CHALMERS

Benchmarking organisational project management maturity

A case study measuring maturity in multi-project organisations and its impact on human resource and motivation

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

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CHALMERS UNIVERSITY OF TECHNOLOGY
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ABSTRACT

In order to deliver successful projects in a changing business environment, organisations need to put efforts on best practices and focus on fit-for-purpose outputs based on the requirements. Projects need to be able to create, maintain and disseminate knowledge and experiences since it is becoming increasingly important for projects to achieve a competitive advantage. Knowledge and experience exist only in the minds of key individual participants and an organisation cannot create knowledge or learn by itself. Organisational culture can support creative individuals or provide contexts in which they can create and transfer knowledge. Mature organizations not only create clear communication channels but they also promotes a culture where new knowledge can be created and shared. The aim of the thesis is to benchmark two organisations delivering projects in the same business area by measuring organisational project management maturity. Maturity models can identify organisational strengths and weaknesses and provide benchmarking information. The model captures explicit, codified practices and excludes some of the intangible assets of project management.

This study applies to an already existing maturity model with a few modifications in order cover organisational-specific processes. In total 11 different projects at Göteborg & Co. and Svenska Mässan have been assessed with face-to-face interviews. Results were obtained through an analysis and evaluation of responses and then compared with the organisational project management maturity model. All data were transferred to statistical software to compare the different attributes and calculate the correlating factors from the interviews.

Findings from the data indicate that one of the assessed organisations is behind in the maturity for all its initiated projects due to no standardised project management model or standard practices exist. The interviews show that project managers still deliver successful projects, but however do not feel a sufficient connection towards the main organisation. The recommendation to the company is that they ought to develop a standardised project management model for all its projects and provide supportive functions that can be commonly shared between the projects. Another recommendation concerning both organisations is to focus more on risk management with a practice of systematically selecting cost effective approaches for minimising the impact of risks to the project.

Key words: Organisational Project Management, Benchmarking, Knowledge Management, Human Resource Management

Prestandamätning av organisatorisk projektmognad
En fallstudie i att mäta mognaden i multi-projekt organisationer och dess påverkan på personalresurser och motivation
Examensarbete inom International Project Management
HARON KHAN ZAFAR
Institutionen för bygg- och miljöteknik
Avdelningen för Construction Management
Chalmers tekniska högskola

SAMMANFATTNING

För att kunna leverera framgångsrika projekt i en föränderlig omvärld, måste organisationer använda bästa praxis och fokusera på att ta fram användbara metoder som är anpassade för sitt bruk och baseras på organisationens krav. Projekt måste kunna skapa, bevara, sprida kunskap och erfarenheter för att skapa konkurrensfördelar. Kunskap och erfarenhet finns endast i huvudet på enskilt viktiga individer och en organisation ensamt kan inte skapa kunskap eller lära av sig själv. Organisationskulturen kan stödja kreativa individer genom att skapa en miljö där kunskap kan skapas och överföras i alla led inom organisationen. Mogna organisationer inte bara skapar tydliga kommunikationskanaler utan främjar en kultur där ny kunskap kan skapas och delas. Syftet med denna avhandling är att jämföra två organisationer som levererar projekt inom samma affärsområde samt att mäta projektens mognad. Mognadsmodeller kan identifiera organisatoriska styrkor och svagheter och ge jämförbara riktmärken. Modellen fångar upp explicit, kodifierade praxis och utesluter icke relevant information om projekthanteringen. Denna studie är baserad på en redan existerande modell med viss modifiering i syfte att täcka in särskilda processer som är unika för de berörda organisationerna. Totalt 11 olika projekt i Göteborg & Co och Svenska Mässan har behandlats med personliga intervjuer för att skapa förtroende och validitet för modellen.

Resultat från intervjuerna har analyserats och utvärderats för att jämföra arbetsprocessen mellan de olika projekten. All data har överförts till statistikprogramvara för att behandla olika egenskaper och beräkna samband mellan påverkbara faktorer från intervjuerna. Resultaten från den behandlade datan visar att en av organisationerna ligger efter i mognad för alla de projekt som bedrivs på grund av att en standardiserad projektlednings modell och standardiserade rutiner saknas. Intervjuerna visar trots de låga resultaten i projektmognad att projekten levereras framgångsrikt, men saknar en tydlig koppling till huvud-organisationen.

Rekommendationen som föreslås till den nämnda organisationen är att utveckla en standardiserad projektledningsmodell som bistår projekten med stödfunktioner så som personalhantering och rekrytering som kan samordnas och fördelas mellan de olika projekten. En annan rekommendation ämnad för båda organisationerna är att fokusera mer på riskhantering med en systematisk praxis där urval av kostnadseffektiva metoder för att minimera effekterna av riskerna för projektet implementeras.

Nyckelord: Organisatorisk Projektmognad, Benchmarking, Prestandamätning, Knowledge Management, Human Resource Management

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ACKNOWLEDGEMENTS

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CHALMERS, *Civil and Environmental Engineering*, Master's Thesis 2010:110

1 INTRODUCTION

In a course named "Organisational project management" at Chalmers University of Technology, we were asked to benchmark a company and decided to benchmark a project that was arranging fairs for the public sector. After the benchmarking we noticed that the project was weak on several areas and had some strong points as well. Even when the course ended a small idea was growing in our mind regarding the effectiveness of other projects in same field. Was this just an isolated case for this specific project or was more common in other projects as well? When dealing with our master thesis we decided to continue on the same track by doing a broader research and benchmarking several projects in the same field.

An initial contact with HR manager at Göteborg & Co. forwarded that there was a need for them to know about the efficiency of their projects. Moreover there was an urge to know what areas could be improved in order to better support their project teams.

In the city of Göteborg there are two main organisations working with fairs and events. The first one is Göteborg & Co. and the second one is Svenska Mässan. Both companies have tight links with the city of Göteborg but also with the region office called Västra Götalands Regionen. The overall intentions for both companies are to promote the city of Göteborg and create an arena where people can meet and do business. One major difference between the two companies is that Svenska Mässan is a more commercial company while Göteborg & Co. is totally dedicated to promote the city of Göteborg. Benchmarking the two organisations was the natural thing to do since both companies are working more or less in the same business area and have the same customers.

1.1 ABOUT THE COMPANIES

The mission of Göteborg&Co is to market and develop the city of Göteborg when it comes to tourism, meetings and events. The vision is to be one of Europe's most attractive regions to live and work in and to visit. The company is primarily a project based organisation where different subdivisions are arranging and organising different events, fairs and festivals independently.

Svenska mässan is an organisation with 400 employees. It is administered as an independent foundation but governed by local politicians and representatives from local companies and universities. Their mission is to enhance the conditions for the local trade and industry. Each year, around 30 fairs and 100 conferences are being arranged with around one million visitors.

1.1.1 PROJECT PROBLEMS

Working with different types of projects within an organisation requires standard models in order to deliver successful future projects repeatedly, improve both the quality of future projects and gain knowledge and learn from past mistakes. Even though most of the projects launched today are being documented, one has to consider how knowledge sharing paths and trends from these projects are being successfully reused. Moreover project groups can be mapped and classified by implementing group theories to create optimal groups.

1.1.2 THESIS AIM

The intention is to get an overall view of the organisational structure in order to benchmark the different improvement areas. By applying selected part from the latest theories and methods based on conclusions from academic sources within project management, a new and improved method will be presented that can be applied into the organization where standardised working patterns, more sophisticated communication channels are used and where organisational learning is occurring as a base for continuous improvement.

2 LITTERATURE REVIEW

This chapter introduces the concepts and its definition of project management, knowledge management, human resource management and cultures in organisations. This chapter also introduces benchmarking and how organisations can learn from each other.

2.1 PROJECT MANAGEMENT

To better understand the area of project management, it is necessary to distinguish between project and project management.

Project management is defined in many different ways and a definition by the Association for Project Management (2006 pp. 2):

"Project Management is the process by which projects are defined, planned, monitored, controlled and delivered such that their agreed benefits are realised. Projects are unique, transient endeavours undertaken to achieve a desired outcome. Projects bring about change and project management is recognised as the most efficient way of managing such change."

Another definition by the Project Management Body of Knowledge defines project management as following (PMBOK, 2008, p. 8):

"Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements."

In other words, a project manager has to influence the team to do the right things according to the scope.

PMBOK definition is extended in a sense where project manager has to accomplish appropriate application of and integrating 42 logically grouped project management processes that are summed together into 5 Process Groups:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

The main working are of a project manager according to PMBOK is to identify the requirements and address the various needs and expectations of the stakeholders as the project is carried out. In addition to this the project manager has to balance the constraints such as:

- Scope

- Quality
- Schedule
- Budget
- Resources
- Risk

These factors are likely to change during a project and even though good planning has been made, the project manager has to elaborate by continuously improving the plan in order for the estimation to be more realistic (PMBOK, 2008).

2.1.1 WHAT IS A PROJECT?

According to Maylor (2005) a project can be defined as:
- *any non-repetitive activity*
- *a low-volume, high-variety activity*
- *any activity with a start and a finish*

 (Maylor, 2005, p. 4)

In addition to this he puts forward that the project objectives have to meet the defined schedule, cost and performance parameters.

Another definition of a project from PMBOK (2008):

"A project is a temporary endeavour undertaken to create a unique product, service or result. The temporary nature of projects indicates a definite beginning and end."

The distinction between project and project management is that project is considered to be the achievement of specific objectives where project management can be seen as the process of controlling the achievement of the project objectives (PMBOK, 2008).

Boddy (2002) suggests that *"projects are a step into the unknown"* where managers have to deal with various organisational changes. He confirms that projects have features in common since all projects are expected to produce something new and unique. Another important factor to include is that projects depend on people not techniques and the work is done by people. Finally Boddy (2002) acknowledges that projects take place within a context where there is a need for a change. The project manager's function in this sense is to influence the people involved in this change.

2.1.2 PROJECT SUCESS OR FAILURE

Since the definitions mentioned above indicates that there is a need for a change with clear goals, an important factor in this change would be to make sure the return on investment. A project and its goals are affected by a range factors which scholars and authors have tried to

identify. Munns and Bjeirmi (1996) have listed some of the factors that the success of a project is dependent on:

- a realistic goal;
- competition
- client satisfaction
- a definite goal
- third parties
- market availability
- the implementation process
- the perceived value of the project

Munns and Bjeimi (1996) have identified that only two of the above mentioned items lie directly within the scope of project management. This shows that project management skills and techniques are only a subset of the wider context of the project. Munns and Bjeimi (1996) conclude that this is the reason why projects can either be successful or failure interdependently of the project management.

Maylor (2005) sees a dilemma in the project criteria since there is an internal competition between the resources. Meeting one criterion is at the expense of the others (Maylor, 2005, p. 60).
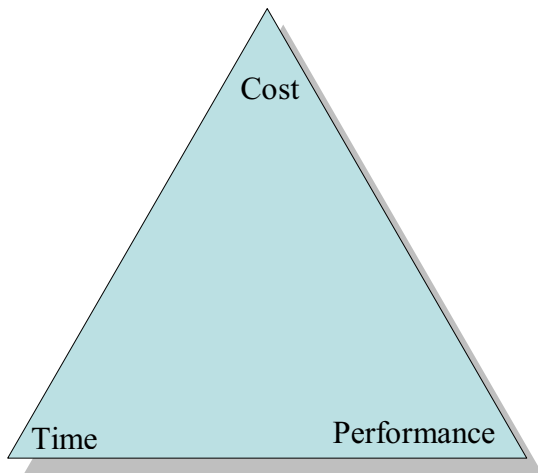
Figur 1- Project criteria

2.1.3 SUCESS OR FAILURE OF PROJECT MANAGEMENT

Project management success factor are many and complex since the dependencies towards other people and resources require routines and skills. Munns and Bjeirmi (1996) mention indicators that many other authors agree upon such as completion to budget, meet the

project schedule, quality standards and finally meet the project goal. Furthermore they mention some factors that can cause the project manager to fail:

- inadequate basis for project
- wrong person as project manager
- top management unsupportive
- inadequately defined tasks
- lack of project management techniques
- management techniques missused
- project closedown not planned
- lack of commitment to project

A project manager needs to acknowledge the above mentioned points and be aware of the consequences if some of the needed factors are missing. The above functions are not cut in stone and are dependent on the type of project.

