computer Information Systems,* Vol. **47** (4), 52-60.

Maylor H. (2003) *Project Management*. London: Prentice Hall.

Milosevic, D., Iewwongcharoen, B., and Patanakul, P. (2010) An empirical study on the use of project management tools and techniques across project life-cycle and their impact on project success. *Journal of General Management*, Vol. **35** (3), 41-65.

Patanakul, P., and Milosevic, D. (2008) A competency model for effectiveness in managing multiple projects. *Journal of High Technology Management Research*, Vol. **18** (2), 118–131.

Patanakul, P., and Milosevic, D. (2009) The effectiveness in managing a group of multiple projects: factors of influence and measurement criteria. *International Journal of Project Management*, Vol. **27** (3), 216–233.

Rozenes, S., and Vitner, G. (2009) The training methodology of project management office (PMO) personnel. *Industrial and Commercial Training,* Vol. **41** (1), 36-42.

Thomas, J. L., and Mullaly, M. E. (2008b) Researching the value of project management, *PMI Research Conference.* Warsaw, 21 July. PMI. Available at: http://www.pmi.org/en/Business-Solutions/~/media/PDF/Business-Solutions/Value_of_PM_Warsaw08.ashx (Accessed: 16 August 2011)

Appendix A

I. Information about interviewee's employment background

1. What position do you hold in the company?
2. How long do you work in the company? In this area? On the current position?
3. What your usual responsibilities include?

II. Information about the business unit

1. What is the main business of the business unit?
2. What is the balance between in-house projects and direct services in terms of turnover?
3. How many people are in the business unit?
4. What is the strategy of the business unit?
5. Please describe the organisation of the business unit.
6. Please describe the competitive environment for the business unit.

III. Information about the business unit projects

1. What types of projects prevail in the business unit? *(R&D, IT, SD, etc.)*
2. How many projects in the business unit are undertaken at the same time?
3. What is the typical size of project (budget, team and length)?

IV. Historical and current situation about project management capability (maturity) in the business unit

1. What are advantages and disadvantages of projects versus direct services? *(Consider different points of view: resource management, organisational learning, profitability, customer relationships, complexity of delivery, etc.)*
2. How would you assess the project management capability (maturity) in the business unit?
3. What are the reasons for development of project management capability in the organisation?
4. When did the business unit start to build project management competency?
5. What was the previous approach to project management?
6. To what extent the project management methodology is applied to the projects?
7. What is an average level of experience of project managers?
8. What are advantages and disadvantages of undertaking large cross-department projects for the whole organisation? *(Increased profits, better relationships with the customers, acquired expertise or vice versa)*
9. What benefits and losses are there from cross-department projects for the department?
10. How are cross-department projects managed? Who initiates them? Who owns them? Who sponsors them/receives the profits? Who owns risks? What difficulties usually arise and why? *(E.g., it is hard to negotiate resources, communication problems, delays in meeting tollgates, novelty and complexity, internal competition for finding the customer)*

V. The current project management performance

1. How successful the current and previous projects are (in terms of time, cost, quality, scope, satisfaction)?
2. Are there any problems or deficiencies in current portfolio/project management processes?
3. Do you feel the areas of improvement in project delivery exist?
4. Is the establishment of PMO a good way to develop project management capability? What are the alternative ways?
5. What other PMO initiatives in the organisation you know about? What are their responsibilities? Why does (not) the department use them? How effective are they? How is their effectiveness assessed?

VI. **Potential benefits and losses from establishment of PMO**
1. What benefits and losses would the establishment of the PMO bring for you as an individual? (*Power, salary, support and responsibilities*)
2. What benefits and losses establishment of the PMO would bring for organisation as a whole? (*Is there any supportive attitude of the stakeholders?*)

VII. **What functions could be potentially performed by the PMO?**
1. What roles and responsibilities should be covered by PMO?

VIII. **What characteristics of PMO would potentially best contribute to the improvement of project management capability in the business unit?**
1. Who should be the members of PMO? What kind of competencies should they have? How much experience should they have?
2. How many people should be involved to the PMO? Should project managers be the part of PMO?
3. How much decision-making authority should the PMO have?
4. Propositions for the structure of the PMO. (*One or several PMOs, central for the organisation or separate for each business unit*)
5. What specificities of operating PMO related to external projects might take place?

IX. **In your opinion, what potential challenges for establishment of PMO exist in the business unit?**
1. Lack of experienced project managers and PMO leadership, difficulty in staffing PMO with experienced personnel
2. Role, authority, and responsibility of the PMO is poorly defined or understood
3. Failure to align PMO implementation strategy to organizational strategy
4. Difficulty in evaluating the effectiveness of PMO in the organisation
5. Stakeholder commitment to common methodology and tools for the PMO

X. **Organisational culture (within the business unit)**
1. Is the organisation prone to research and innovation or rather conservative?
2. How tight is the control from the top?
3. Is it fast pace or rather slow pace developing organisation?
4. Is the organisation more result-oriented or process-oriented?
5. To what extent are personal relationships important in the organisation?

6. How strong is the organisational resistance to change? Is there a change management strategy in the organisation?
7. Is there strong leadership in the organisation?