Munns and Bjeirmi (1996) put forward that following the above mentioned project management indicators do not correlate with project success. Project can be successful even though project management fails or vice versa.

More or less all literature in the area of project management emphasizes the importance of achieving project objectives. The techniques, tools, skills and knowledge a project manager uses can in fact play a major role in project success or failure.

PMBOK (2008) shares the same thoughts by stressing the importance of area-specific skills and general management proficiencies needed for the specific project. Three areas are recognized as important for a successful project manager:

- **Knowledge** – What the project manager knows about management
- **Performance** – What the project manager is able to do by applying the knowledge into the project.
- **Personal** – How the project manager behaves when performing the project activities. Areas included here are personal effectiveness, attitude, personality and leadership characteristics. So is also the project manger's ability to guide the project team in order to reach the project goals by balancing the project constrains.

2.1.4 PROJECT LIFE CYCLE

Since projects vary in complexity and size it is vital to map the life cycle and costs during the different time frames.

PMBOK (2008) has identified the following stages of the life cycle of a project:

- Starting the project
- Organizing and preparing
- Carrying out the project work

- Closing the project

This view is seen as a common framework when comparing different projects (PMBOK, 2008).
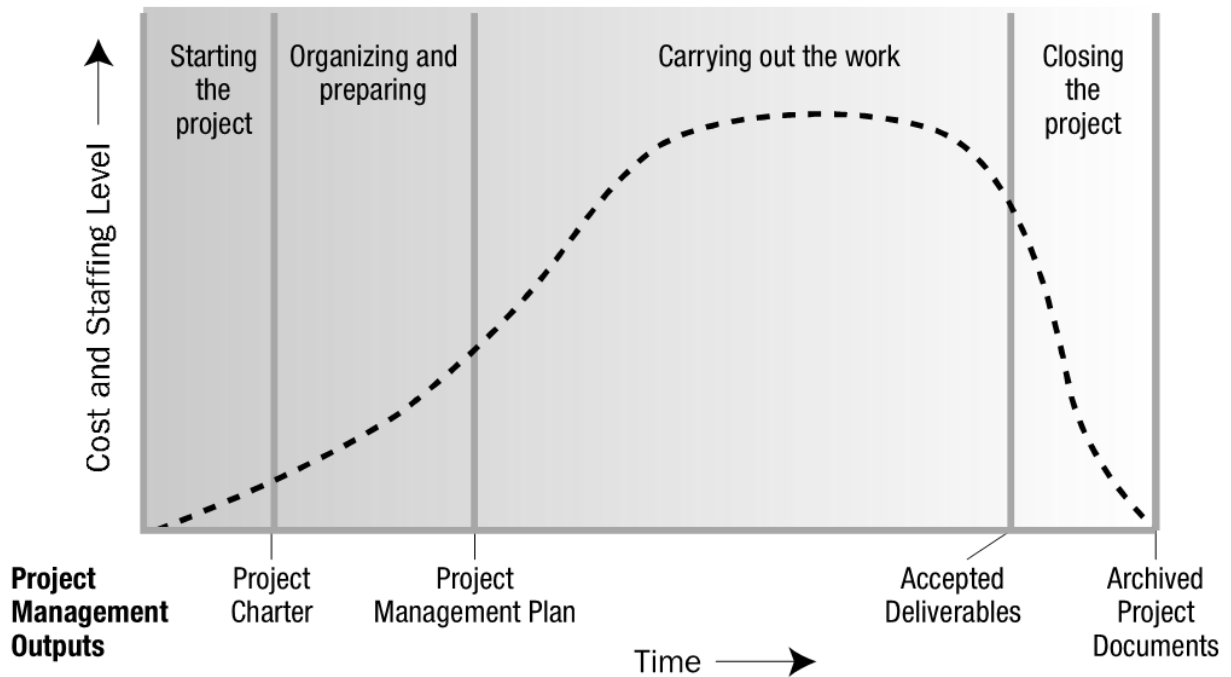
The above figure shows the staffing level and the costs during the different phases of the project life cycle. During the initial phase where the planning only involves a few number of key stakeholders, the cost is minimal. The overwhelming cost and staffing is according to PMBOK (2008) during the phase "Carrying out the work" which is also the most time consuming and exposed phase.

Project phases are seen as separate divisions within a project with control mechanisms in order to manage the deliverables. This view is allowing the project manager to segment the workload into more manageable parts in order to control and plan the project. According to PMBOK, each phase involves different organizations and requires different skills and should be seen as isolated stage. There are control and monitoring mechanisms to supervise the overall project phases even though the boundaries sometimes are not totally integrated.

Another important consideration dealing with phases in a project is the variation of the project structure. There is no single way to define the supreme structure for a project (PMBOK, 2008).

2.2   HUMAN RESOURCE MANAGEMENT

Since a project manager is dependent on people in a project, human resource management is one of the most complex areas for a project manager to manoeuvre (Zwikael & Unger-Aviram, 2010).   Employing/grouping people in order to develop their capacities and ensures that they utilize their competence requires leadership skills of a project manager. According to Zwikael and Unger-Aviram (2010), Human resource management practices are critical for organizational success. In the literature of HRM there are two contradictory camps, where the first sees HRM as a core element of project management and the other side believes that HRM has only limited effect on project success (Zwikael & Unger-Aviram, 2010).

HRM can be seen as a complex area that has both a management support role and an employee support role (Zwikale & Unger-Aviram, 2010). PMBOK (2008) has identified four processes in the field of HRM. These are:

- Develop Human Resource Plan – project roles, responsibilities, and required skills are identified and documented in order to map up the staffing management plan.
- Acquire Project Team - Listing human resouce availability in order to obtain the team needed to complete the project.
- Develop Project Team – The process of improving the competencies, interaction and the team environment for better project performance.
- Manage Project Team – Tracking team member performance by providing feedback and manage changes to optimize project performance.

Observing the processes in HRM confirms that "Team development" is one of the factors that are under the responsibility of the project manager (Zwikael & Unger-Aviram, 2010).

2.2.1   PROJECT TEAMS

The definition of a team according to Zwikale & Unger-Aviram (2010) is defined *as "a small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they are mutually accountable"*. Team members' performance can either be linked to their commitment or their skills based on their role or function during the life span of their limited membership in the group. There are several unique types of teams identified in the litterature but only project teams are the one that concerns project manager.

A project team is in many ways a unique type of team since it carries out a defined, specialized, time-limited project (Zwikael & Unger-Aviram, 2010). Project team are recognized as dynamic, cross-functional where their tasks usually require considerable

knowledge and expertise. The development of project teams is seen as a process of improving the team interaction and to enhance project performance (PMBOK, 2008).

Individuals with different backgrounds, needs and expertise are integrated as one unit. The development of project teams is according to Zwikale & Unger-Aviram (2010) defined in three phases:

- Conceive phase – Project manager together with the project team set focus on the project goals and resources.
- Organising phase – Project manager and the team members establish the boundaries , delineation of relationships, team task design and decision of common values and norms in order to secure resources.
- Accomplish phase- Focus in this phase is to enable the team members to work together.

It is mentioned that leadership roles, effective communication and clear organisational objectives have to be fined in order to increase team team performance (Zwikael & Unger-Aviram, 2010).

PMBOK (2008) lists six tools and techniques for team development:

- Interpersonal Skills – In order to reduce problems and increase cooperation by understanding the project team members. This can be done by using skills such as empathy and creativity.
- Training – By enchancing the competencies of the project team members by coaching and mentoring.
- Team-Building Activities – Improving interpersonal relationships and trustbuilding activities can help individual team members to work together effectivley. This is recognized as a never-ending process since changes in project environment are inevitable.
- Ground Rules – The project team toghether with project manager establish behavior rules and guidelines in order to decrease misunderstandings.
- Co-location – The idea here is to make it possible for all the project team members to be on the same physical location in order for them to perform as team.
- Recognition and Rewards – Motivating team members by using rewards and recognize their commitment to the project have a postive performance effect on the project. Recognition is prefered during the project life cycle rather than after the project is completed.

Team development in detail is a complex process where performance variation can delay the project. In order for groups and teams to develop, they need to go through stages of growth in order to communicate and build trust. Five stages called Forming, Storming, Norming, Performing and Adjourning are recognized in group dynamics. Motivation and

effectiveness varies during these stages depending on the team composition. Performance depends on how well the team passes through the different phases (Boddy, 2002, p. 136).

2.2.1.1 Forming

In the initial stage, individuals are appointed to a team, either by free will, or selected based on skills or technical expertise. The members come together and start to exchange details about themselves. By initiating some exploratory activities about the member expectations on how the team should work.

2.2.1.2 Storming

When the actual work starts, the members can start to express differences of interest. The individuals can realize that others want different things from the groups and have other priorities; these differences will probably lead to conflicts. The formal leader of the group can be challenged by some members who may have different views on how the group should work. In order to pass to the next stage, the manager will have to give clear directions, acknowledge and discuss differences in priorities.

2.2.1.3 Norming

During this stage, the members are starting to accept each other's differences and adequate ways of working starts to establish as well as expected modes of behaviour. If this process fails, the group may have to go through the storming phase once again .

2.2.1.4 Performing

If the norming phase passes successfully, the group will reach the performing phase. During this stage, the group delivers its goals and objectives.

2.2.1.5 Adjourning

This stage will be reached when the group disbands, when new members joins or leaves or when circumstances or the tasks changes. In some cases, the group can be forced to go through the norming and storming phase.

2.2.2 TEAM MOTIVATION

Leadership and motivational abilities are excellent to have in order to influence others in a group. Being a good leader requires a lot of understanding of what motivates and what changes a certain routine (Boddy, 2002).

In order to understand why people behave as they do, project managers need to learn the theories about human motivation. Some of the gurus in this field are David McClelland, Abraham Maslow, and Fredrick Herzberg (Boddy, 2002).

According to McClelland, we perform because we have a need to achieve (the achievement motive). He means that an individual's specific needs are acquired over time and are shaped by one's life experiences. Most of these needs can be classified as either achievement, affiliation, or power. A person's motivation and effectiveness in certain job functions are influenced by these three needs (Boddy, 2002).

Boddy (2002) claims that despite its age the theory of Abraham Maslow is still useful for those trying to influence others in the workplace. Maslow's (1943) theory is that human beings are motivated by unsatisfied needs, and that certain lower needs need to be satisfied before higher needs can be satisfied. Maslow means that there are general needs (physiological, safety, love, and self-esteem, self-achievement) which have to be fulfilled before a person is able to act unselfishly.

According to Boddy (2002), Fredrick Herzberg (1959) provided another good theory on motivation based on interviews with 200 engineers and accountants of their experience of work.

The interviewers asked them to recall a time when they had felt exceptionally good about their job and when they had felt bad. After analyzing the interviews they observed that when the respondents had talked about good times, five factors appeared frequently (Boddy, 2002). These were:

- achievement
- recognition
- work itself
- responsibility
- advancement

When people were describing the bad times the following factors appeared:

- company policy and administration
- supervision
- salary
- interpersonal relationship
- working conditions

Boddy (2002) claims that Herzberg concluded that the factors associated with satisfaction seemed to describe people's relationship to what they were doing. The factors like the nature of the task and responsibility/recognition received was called the "motivators" by Herzberg. They influenced the individual to a superior performance and effort.

The factors associated with dissatisfaction, related to the circumstances surrounding the work were labeled as the "hygienic" factors. They served primarily to prevent dissatisfaction, rather than to foster positive attitudes.

Boddy (2002) argues that a key idea in Herzberg's work is the distinction between intrinsic and extrinsic rewards. He claims that the extrinsic rewards are those that are outside the job and separate from the performance of the task, such as pay, security and promotion possibilities. The intrinsic rewards are those which people receive from the performance of the task itself. Some of them are the use of skills, a sense of achievement and work that is in itself is satisfying to do.

Hackman and Oldham (1980) developed the above mentioned ideas into the "job enrichment model". It is proposing that managers could change specific job characteristics to motivate employees and promote job satisfaction. Boddy (2002) argues that it would also enable staff to satisfy more of their higher-level needs and lead to greater motivation and performance.

The model presents five key job characteristics that contribute to enhancing a jobs motivational potential (Boddy, 2002). All of them affect the motivation of the employees through the intrinsic factors. The key characteristics are: skill variety, task identity, task significance, autonomy and feedback.

- Skill variety describes the degree to which a job requires the use of a number of different skills and experience.

- Task identity defines the extent to which a job requires completion of a whole and identifiable operation.

- Task significance refers to the importance of the job, how much the job matters to others, or how much impact a job has on the organization or its environment.

- Autonomy is the degree to which the employee is free to decide how to do their work and determine the procedures to be used.

- Feedback is the extent to which an employee receives information about the effectiveness of the performance; this gives the ability to observe the results of their work.

All of the five characteristics must be present at the same time for a job to be intrinsically motivating. Managers also have to consider appropriate extrinsic rewards; this can sometimes be difficult since this is often decided at a higher level in an organisation. This is why the intrinsic rewards are of such importance. They are a tool for management at any level to motivate their employees. The model implies that there are five implementing concepts that can be used by managers to increase the motivational potential of jobs (Boddy, 2002).

2.3   ORGANISATIONAL CULTURE

Gray 1999 put forward that few managers would disagree on that the climate or atmosphere of an organisation is linked to project performance. Organisational climate and culture is described as "what it feels like to work on a specific workplace" (Gray, 2001). Moreover is organisational culture described as "the identity of an organisation" where staff members are collectively bounded and holds an organisation together. Organisational culture

expresses the social ideals, values and beliefs that members in an organisation share (Gray, 2001). This can be expressed in different forms such as symbolic devices, rituals, stories and organisational language. Cheung et al. put forward that strong culture is where the implicit and explicit assumptions are in harmony. Cheung et al. further points out that there may be several cultures operating within an organisation such as managerial culture, group culture and worker culture. In addition to this the organisation as a whole will have an overall culture (Cheung, Wong, & Wu, 2010).

Explicit culture is described as a surface level of culture that manifests itself in the "official" organisational and communicational structure. Beneath the surface is the implicit culture where management and staff interacts and is considered closer to reality (Cheung, Wong, & Wu, 2010).

Culture can be described on several levels where a level is described as the degree to which the cultural phenomenon is visible to the observer (Schein, 2004). The levels can be ranged from tangible ones for instance that one can see and feel to a deeper and unconscious one. Between these two layers are beliefs, values, norms and behaviour that members of the culture use and show to others (Schein, 2004).

Moreover is Schein describing values by calling them for *basic assumptions*; these are taken for granted by group members and seen as fixed. Values can be open to discussion by either agreeing or disagreeing about them (Schein, 2004).

| ARTIFACTS | Visible organisational structures and processes (hard to decipher) |

| ESOUSED BELIEFS AND VALUES | Strategies, goals, philosophies (espoused justifications) |

| UNDERLYING ASSUMPTIONS | Unconscious, taken-for-granted beliefs, perceptions, thoughts and feelings (ultimate source of values and action) |
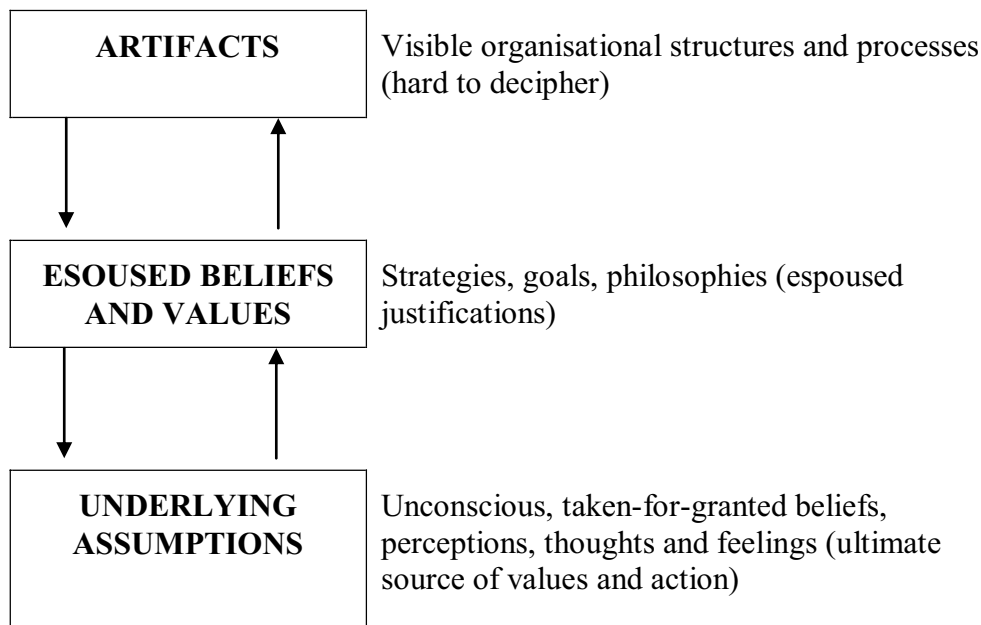
Figur 3 - Levels of culture (Schein, 2004)

Artifcats

Articats are described as the surface level which includes experiences that team members see, hear and feel during the initial phase of a new group, where the members are unfamiliar with culture. What the team members see are such things as the physical environment, its language, and myths and stories about the organisation. In addition to this can the climate of the group be seen as artifact of the deeper cultural levels, for instance the visible behaviour of its members (Schein, 2004). Culture at this level can be easily observed but is also difficult to translate. If the observer interacts with the group long enough, the meaning of the artifcats will gradually be clearer (Schein, 2004).

Espoused Beliefs and Values

Schein (2004) advocates that if a manager convinces the group to act on her belief and if the group has a shared perception, the perceived value can be transformed into a shared value or belief. This transformation is described as social validation and can be seen as the broader values that are not testable, such as ethics. The espoused beliefs and values can be helpful in bringing the group together to reach their mission. Schein believe that espoused beliefs and values can be leave gray zones where team members understand the culture but still not having the culture as such in hand. Schein finally concludes that in order to decipher patterns one must fully understand the basic underlying assumptions (Schein, 2004).

Basic Underlying Assumptions

Repeated working solution to a problem will eventually be taken for granted. Basic assumptions are defined by Schein as the degree of consensus results from repeated success in implementing certain beliefs and values. Moreover is the theory of basic assumptions described as nondebatable and difficult to change. Basic assumptions theory have many similarities with Argyris "theories-in-use" where processes such as "double-loop learning" are the underlying factors for changing and learning (Schein, 2004). Members will carry their own cultural learning from prior groups such as past education and create socialized communities. New group develops its own shared history and from this creates modified or new assumptions. The new assumptions will make the culture of a group.

The three levels of culture are needed in order to understand and interpret the artifacts correctly (Schein, 2004). The heart of culture is described to be in the pattern of basic underlying assumptions. Once these are understood, one can easily understand the more surface levels and act properly with them (Schein, 2004). Schein advocates that leadership is the source of the beliefs and values that get a group moving. It is therefore essential for leaders to get at the deeper levels of a culture in order to assess the functionality and to deal with the challenges that come with it.

2.3.1 CULTURE AFFECT PROJECTS

Parker and Skitmore (2005) made a research in order to find the primary reasons causing project management turnover. Their findings are that turnover occurs during the execution phase of the project life cycle, where the main causes related to organisational culture. In addition to this, they noticed that turnover disrupts and negatively affects the performance of the project team. Other researchers such as Adenfelt and Lagerstrom (2006) found that organisational culture is one of the most prominent factors for organisations to learn.

PMBOK put forward that organisational culture can be reflected in numerous factors such as:

- Shared values, norms, beliefs and expectations.

- Policies and procedures

- View of authority relationships

- Work ethic and work hours

Organisational culture is described as a factor that has a direct influence on projects. Zwikael, Shimizu, & Globerson put forward that mismanaging cultural differences can affect projects negative when working across cultures. If it is successfully managed, culture can lead to innovative business practices and support for faster and better learning which in turn can be a source for competitive advantage. Strong cultures in organisations can in some circumstances be a hindrance. Culture can directly affect behaviour which in term can help a company to prosper (Zwikael, Shimizu, & Globerson, 2005). A sharing culture is identified to make it easy for senior management to implement knowledge strategies.

Senior managers can play a critical role in shaping culture, since they are able to give priority to knowledge sharing (Zwikael, Shimizu, & Globerson, 2005).

Cultures are according to Boddy (2002) developing along with team members working together to solve problems and this can create shared assumptions about the external world. As an organisation grows, sub-cultures develop within them and members are likely to welcome a project that they believe fits the culture or sub-culture. Other projects that challenge the culture will be rejected and abandoned (Boddy, 2002).

Elements in organisational culture are a number of values which guide members' actions. These values represent the perspective that members take towards two inherent tensions which occur in any organisation. This tension is between flexibility and control, and between maintaining the internal system and adapting to the external environment. According to Boddy (2002) these four culture types are identified to:

- Open systems (external, flexibility) – The ability to see the external environment as a source of ideas and resources.

- Regional goal (external, control) – Define effectiveness in terms of production or economical goals and see the organisation as a rational efficiency-seeking unit.

- Internal process (internal, control) – Looking inward and ignoring the environment. The main goal is to make the unit internally efficient and stable.

- Human relations (internal, flexibility) – More focus on human relations with a focus on informal, interpersonal relations.
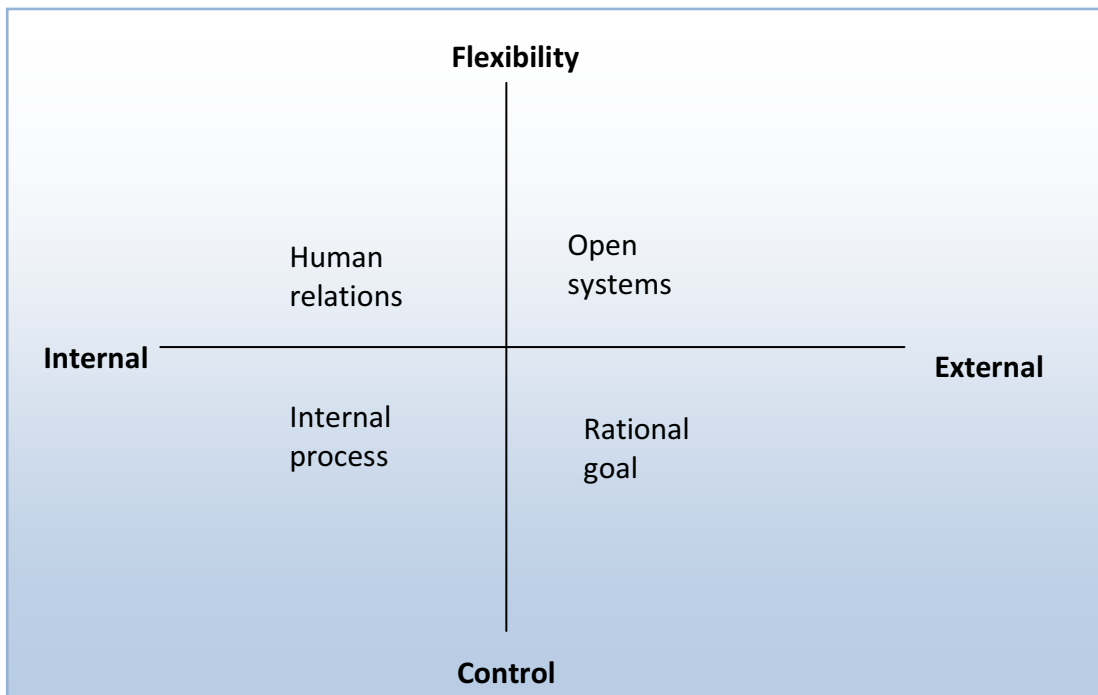
Figur 4- Culture types

It is recognized that if the established culture supports the project, team members are likely to accept it and commit themselves to it. If there is a mismatch between the culture and the project, project managers are likely to experience resistance or lack of commitment. It is therefore important for project managers' to be aware of which characteristics of the circumstance will be supportive, and which will represent potential hindrances (Boddy, 2002).

2.4 KNOWLEDGE MANAGEMENT

Knowledge is created, stored and used at all levels of an organisation in order to achieve the goals of the organisations (Chilton & Bloodgood, 2008). Organisational performance can be linked to the extent to which appropriate knowledge is utilized.

There are various knowledge taxonomies but the most commonly used is Polyani's (1964) and Nonaka's (1994) dimensions of tacit and explicit knowledge. Tacit knowledge is described as what is understood within a knower's mind. It consists of cognitive and technical components such as mental models used by the knower but cannot be expressed directly by data or knowledge representations. It is often described as unstructured knowledge. Explicit knowledge can be expressed directly by knowledge representations (Jennex, 2007).