Appendix B

<Demographic Data>
1. Which business unit do you work in?
   BU1
   BU2
   BU3
2. What is your position?
   Project Manager
   Line Manager (in this case go to the question 12)
   Other (in this case go to the question 12)
3. How long have you been working as a project manager (in years)?
   Enter a number

Project Management Performance
4. Have you been involved into an in-house project (a customer ordered project with mainly <company> resources) as a project manager?
   Yes
   No (in this case go to the question 9)
5. Your last completed in-house project was:
   Fixed-price
   Paid by man-hours spent
6. Your last completed in-house project involved:
   Only your own department
   Several departments
7. How large was the last in-house project you have completed (in terms of budget, SEK)?
   Enter a number
8. How successful was the last in-house project you have completed?
   1 - Low, 2 – Rather Low, 3 - Average, 4 – Rather High, 5 – High, N/A
   Time
   Cost
   Quality
   Scope
   Customer satisfaction
9. Have you been involved into an external project (a customer ordered project with mainly customer's resources) as a project manager?
   Yes
   No (in this case go to the question 12)
10. How large was your last completed external project (in terms of budget, SEK)?
    Enter a number
11. How successful was the last external project you have completed?
    1 - Low, 2 – Rather Low, 3 - Average, 4 – Rather High, 5 – High, N/A

Time

Cost

Quality

Scope

Customer satisfaction

12. How would you assess the average performance of the projects run in your department?

1 - Low, 2 – Rather Low, 3 - Average, 4 – Rather High, 5 – High, N/A

Time

Cost

Quality

Scope

Customer satisfaction

Organisational Culture

13. What values best describe the organisational culture in the business unit you belong to? <Multiple choice>

Profitability

Customer satisfaction

Professionalism

Credibility

Responsibility

14. The business unit is:

Tending to research and innovation

Rather traditional

15. How tight is the control from the top?

0 - Not at all, 1 - Little, 2 - Some, 3 - Considerable, 4 - Significant

16. How fast does the business unit develop?

Development pace (1 - Slow, 2 – Rather Slow, 3 - Average, 4 – Rather Rapid, 5 - Rapid)

17. The business unit could be best described as:

Result-oriented

Process-oriented

18. To what extent does personal trust affect professional relationships in the business unit?

0 - Not at all, 1- Little, 2 - Some, 3 - Considerable, 4 - Significant

19. How easily do you accept organisational change in the business unit?

0 - Change is always for the better

1 - I accept change moderately easily

2 - I have concerns if it is reasonable

3 - I resist if I find the change not reasonable

N/A

20. How do you perceive your superior manager?

Leadership ability (1 - Weak, 2 – Rather Weak, 3 - Average, 4 – Rather Strong, 5 - Strong)

<Project Management Maturity>

In the next sections 5 areas of project management related responsibilities are described.

For each responsibility please answer the following 3 questions:

    A. How well is the stated responsibility fulfilled in your business unit?

    B. In your opinion, what quality level is required for more successful business?

    C. If it is your responsibility, do you feel the need for more support in its fulfilment?

1 - Low, 2 – Rather Low, 3 - Average, 4 – Rather High, 5 - High, N/A

Area I. Project Reporting and Performance Control

    21. Responsibility 1. Report project status to upper management (e.g., via project scoreboard)

    22. Responsibility 2. Monitoring and control of project performance

    23. Responsibility 3. Conduct project audits

Area II. Development of Project Management Competencies and Methodologies

    24. Responsibility 1. Develop, implement and manage a standard project management methodology and processes

    25. Responsibility 2. Provide a set of tools and templates for project management

    26. Responsibility 3. Promote project culture within the business unit

    27. Responsibility 4. Project-related coaching, training, mentoring, and competence development for the company personnel (including managers)

    28. Responsibility 5. Training, certification, consulting, mentoring, and competence development for project managers

Area III. Organisational Learning and Project Knowledge Management

    29. Responsibility 1. Manage archives of project documentation

    30. Responsibility 2. Conduct post-project reviews

    31. Responsibility 3. Share project knowledge

    32. Responsibility 4. Manage a database of lessons learned

    33. Responsibility 5. Manage a risk database

Area IV. Multi-Project Management

    34. Responsibility 1. Coordinating communication across projects

    35. Responsibility 2. Identify, select, and prioritise new projects

    36. Responsibility 3. Project portfolio management

    37. Responsibility 4. Allocate resources between projects

Area V. Execute Specialised Tasks while working with projects

    38. Responsibility 1. Sales process

    39. Responsibility 2. Managing customer interfaces

    40. Responsibility 3. Project planning

    41. Responsibility 4. Project budgeting

    42. Responsibility 5. Performing risk assessments and calculations

    43. Responsibility 6. Project staffing (including project managers)

    44. Responsibility 7. Project administration

45. Responsibility 8. Communication facilitation and consulting

46. Responsibility 9. Quality assurance of projects

The development of PMO

Imagine a dedicated organisational entity (e.g., PMO) created to address some of the issues indicated above. How should it be organised in order to increase value of project management in the company?

47. What kind of projects should PMO deal with? <Multiple choice>

Large

Strategically important

With several departments involved

All projects

Own value

48. How much decision-making authority over projects should PMO have?

0 - Not at all, 1 - Little, 2 - Some, 3 - Considerable, 4 - Significant

49. What should the responsibility level of PMO be? <Multiple choice>

The whole organisation

Business unit

Department within a business unit

Own value

Your comments regarding the questionnaire

50. This is the end of the questionnaire. Thank you very much for your input! If you wish to leave a feedback regarding the questionnaire and provided answers, please do it in the space below.