2.4.1   SECI -MODEL

Knowledge transfer occurs when members of an organisation pass tacit and explicit knowledge to each other. Nonaka and Takeuchi (1995) put forward four means of knowledge transfer and creation that they called for SECI model which is an acrynom for Socialization, Externalization, Combination and Internalization:

- Socialization – is the process of sharing experiences and in so doing creating tacit knowledge such as mental models. Tacit knowledge can be acquired without using language through observations, imitation and practice.

- Externalization – is the process of expressing tacit knowledge in form of explicit concepts.

- Combination – is the process of categorising the concepts into a knowledge system by combining bodies of explicit knowledge. Explicit knowledge can be transferred through various medias, documents or by conversations. Doing so can lead to the generation of new knowledge.

- Internalization – is the process of converting explicit knowledge into tacit knowledge. This is in many ways related to learning by doing.

The four different modes of knowledge transfer are dependent upon a common understanding from the knower to the user of the knowledge (Jennex, 2007).

The SECI model was first proposed in 1991 but was refined and expanded for a broader audience in the book The Knowledge Creating Company (Nonaka & Konno, 1998). It has met broad acceptance amongst management practitioners due to its logic and explanation of knowledge types. The SECI model also shows a dynamic interaction where knowledge is transferred in a spiral process which allows the knowledge values to be refined through exchange between individuals and groups that exists in an organisation (Rice & Rice, 2005).
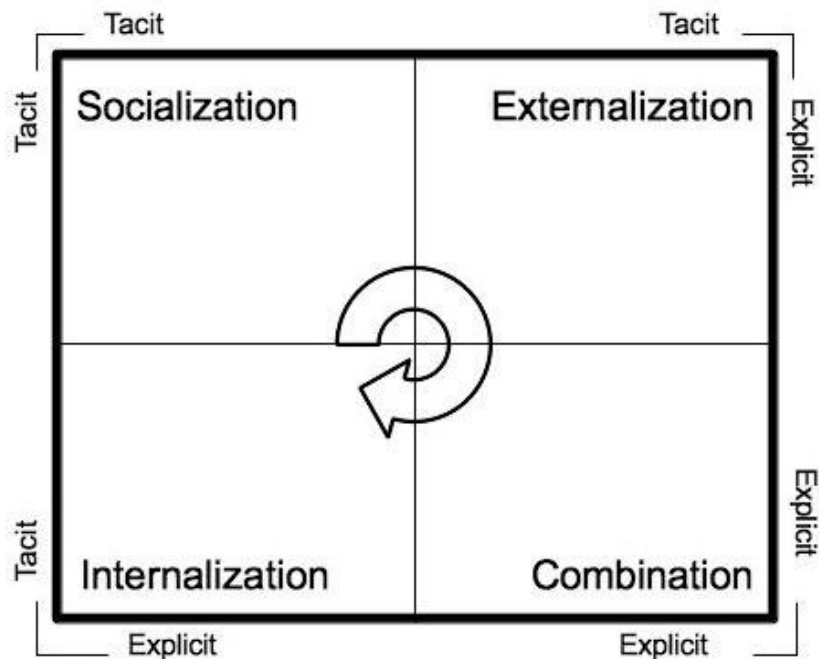
Figur 5 - Nonaka's SECI model

The idea behind the model is that knowledge creating companies will promote the flow of knowledge within the organisation to improve both tacit and explicit knowledge. In addition to this is knowledge value created trough synergies between the two holders within an organisation (Jennex, 2007).

2.4.1.1 CONCEPT OF BA

SECI model was refined in 1998 by adding cultural assumptions to it. Nonaka and Konno introduced the Japanese concept of Ba which is a philosophical idea that relates to the physical, relational and spiritual elements of context (Nonaka & Konno, 1998). Nonaka and Konno defines ba as a shared space for emerging relationships. Space can be physical, virtual, and mental or all of them combined. The concept of ba described as platform for advancing knowledge but it also differentiates from ordinary human interactions because of the idea that is creates new knowledge (Nonaka and Konno, 1998). According to Nonaka and Konno is knowledge embedded in ba where it is then acquired through one's own experience and reflections. A distinction between ba and knowledge is that knowledge can be communicated independently from ba since knowledge is tangible and exists in various media and networks. In contrast to this can the concept of ba be seen as intangible and grounded in an existentialistic framework (Nonaka & Konno, 1998).

For each stage of the SECI model there is a ba that corresponds to it where each category describes a ba suited to each of the four knowledge modes. These four ba offer a platform for specific steps in knowledge spiral, where each ba supports a conversion process that will eventually speed up the process of knowledge creation (Nonaka & Konno, 1998).
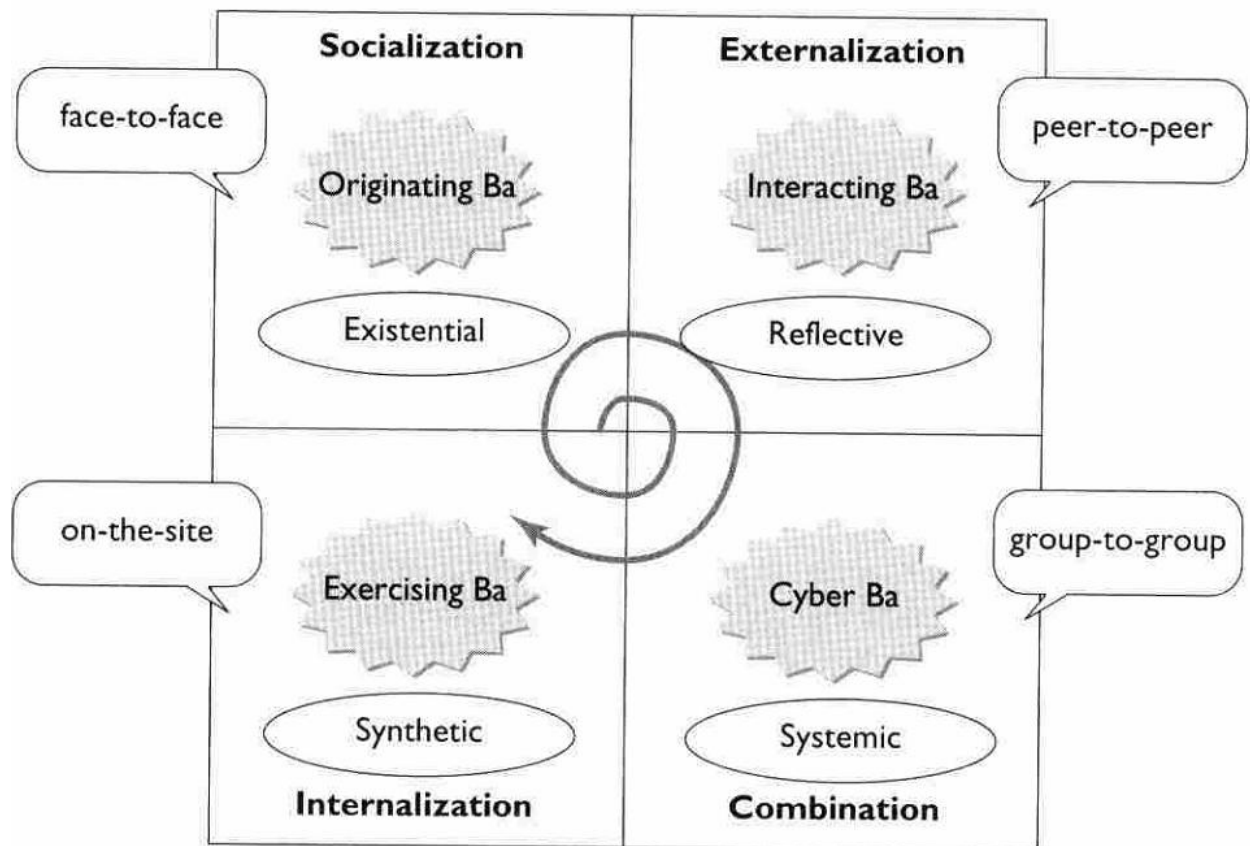
Figur 6- The four characteristics of Ba

- Orginating ba - in this phase team members share feelings, emotions, experiences and mental models. Members try to remove barriers to interact with others. Originating ba is seen as the phase where knowledge-creation process beings and represents the socialization phase.

- Interacting ba – is consciously construction where people with specific knowledge and skills for a project are selected. In the phase tacit knowledge is made explicit by dialogue and extensive use of metaphors.

- Cyber ba – instead of real space and time, the interaction takes place in a virtual world. Explicit knowledge with existing information is supported in collaborative environments such as bulletin boards, databases and other networks.

- Exercising ba – converts explicit knowledge to tacit knowledge with the support of training.

Nonaka and Konno advocate that the awareness of the different characteristics of ba can facilitate successful support of knowledge creation. Moreover is it put forward as continual process that creates new knowledge trough a cycle of conversion of tacit knowledge into explicit knowledge. Finally it will re-convert it into tacit knowledge (Nonaka & Konno, 1998).

2.4.2 IMPLEMENTING SECI IN MULTI-ORGANISATIONAL PROJECTS

Implementing SECI model within an organisation creates structural challenge to the traditional Tayloristic management system. The SECI model has implication for managerial style and organisational structure. Moreover has it emphasised the whole human process of communication as a component of organisational knowledge management and learning (Rice & Rice, 2005).

It has been recognized that SECI model is relatively prescriptive in its presentation and of the types of processes required for implementing it into organisations. It can therefore be a challenge and requires consideration by project managers. It is important to have dense ties in multi-organisational projects. The socialisation processes involved in the sharing of tacit knowledge through shared experiences will require breaking inter-organisational barriers. The basic block of SECI model argues for the importance of face-to-face meetings to establish basic sharing of tacit knowledge Moreover is the concept of Originating Ba putting focus on presence in knowledge transfer. Emphasises is on establishing communicating norms and developing mental models. It is preferable to have strong personal relationships across organisational boundaries in multi-organisational context (Rice & Rice, 2005).

Externalisation process engages the conversion of tacit knowledge into documented explicit knowledge. Multi-organisational projects need to use open compilation systems and non-verbal communication in order to generate a shared understanding. Real or virtual presence is important to create explicit knowledge from the best practices within the organisation. Dialoguing Ba is seen as the creative development of systems to assist the transfer of newly categorised knowledge into a form that will be used by the people involved in the multi-organisational projects.

Combination in SECI model engages complex explicit knowledge into a more usable one. This can be seen as the source of value creation. The challenge is to do this in a way where it is the combined knowledge of all the participants and made available for everyone in the organisation. It is therefore crucial that knowledge is captured at a point where knowledge is created (Grabher, 2007). Moreover is put forward that knowledge should exist both vertically and horizontally open and the combined knowledge ought to consist of the best and most creative knowledge within multi-project organisation (Rice & Rice, 2005).

The means by which explicit knowledge is created in multi-organisational projects can be valuable internal tacit knowledge if it is shared across the organisation (Rice & Rice, 2005). Exercising Ba puts focus on the transfer and internalisation of the shared knowledge back to project members. The use of shared teams and shared routines are recognized as important step to take in order to succeed (Rice & Rice, 2005).

SECI Elements	Key Elements
Socialization and Originating Ba	Identify barriers that can harm personal knowledge exchanges. Put focus on face-to-face communication across the organisations.
Externalisation and Dialoguing Ba	Develop creative methods in order to aggregate tacit knowledge.
Combination and Systematising Ba	Develop routines for multi-organisational projects and promote shared commitments and mental models.
Internalisation and Exercising Ba	Create shared routines by mentoring across organisational boundaries.

Figur 7 - Implementation of SECI

2.5   PROJECT MANAGEMENT MATURITY

The definition of "mature" according to Webster is described as "advance; (progress); ascend; increase; fructify, ripen". In other words maturity can be seen as the quality or the state of maximum development. If applied to an organisation the state of the organisation would be described as in a perfect condition to deal with its projects. In reality no one has reached the stage of maximum development and no one will (Andersen & Jessen, 2003).

The concept of "maturity" was seldom used to describe the state of organisations effectiveness or the quality of performing a certain task. Not until today maturity has be accepted as a concept to map out logical ways to improve an organisations working methods.

It has been recognized that maturity concepts has been adopted into projects because of the complexity of projects and the size of projects, where it is hard to forecast results. This due to the fact that project managers are not getting the information they need to manage effectively or there is inconsistent understanding of the expectations (Crawford, 2007).

Maturity measurement is seen as more subjective than objective (Andersen & Jessen, 2003). Skulmoski (2001) put forward that organisational project management maturity can be described as the organisation's receptivity to project management (Skulmoski G. , 2001). It is also described as the very idea of allowing project managers to do what is needed to successfully manage their projects. Implementing a maturity model to the project group improves the project performance, enhances marketing opportunities and a more structured path to improvements will be available (Skulmoski, 2001). Facilitating maturity can be achieved through training, mentoring and by institutionalizing its project management processes (Skulmoski, 2001).

2.5.1 MATURE AND IMMATURE ORGANISATIONS

Immature organisation can in management terms be seen as an organisation that occasionally delivers excellent results. In a broader view, managers are more likely to narrow their focus on urgent issues rather than working proactively (Office of Government Commerce, 2010). This way of working usually lead to exceeded budgets and schedules with low estimating techniques. Another problem that comes with this way or working is that the quality of the deliverables is likely to be compromised.

A mature organisation uses standardised and defined management processes that are implemented throughout the whole organisation. Each process can be tailored to meet specific organisational needs with the ability to be updated when required. The standardised model is communicated not only to team members but also to the involved stakeholders. Each activity is carried out in accordance with the defined processes and plans. Moreover are roles and responsibilities defined not only for a specific project but also understood throughout the organisation. Progress and initiatives are monitored against the plans. The quality of the deliverables are measured and judged objectively in order to identify problems in a phase where the cost for changes can be held low (Office of Government Commerce, 2010).

2.5.2 MATURITY MODELS

There are several maturity models but the most used ones are discussed below.

2.5.2.1 CMMI

CMMI is an acronym that stands for Capability Maturity Model Integration. It is described as a merger of process improvement models for system engineering, software engineering, hardware engineering and integrated teams. The intention of CMMI is to provide a common vocabulary across the set of models that it provides. Originally, it was proposed by the Software Engineering Institute (SEI) in 1991 for software development. In 2000

CMM was integrated by SEI into CMMI. It has been adopted in many other disciplines and presented in various constellations (Meng, 2010).

Capability Maturity Model consists of a series of process areas and several levels. Process can be described as a cluster of related activities with a set of goals (Meng, 2010). CMMI has two different approaches for an organisation to make process assessment and improvement. The first one is described as the continuous representation and the other is the staged representation (SEI, 2009). Staged representation uses maturity levels while continuous representation uses capability levels (Meng, 2010). Continuous representation has the same number of process areas at different capability levels, in contrast to staged representation that may varied from one maturity level to another. Each maturity level forms the foundation for the next level.
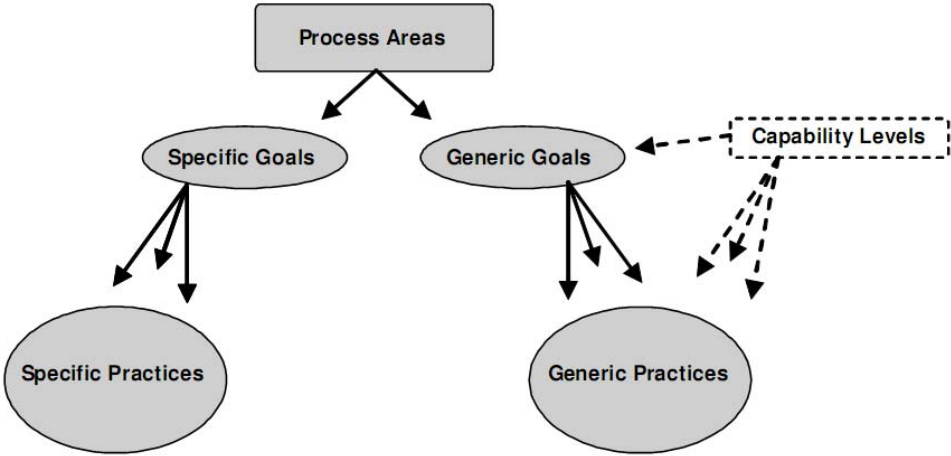
Figur 8 - Continuous Representation
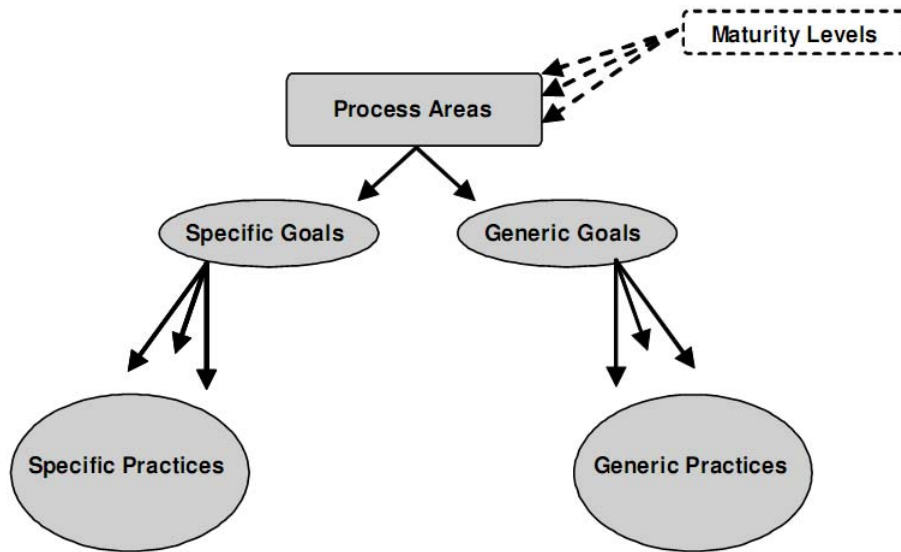
Figur 9 - Staged Representation

Capability levels apply to an organisation's process improvement in individual process areas. By these levels an organisation can improve its process that corresponds to a given process area incrementally. In total there are six capability levels that are numbered from 0 to 5 (CMMI Product Team, 2009).

On the other hand maturity levels are applicable to an organisation's process improvement across multiple process areas. The intention for these levels is to predict the general outcomes of the next project undertaken. There are five maturity levels that are numbered from 1 to 5 (CMMI Product Team, 2009).

Continuous representation is concerned with selecting a particular process area to improve and in addition to this also select a capability level for that specific process area (CMMI Product Team, 2009).

Level	Continuous Representation Capability Levels	Staged Representation Maturity Levels
Level 0	Incomplete	(not applicable)
Level 1	Performed	Initial
Level 2	Managed	Managed
Level 3	Defined	Defined
Level 4	Quantitatively Managed	Quantitatively Managed
Level 5	Optimizing	Optimizing

Figur 10 - Comparison of Capability and Maturity Levels

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If a process is performed or incomplete it is important to note since it indicates the starting point of continuous representation. The staged representation is concerned with the overall maturity of the organisation and the primary focus is not whether individual processes are performed or not. Because of this the name "Initial" is given to the staged representation starting point. It is put forward that both capability levels and maturity levels are intended to measure how well organisations can do in order to improve their processes. Capability levels from Level 0 to Level 5 are achieved when all generic goals are satisfied up to that level (CMMI Product Team, 2009).

Maturity levels are defined as the evolutionary plateau for organisational process improvement. Each maturity level matures a subset of the organisations processes in order for it to move to the next maturity level. The levels for maturity are measured by achieving the specific and generic goals that are associated with each predefined set of process areas. Maturity levels with each of its layers are seen as the foundation for ongoing process improvement. Level 2 to level 5 in maturity levels uses the same terms as capability level 2 to level 5. The intention of presenting the same terms for both capability levels and maturity levels is because they are seen as complementary. Maturity levels can be used to portray organisational improvement relatively to a set of process areas. Capability levels characterize improvements relative to an individual process area (CMMI Product Team, 2009).

2.5.2.2 P3M3

P3M3 which stands for Portfolio, Programme and Project Management Maturity Model is providing a framework that organisations can assess their current performance and suggest improvement plans with measureable outcomes. (Office of Government Commerce, 2010) P3M3 is owned and maintained by the Office of Government Commerce (OGC) in UK with the main intention to drive up standards and capability in public sector. The current version of P3M3 has reached second version after its first publication in February 2006. It originates from the Capability Maturity Model (CMM) which was developed by Software Engineering Institute (SEI) in the United States. The structure of P3M3 follows the CMM structure, using a five-level maturity framework (Office of Government Commerce, 2010).
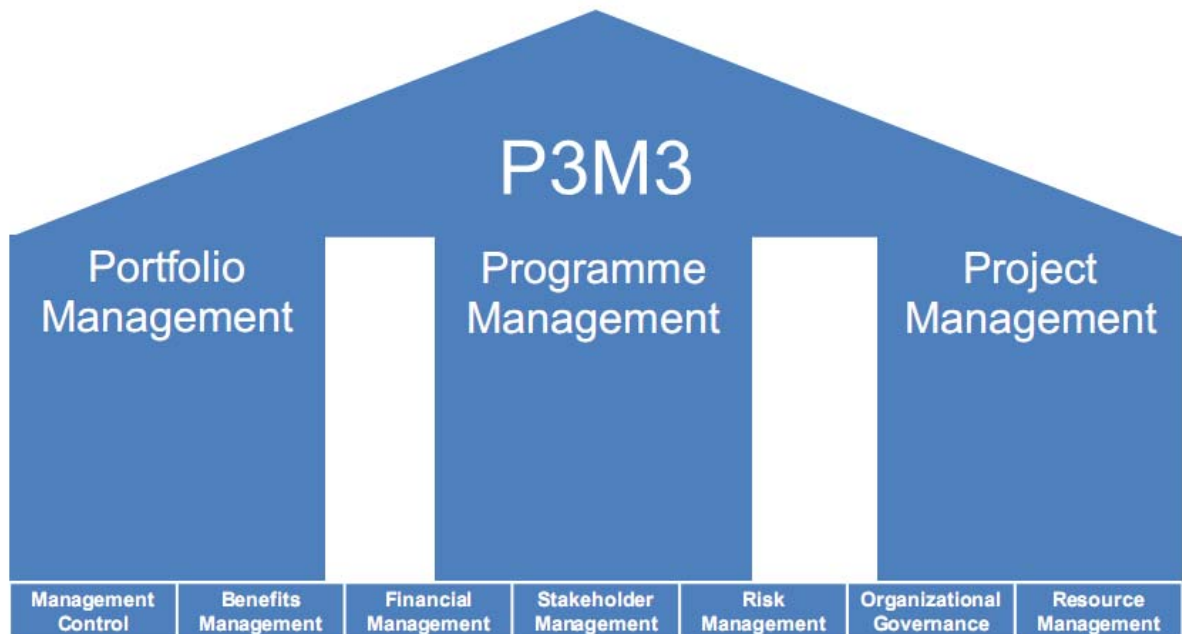
Figur 11 - P3M3 structure

P3M3 model contains three individual models:

- Portfolio Management Maturity Model
- Programme Management Maturity Model
- Project Management Maturity Model

There is no interdependency between the three above mentioned models, which allows for independent assessment (Office of Government Commerce, 2010).

An organisation searches to maximise value for money from investment needs to understand the optimal level of performance and have a realistic view of what can be achieved. It is put forward that not all organisation will be able to reach the highest level. The middle level might be enough for most organisations to meet their business needs. It is mentioned that in order to gain maximum benefit from using P3M3, performance improvement should be seen as a long-term process.

Some reasons to why organisations should use the model to assess their current performance are:

- Justify investment in portfolio, programme or project management improvements
- Gain recognition of service quality in order to support proposals
- Gain a better understanding of strengths and weaknesses in order to enable improvement

The models are intended to offer a holistic view of an organisations performance by using a broad spread of attributes. P3M3 is according or OGC opposed to other maturity models suited for health check of strengths and weakness of an organisation and judge it against objective standards. The model focuses on the organisation's maturity instead of specific

initiatives where good result are possible even with low levels or maturity. It provides a roadmap and focuses on continual progressions and improvements (Office of Government Commerce, 2010).

Office of Government Commerce (2010) argues that the model can provide more tangible benefits such as:

- Increase productivity that leads to shorter cycle times
- Better predictability when it comes to time and cost
- Leads to higher quality outcomes and lower costs of quality which means fewer defects.
- Better quality means improved customer satisfaction
- Enhanced employee morale

OGC has also mentioned that there are some common causes of programme and project failure that can impact on the outcomes (Office of Government Commerce, 2010). These have been grouped into the following categories:

- Design and definition failures can occur when scope of the change and the required outcomes or outputs are not clearly defined.
- In some cases decision-making failures, where there are inadequate levels of sponsorship and commitment to the change are reported.
- Failures to discipline such as weak arrangement for risk management and inability to manage changes in project requirements.
- Failures to supplier management such as lack of understanding of suppliers commercial imperatives. This is mostly due to poor management and inappropriate contractual set-ups.
- People failures, such as disconnection between programme/project and stakeholders. Issues that affect this category are related to lack of ownership and cultural issues.

As P3M3 is not only applicable to individual activities, but also to activities within organisations that provide focus to build a sustainable delivery infrastructure and efficient management practices. If the organisation ignores or lacks infrastructure, repeatability and if the result depends on a few key individuals with a proven track record, it may not provide a basis for long term success (Office of Government Commerce, 2010).

2.5.2.3 Maturity Levels

The five Maturity Levels have the same description and characteristics for each of the three sub-models – Portfolio, Programme and Project Management. As previously mentioned, P3M3 recognizes that organisations may do extremely well at project management without having embraced programme or portfolio management. The model is intended to work independently and allows the organisation to assess its effectiveness against the sub-models. The problem with using just one area of the model is that an overall maturity rating cannot be given (Office of Government Commerce, 2010).

The Maturity Levels enable the organisation to identify process improvement with a clear pathway and should be seen as a long-term strategic commitment. Short-term improvements can be targeted to achieve specific goals but the real benefits are observed only trough continual process improvements (Office of Government Commerce, 2010).

The characteristics of each of the five Maturity Levels will be described in detail from Level 1 to Level 5. An achieved level must be maintained and improved in order to move to the next level (Office of Government Commerce, 2010).

Level 1- awareness of process

There are few or no process descriptions and no documentation. Managers have some recognition of the needed activities but they are determined by events or individual preferences with high level of variation. Undeveloped processes with low commitment are common. This means that the necessary activities for better practice are not fully performed. Level 1 organisations may have achieved some successful initiatives but these are often linked to key individuals' competencies rather than organisation-wide knowledge. This success comes often with schedule or budget overruns. Another frequent occurrence is that Level 1 organisations usually over-commit themselves and sometimes abandon processes during crisis (Office of Government Commerce, 2010). Organisations are not able to repeat past successes consistently mostly due to the fact that process description and documentation is not recorded.

Level 2 – repeatable process

Level 2 organisations will be able to demonstrate some initiatives by referencing to the documentation and confirm that basic management practices have been established. Only a few key individuals can demonstrate a successful track record and by this the organisation is able to repeat previous success in the future. Process disciplines are weak and initiatives are performed and managed according to the documented plans. Milestones and the deliverables are visible to management at defined points. Moreover will top management be able to lead on a number of the initiatives but there may be inconsistency in the level of engagement and routine (Office of Government Commerce, 2010). The staff may have some generic training but there is still a risk of exceeding cost and time schedules.

Level 3 – defined process

Processes are documented and standardised and integrated to some extent with other business processes that enable management to achieve organisational purposes. Process ownership and established process group with responsibility for maintaining consistency and process improvements are likely to exist across the organisation. These process improvements are planned and controlled with appropriate resources. Top management engagement with active support is available. Established training programme to develop the skills and knowledge of individuals in order to perform their designate roles exists. In addition to this are key aspects of quality management there to perform peer reviews of identified products to better understand how processes can be performed and eliminate possible weaknesses (Office of Government Commerce, 2010).

Level 4 – managed process

Mature behaviour and process that are quantitatively managed characterizes this level. Quantitative objectives for quality and process performance are used as criteria in managing processes. The collected data is used to contribute towards the organisations overall performance measurement framework. The data is also used in analysing the portfolio and the capacity/capability constraints. Top management is committed to seek innovative ways to achieve goals. Improved predictability of process performance improves the organisation ability to adjust and adapt to incidents without loss of quality (Office of Government Commerce, 2010).

Level 5 – optimized process

The focus is on optimization of quantitatively managed processes in order to change business needs and external factors. Anticipation on future capacity demands and capability requirements helps the organisation to meet delivery changes. Top managers are seen as exemplars that reinforces the need and potential for capability improvements. The organisation is able to rapidly respond to changes and opportunities that enhance its way to accelerate and share knowledge. The knowledge gained from its process and product metrics is used to understand causes of variation and eventually optimize the organisations performance. Continuous process improvement enabled by quantitative feedback from its embedded processes demonstrates the organisations performance. Strong alignment of organisational objectives with business plans cascades down through scoping, sponsorship, commitment, planning, resource allocation, risk management and benefits realization (Office of Government Commerce, 2010).

2.5.2.4 Process Perspectives

Seven Process Perspectives exist within P3M3 that defines the key characteristics of a mature organisation. They apply at all Maturity Levels and each perspective describes the process and practices that should be deployed at a given level of maturity. The quality and

effectiveness of process and practices increase as the organisation move up through the Maturity Levels. It is put forward that this incremental process improvement is a key feature of P3M3 that enables the organisation to assess their maturity. In addition to this an organisation can access their effectiveness against any particular Process Perspective (Office of Government Commerce, 2010). A summary of the seven Process Perspectives are given below.

2.5.2.4.1 Management Control

Management control covers the internal controls of the initiative and how it is maintained and controlled through its life cycle. It is characterized by clear evidence of leadership and direction when it reviews processes during the course of the initiatives. Regular checkpoints and clearly defined decision-making processes with clear objectives of what the initiative will deliver. Initiatives should have clearly described outputs with blueprints that are defining the outcomes. Internal structures of the organisation will be aligned to achieve the above mentioned characteristics and the focus of control is to keep them within the tolerance set by the controlling body according to the organisational requirements. Identification of specific issues will be evaluated with clear decisions on how to deal with them by using a structured process with impact assessments that is most appropriate (Office of Government Commerce, 2010).

2.5.2.4.2 Benefits Management

Benefits management is seen as a process that ensures that the desired business change outcomes have been clearly defined and that they are measurable in order to be delivered trough a structured approach with full organisational ownership. It is the organisation that has to assess and approve the areas that it will deliver. Benefit dependencies and requirements will be clearly defined that leads to the understanding of how the outputs of the initiatives will meet those requirements. Evidence of classification of benefits and a holistic view of the implication have to be considered. In addition to this all benefits must be owned and have a realization plan to be managed. Focus on operational transition coupled with follow-up activities in order to ensure that the benefits are being owned and realised by the organisation (Office of Government Commerce, 2010). Continual improvement is embedded in the organisation. Finally change management and the complexities that comes with it is built into the organisation's approach.

2.5.2.4.3 Financial Management

Resources should be a key focus of initiating and controlling the ongoing processes. Financial management ensures that the likely costs of the initiatives are captured, categorized and evaluated within the business case over the investment life cycle. Organisation's financial functions are involved where approvals are embedded in the broader organisational hierarchy. Business case defines the value of the initiatives to the business and includes a financial appraisal of possible options. Business case will be at the

core when making decisions during the initiative's life cycle with links to formal review stages and evaluation of the cost and benefits is associated with alternative actions. An available fund is scheduled by financial management to support the investment decisions.

2.5.2.4.4 Stakeholder Management

Since stakeholders are key to the success of any initiatives, they are analyzed and engaged both within and outside the organisation in order to achieve objectives in terms of support and engagemen (Office of Government Commerce, 2010)t. Communications planning together with effective identification and techniques to enable objectives to be achieved are included in stakeholder management. It is seen as an ongoing process across all initiatives that are inherently linked to the initiative's life cycle and governance controls.

2.5.2.4.5 Risk Management

Risk management views the way in which the organisation manages threats and opportunities. It maintains a balance of focus on threats and opportunities with appropriate management actions to reduce or even eliminate the likelihood of identified risks. This approach will also minimize risk impacts if it does occur. Risk management will look at a variety of risk types that affect the initiatives both internal and external with the intention to track the triggers that creates risks. Risk mitigation will be innovative and proactive in order to reduce the likelihood impact by using a number of options. Risk reviews are embedded within the initiatives of life cycle and have a supporting process structure to make sure that the appropriate levels of rigidity are applied (Office of Government Commerce, 2010).

2.5.2.4.6 Organisational Governance

Organisational governance looks at how the delivery of initiatives is aligned to the strategic direction of the organisation. This includes how start-up and closure controls are applied and how it is maintained during the whole life cycle. Organisational governance looks at how external factors that impact on initiatives are controlled and used to maximize the organisation's final result. Sponsorship is one of the factors that can enable this. Organisational governance is also seen as a control mechanism that includes the legislative and regulatory frameworks (Office of Government Commerce, 2010). Stakeholder engagement and how their requirements are enabled into the design and delivery of outputs and outcomes are also included here.

2.5.2.4.7 Resource Management

This covers management of all types of resources required for delivery. Resource management includes human resources, knowledge, buildings, equipment, supplies, tools and supporting teams. Key element of resource management is the process for acquiring

resources and how these are used effectively. Capacity planning and prioritization are required in order to enable effective resource management. It will also include performance management and exploitation of opportunities for optimal utilization (Office of Government Commerce, 2010).

2.5.2.5 Attributes

Each Process Perspective has a number of attributes which are indicators of process and behavioural maturity. Specific Attributes relate only to a particular Process Perspective. Generic Attributes apply equally to all Process Perspectives at each of the five Maturity Levels. Organisations will perform well against some Process Perspectives and not so well against others. These Attributes describes the intended profile of each Process Perspective at each Maturity Level. This structure of P3M3 allows organisations to see a snapshot of where they are now with respect to any of the Process Perspectives (Office of Government Commerce, 2010). This structure along with knowledge of where the organisation needs or wants to be in the future will be the basis for an improvement plan for progress towards the target.

3 Method

Together with a supervisor at Göteborg & Co. the deliverables and intention for the research was agreed upon. By benchmarking different departments and sub-divisions in an organisation that is project based; the intention is to identify the current work methods and areas of improvements. By benchmarking the organisation with a similar organisation with relatively the same business area would be more fair and interesting for both of the involved organisations. Since Göteborg & Co. has almost the same area of business as Svenska Mässan the instant response was to compare both of these organisations with each other. The benchmarking includes both qualitative and quantitative methods.

In order to identify current project methods and management practices of the sub-divisions within the two organisations; a preliminary interview with the project groups has been carried out. The intention with the first interviews is to identify what areas in the workflow and management practices that are seen as problematic and difficult to manage. The qualitative data conducted from these interviews has been investigated in order to develop the benchmarking and maturity model that is optimized for the project groups. The initial interviews made it possible to get an insight in the organisational culture and the complexity of the projects.

3.1 Benchmarking scheme

From the qualitative data, a benchmarking scheme has been assembled to measure project management maturity, project group initiations concerning human resources, organisational support and knowledge management. Evaluating existing maturity models such as CMMI and P3M3 has been investigated and modified in order to build a new model that is optimized for Göteborg & Co. and Svenska Mässan's typical project types. Several projects both within Göteborg & Co and Svenska Mässan has been involved to gather quantitative data. Further research and analysis of this data have helped the researchers to put forward proposals for improvements.

Results from the benchmark have made the foundation of the quantitative data where the information has been interpreted trough statistical software such as SPSS. This method provided a visual representation of the data but also gave a depth to the correlating factors of the maturity model.

4 Interviews

Two sets of interviews were conducted for the collection of primary data. The first set was to find out what other areas the project managers considered as "problem areas". The intention was to build a trust among the interviewees to discuss openly about their weaknesses and strengths. The various project teams were selected by the main organisations; involved project managers understood that there was a desire from the main organisation to openly discuss their working processes. In this way, sensitive information could be discussed openly and in detail.

4.1 First set of interviews

Project groups with different business and focus areas were selected by the main organisation. All these projects had different characteristics based on aims and means within their business area.

The following projects were selected to participate in the first set of interview:

Kvalitetsmässan – a project group that is organising a fair every second year towards the public sector. This project group is loosely tied to Göteborg & Co. where the initiators are external partners such as the city of Göteborg, the region, the county including governmental departments. This is a small project group with three fulltime workers and hired additional staff on a project basis when the fair is approaching. Another characteristic of this project group is that they do not sit in the same building as the main organization which confirms the loose connections to Göteborg & Co.

Global Forum – this is also a project group with loose ties to Göteborg & Co. Global Forum is supported by regional and local government, as well as companies and organized labour in western Sweden. It is a biennial conference in Göteborg on globalization. This project group consists of three fulltime members that increase their staff as the conference is approaching.

Kulturkalaset – arranges an annual culture festival that is recognized as one of Sweden's biggest festivals with more than 900 items on the program. The project is a collaboration between the City of Göteborg, Region Västra Götaland and Göteborg & Co, the latter functioning as the project manager for the event. The group consists of eight members and increases during the festival days. This project group can be seen as one of the projects that are tightly linked to Göteborg & Co. even though there are some external partners.

Elfackmässan – is a fair for the electrical technology and lighting industry arranged by Svenska Mässan. It takes place every second year with a three member team and additional staff during the fair. This is one of the oldest fairs among the interviewed groups that started in 1969. External partners such as trade associations are paid to be involved in the fair. This is recurrent during all of the fairs arranged within Svenska Mässan.

4.2   Second set of interviews

After summarising the first set of interviews, the researchers decided to base the benchmarking scheme on an already existing model for measuring the maturity. Doing so would increase the credibility of the research and the result would be possible to compare not only between the two organisations but also with other organisations that have used the model and the same requirements for each maturity level. As some of the measured areas were not covered in P3M3's organisational project management maturity, additional questions were added to the same model following the same structure. The levels of the original model were used to the added question in order to value and rate them in the same manner.

In addition to this some factors were added in order to compare the performance of other measurement areas between the projects. These factors together with maturity levels from the model were used in statistical software to identify the correlating factors and for the qualitative and quantitative analysis. The following factors have been acknowledged by the researchers:

- Size of the project group
- Educational background (education in project management or not)
- Göteborg & Co. or Svenska Mässan
- Fair or event (public fair or conference for a specific target group)
- Level of communication with other project groups (high/low)
- Project maturity compared to other processes and performance areas

4.2.1   Development of benchmarking scheme

In order to give the research validity; the researchers proposed to use an existing model that is well known for its functionality in the area of projects and that can be used in terms where two organizations can compare their processes and levels of maturity. There are several maturity models available but few of them focus in detail on one specific area practice. For instance is CMMI a model that evolved from defense industry and was later on modified by Software Engineering Institute. After reading various reports and articles regarding maturity models the chosen model for the research was going to be P3M3.

The reasons for selecting P3M3 model over other maturity models are:

- P3M3 model is public and available to everyone and not owned and regulated by any specific organization or company.
- The model is regularly updated where the latest update was made 2010.
- The model contains three individual models and there is no interdependency between them, which allows independent assessment.

Other models were either too complex or not generic enough for the intended projects. The chosen model developed by the Office of Government Commerce in United Kingdom, can be used for self assessment and gives creditability to the research as a generic model for

benchmarking. P3M3 covers seven different Process Perspectives for each of the three individual models and can be assessed at all five maturity levels. The five Process Perspectives included in the model are:

- Management control
- Benefits management
- Financial management
- Stakeholder engagement
- Risk management
- Organisational governance
- Resource management

4.2.1.1 Modification of the benchmarking scheme

After consulting our supervisor it became obvious that the benchmarking scheme has to be modified and adapted in order to make the assessment effective. Open questions from the model were going to be asked to the project team where there would be space for further discussion and follow-up questions. The modified procedure of the model was based on the following grounds:

- As the assessment is in English and the mother tongue of the project managers is Swedish, mistakes and interpretation were going to confuse the interviewee's.
- An open question makes it possible for long and developed answers. The questions would not reveal the grade of the levels and follow-up questions would make it possible to narrow the result to a more precise level of the maturity model.
- The source of errors and interpretation of the answers will be limited to the interviewers instead of the interviewees.

The maturity model is made in six steps within each of the nine areas, where the first five were covered during the interview and the four remaining was made after the assessment. A problem area that was highlighted by the project managers was within resource management. It was described as the hardest area to manage by allocating and balancing the required resources in order for successful delivery of the project. This category was split into two different areas to highlight it in the model and get a clear view of the processes involved. An arithmetic mean between the areas will be calculated in order to obtain an overall rating for resource management performance. This rating was used to compare the projects among each others.

Another modification of the model was to highlight knowledge management where the organisations' ability to share knowledge within the project group but also knowledge sharing with the main organisation. Knowledge sharing ability within the project group has been compared against other external projects.

4.2.1.2 Measurement areas

The benchmark scheme is following a set of attributes for each of the seven Process Perspectives within the project management maturity model, at each of the maturity levels. This made it possible to gather quantitative and measureable data in order to obtain qualitative descriptions and a holistic view of the used practices within the projects.

P3M3 model provides descriptions on typical behaviours and practices for each of the maturity level. The Process Perspectives and its descriptions are given below:

Management Control

Management control is narrowed down to four key activities; documentation, planning, monitoring and project management competence. The initial level includes evidence that some concepts of project management exists together with centrally defined approach to management life cycle and controls. The higher levels reveals that control mechanisms exist and are used across the organisation.

Benefits management

Benefits management includes the processes for change, responsibilities, coordination between projects and the success criteria's. Some consistent framework for defining and tracking benefits at the lower levels might exists where at the higher levels benefits management is not only embedded within the organisational approach but also assessed as part of the development of the organisational strategy.

Risk Management

Risk management covers the process of identifying measuring and managing risks and opportunities. Low or minimal evidence of risk management is used at the first and second level which results in low commitment and effectiveness across the project. At level four and five, risk management is embedded and centrally defined processes exist with an approach of continual improvement of the project goal.

Financial management

Financial management involves the predictability of budget estimates and how the budget follow-ups are managed and maintained across the different project phases. It covers cash flow management and how the project funding is managed in order to deliver the project on budget and on time. The lower levels put forward that little or no financial control exists where at the higher level; financial controls are integrated with those of the organisation.

Stakeholder engagement

Stakeholder engagement contains processes for acquiring and maintaining cooperation with partners, sponsors and the general public. It also covers the communication with involved

stakeholders in order to involve and engage them for successfully delivery of the project. Level 5 indicates that optimized communications from extensive knowledge of the project stakeholder environment is used in order to enable the project to achieve the desired objectives.

Organizational governance

Organisational governance covers the strategy that is used in order to align the start-up and closure of the project. Sponsorship is used for fulfilling the organisation's strategy in processes such as project alignment and long term commitment as well as the strategic vision. Little informal governance of projects exists at Level 1 and at Level 5 the governance arrangements for projects are accepted as a core aspect of organisational control with clear reporting lines to Executive Boards.

Resource management

Resources needed for the project delivery need to be managed properly in order to deliver the project within budget and time. Resource management involves processes for acquisition, planning and prioritizing resources as well as exploitation of them. Some recognition within the organisation of the need to manage resources effectively in order to deliver the project successfully at the initial level but there is little evidence of resource acquisition, planning and management. Level 5 shows that both external and internal resources are optimally balanced and are used effectively.

Human resource management

Human resource management includes activities for recruitment, extraction, training and competence. These activities ensure that there are plans for training that enables personnel to use optimal set of skills in each part of the projects. The higher levels include plans for human resource where staff with key competence can be moved to position where better needed. Training and mentoring are provided in order to motivate and build capacity.

Knowledge management

Knowledge management is not included as separate category within P3M3. Several behaviours and practices exist in the generic attributes of the model. It has therefore been extracted and highlighted as an additional category parameter to measure.

Knowledge management covers the processes for knowledge sharing, training and motivational practices. It also highlights the transparency and open communication channels across the projects within the organisation. Organisational culture is another factor that influences knowledge sharing practices and behaviours across the organisation. Level 4 and 5 indicates that knowledge and skills are dispersed optimally.

4.2.2   Benchmarked projects

Ten different project organisations with different constellation and properties were interviewed in order to identify the core processes that are divergent for each of them. In order to measure project management maturity according to the above described model; face to face interviews were undertaken with the intention to acquire first hand information from project managers within the two organisations. The data collected and recorded from these interviews is not only indicating the maturity for each individual project but also visualizing the maturity of the two organisations. Finally has the collected data been the ground for developing improvement proposals directed both to the main organisations but to each of the projects as well. The following ten projects were included in the assessment:

Tabell 1 - Benchmarked projects

Göteborg&co	Svenska mässan
Kvalitetsmässan	Elfackmässan
Kulturkalaset	Läkarstämman
Global forum	Turmässan
Vetenskapsfestivalen	Scanpack
	Scanautomatic
	Swedental

The scheme as mentioned above contains questions for each topic with descriptive attributes and processes. Follow-up questions were asked in order to get detailed information for narrowing the answer to a specific attribute. Score for each level were given directly during the interviews which were recorded for future reference.

4.3   Key findings

The following section of the thesis describes the key findings obtained through the interviews with the project managers and the two involved organisations.

The data collected from the interviews indicated not only differences in organisational project management maturity but also differences in organisational structure. One major

difference between the two organisations is that Svenska Mässan is running projects that is profit-based where Göteborg & Co. tend to cover projects that are more non-profit. This approach had forced Svenska Mässan to adapt a management model to optimize the project outputs both in terms of profit but also resource allocations. The overall performance for projects run by Svenska Mässan shows a higher mean and lower standard deviation.

Both organisations are at the first glance working in the same business area with a few differences.

Svenska Mässan covers the following business areas:

> **Exhibitions & Meetings -** Exhibition development and independent exhibition activities in most sectors of industry and areas of popular interest. These range from specialist industrial trade fairs to broad events for the general public. Covers around 50 exhibition brands in the portfolio and arranges conferences and corporate evens of all types and sizes.

> **Gothia Towers** – Hotel with restaurants and bars in the same exhibition complex to cover the needs from the exhibitors and visitors.

> **Arena** – A group that is responsible for managing the exhibition and congress centre's premises and provides services to outside organisers and for independent events.

Göteborg & Co's activities are concentrated in the following business areas:

> **Business/Leisure Travel** – Intention is to market Göteborg and the region on the private market for both business and leisure purpose.

> **Meetings** – A department named Göteborg Convention Bureau with the main intention promotes Göteborg as a meeting location. It has close relations to the tourism-industry such as hotels, restaurants and congress organisers.

> **Events** – Arranges and promotes the city trough a varied range of events with the aim to promote the city. Here are several fairs, festivals and conferences arranged and promoted by Göteborg & Co.

> **Visitor's service/Media centre** – Covers tourist office and promotes the city trough media both internationally and nationally.

The assessed projects within Svenska Mässan have been in the area of Exhibition & Meetings and in Göteborg & Co in Meetings. Investigated projects at Svenska Mässan are tightly bounded to the organisation with cooperation between the project teams. The implemented project model is permeated within all projects with standardised processes and tools.

4.3.1   Findings at Göteborg & Co.

The projects investigated at Göteborg & Co are working independently and are according to some of the project managers interviewed seen as "an organisation within an

organisation". This means that very little cooperation and support is provided by the main organisation to the project groups. All projects do report to the steering board and the involved partners to some extent but not as frequent as the projects run by Svenska Mässan. As most of the projects are not aiming for profit, they are satisfied if the project is delivered within budget and on time. Changes to the environment can affect short term goals but long term goals are aligned with strategic business partners, trade associations and sponsors. This is one of the strengths with projects run within Göteborg & Co. Most projects are supported by sponsors and trade organisation with sometimes tight links with governmental organisations. Sponsors involved with a specific fair are paying to be involved within the project.

Some of the projects are loosely linked to the main organisation and the main initiators are either the region or the city of Göteborg. Even if the projects are non-profit based they are dependent on securing project funds by either selling tickets to the conference or by supporting the project with the help of sponsors. Projects initiated within Göteborg & Co. are depending on meeting the budget or their existence is challenged. This creates an atmosphere where the main organisation is in many ways seen as a limited supporter of the projects. Some of the project managers put forward that in fact they have very little to do with the main organisation due to the lack support it provides for them.

No standardised tools or methods are provided by the main organisation which has resulted that each project has developed their own practices for managing the project. Budgets are based on previous year's budget plan with little or minimal changes. Schedules are often rough estimates with deadlines that are based on previous projects as reference. Project management plans are not standardised that makes it difficult for new project members to assimilate and follow. Several of the interviewed project managers put forward that new project members must have been through at least one delivered project before they have fully learned the way of working. Despite this, the approach from the management is to employ staff on project basis which means that they leave after the delivered project. Working this way creates additional workload on project managers in order to guide, monitor and motivate project members who are not self-propelled and not sure of their duties to the project.

Because of the high variation between project objectives, each project is forced to develop and maintain project management tools for each of the projects. The same goes for promoting and marketing; each project are using a wide range of different tools and channels to market the project. Some projects are using the IT department of the main organisation who provides them with website design and webhosting facilities.

One common supportive function that the main organisation is providing to each project is accounting and HR with payroll and legislative support functions. Evaluation and documentation are shared both with the main organisation and with sponsors and partners. Evaluations work to develop and improve the project as well as measurement of how satisfied the involved partners feel. Evaluation serves as the only quality measurement in addition to the budget, the number of visitors and exhibitors.

4.3.2   Findings at Svenska Mässan

Svenska Mässan uses a standardised project management approach that covers the whole project life cycle. The model is implemented throughout the whole organisation to act as supporting mechanism in delivering the project. Technical work in each phase is documented and made visible through its intranet. Roles and responsibilities are defined at the very beginning of project start-up. Deliverables are reviewed and verified for each team member to make sure that schedules are hold. These phases are sequential and defined in various project meetings and group meetings. A noticeable difference in contrast to Göteborg & Co. is that cost and staffing levels are low at the start and peak during the intermediate/final phases. During the start up phases, team members are placed where they are better needed and shift from projects to project as the staffing needs increases.

Projects are run within Svenska Mässans' own premises and the supportive model is developed to cover all types of project needs. Project tools such as databases, web-publishing, booking and accounting processes are all well integrated and standardised. This approach makes it possible to keep the project costs at minimum where no external procurement processes are needed. In addition to this are the internal price rates for various serviced during the project life cycle favourable compared to external projects that are delivered at Svenska Mässan.

Each project has an upper team where projects of the same characteristics are gathered to share ideas, information and propose suggestions for improvement. In total there are five different teams that cover all projects within the different business area that Svenska Mässan is aiming for. Regular meetings with different projects managers are held to make sure that all the needs for the projects are in place and trends and strategies are shared openly. The same kind of regular meetings are held among project coordinators and sales personnel. This creates a spiral of continual improvement and refinement of the project processes.

Another difference noticed at Svenska Mässan's projects is that there are few and limited number of sponsors involved in projects. Trade organisations are usually paid to back up the project and very seldom are governmental organisations involved in projects. Projects that break budgets are therefore referred to the main organisation to ask for additional funds. In order to prevent this scenario the implemented project model provides tools and means for budget estimates. It is made possible for each project manager to login to the accounting system of the project in order to see the current budget status. Expansion and extraction of project activities can therefore be balanced in order to minimize the risk of breaking the budget.

In-house projects are prioritized according to the size of the budget and resources are leveraged according to this. The assigned number of hours from IT-department is in relation to the project size. This can sometimes be seen as a limitation and holdback projects pace from growing as desired from the project management point of view. The implemented project management model is also seen as a limitation to profile each project as the project manager desires to.

4.3.3   Quantitative finding from the benchmarking

The benchmarking results were analysed in statistical software named SPSS in order to find out correlations between the different attributes between the projects. The two organisations were measured as a factor as well to see the dependencies among the projects in contrast to the individual projects.

Strong correlations exist in fact between the two organisations and whether the project leaders had received training in project management or not. Another factor that correlated highly was the budget size with the type of event. This is due to that fact that some of the arrange conferences are in relation to fairs only dependent on costs for staff and conference hall. A fair includes sales personnel to sell the fair stands and side arrangements connected to the fair.

Some of the prerequisites of the project groups identified are strongly correlating with the average project maturity of the specific project team as well as some factors connected to the project team's organisation can correlate with the performance in some management areas.

Budget size

Since Svenska Mässan is using a well implemented and accepted project management model it is noticed that no significant correlation can be found between budget and a projects maturity. Göteborg & Co. loosely tied projects are driven with a non-profit approach and seem to keep to budget. The concluding finding is that budget size does not correlate with the projects maturity.

The two organisations

Governance is the most correlating factor with the organisational project management maturity of the project team. This is due to the fact that projects at Svenska Mässan are well integrated with the main organisations goals. The average project management maturity is illustrated below.
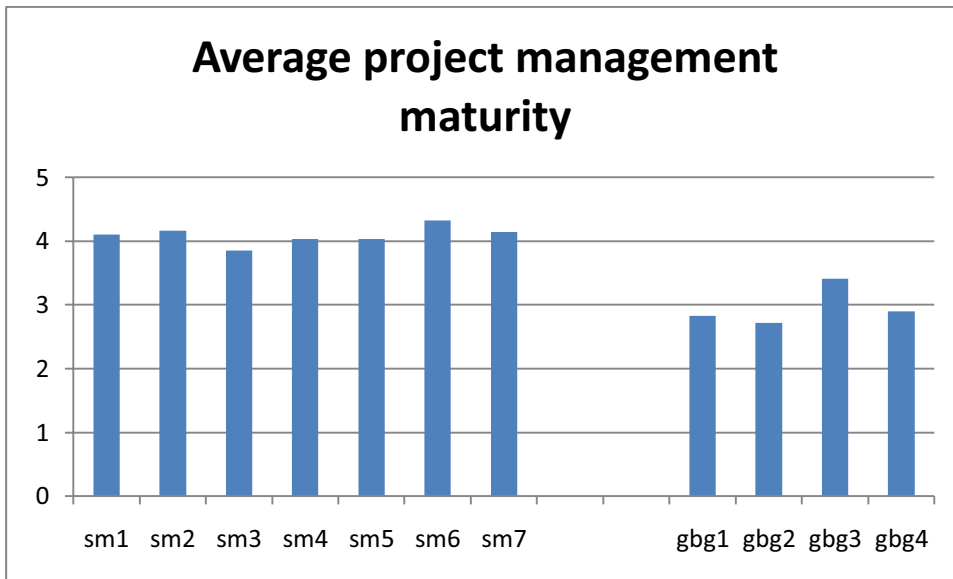
Figure 12 - Average project management maturity at Svenska Mässan (sm) and Göteborg & Co. (gbg)

The nine different "Process Perspectives" measured shows that projects at Svenska Mässan achieved higher scores compared with projects at Göteborg & Co. This visualises the difference between projects at the two organisations, but individual projects can compare themselves with external projects as well.
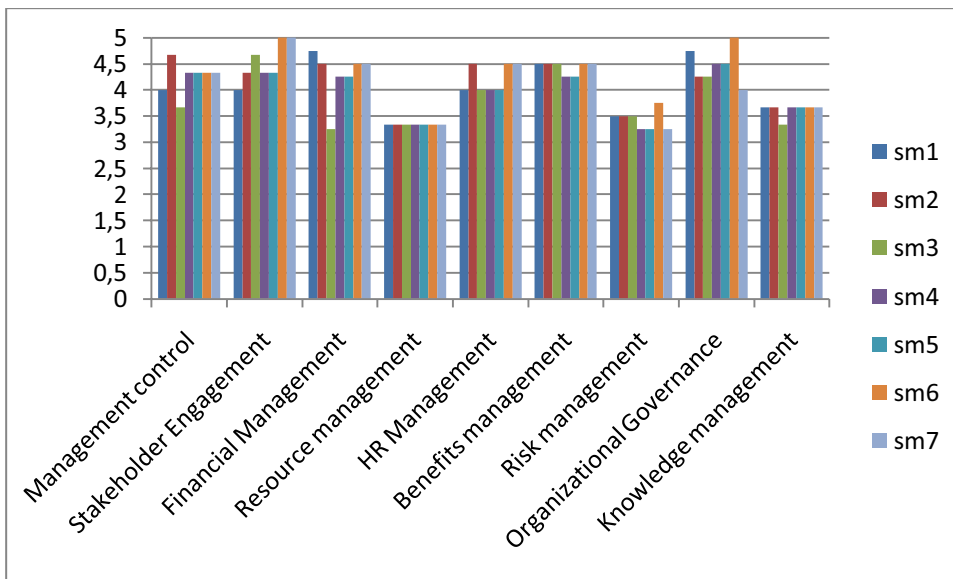
Figure 13- Performance of measured project management areas for projects at Svenska Mässan.

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Figure 14- Performance of measured project management areas for projects at Göteborg & Co.

Education

Knowledge management and governing organisation is correlating with each other to a high degree which can be interpreted that even though no certified project management backgrounds exist the projects are still successfully delivered. These due to those same projects are delivered from year to year with the same project managers. Specific project characteristics, stakeholders, schedules and plans are dependent on the project manager's experie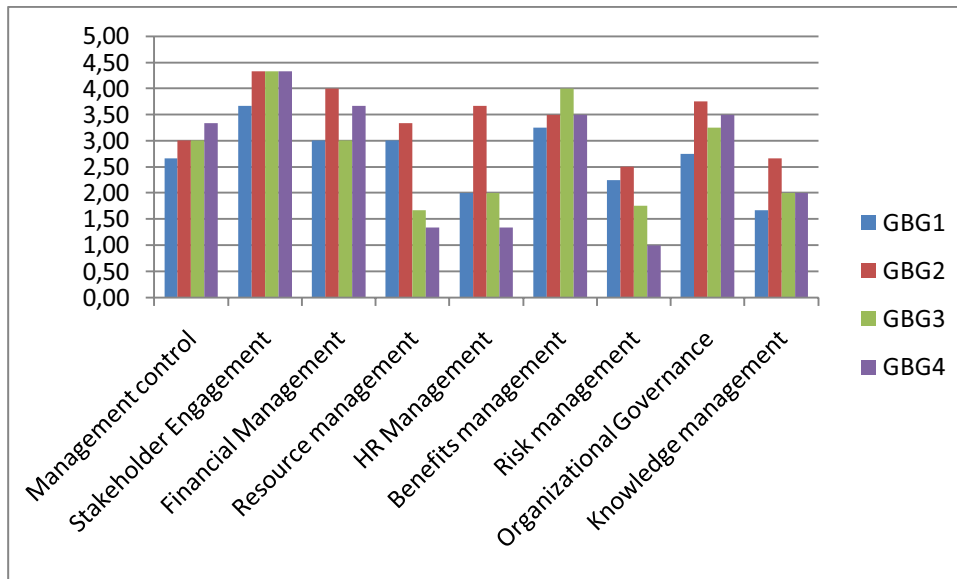nce. Knowledge sharing activities depends on the governing organisations strategies for it. Projects at Göteborg & Co. tend to hire people with higher educational background where Svenska Mässan promotes workers from the "ground" to climb in the organisational hierarchy. This is also confirmed by Svenska Mässan's intention to promote additional training courses for its staff when needed. No such activities have been identified within Göteborg & Co.

Type of event

The type of project whether it is to deliver a fair, conference or any other kind of arrangement; no correlation has been identified in any specific area when it comes to project management maturity.

Project maturity

Management practices are measured by summarising all areas for each project considering the different attributes of the model in order to see correlations.

Management control

Project manager's education is correlating to which organisation the project is governed by. Previous experience of the project manager regarding the specific project is one factor that has been identified to affect the correlation. It is also recognized that project management

practices covering the whole project life cycle affects the outcome of the project. Project managers with high level of education that cope with the different phases of the project demonstrate a higher maturity. Another identified factor affecting the maturity level is that if a project management model is applied in all projects that cover the whole life cycle it can also affect the maturity level. The organisational structure of Svenska Mässan has been identified as a "strong matrix" organisation. That is why Svenska Mässans defiend approach to adapt the management model complies with the project requirements in order to meet the needs, wants and expectations.

Stakeholder engagement

All the projects showed evidence of a high maturity within stakeholder engagement. The reason for this is due to the fact that all projects have well established connections and communications channels with the stakeholders. Sponsors, partners and other stakeholders can affect the project outcomes to a high level. Both organisations focus on stakeholder engagement but with two different approaches. Projects within Göteborg & Co. engage stakeholders to give the project legitimacy and funds to deliver the project. Projects within Svenska Mässan recognize that trade associations are important for their customers to attract them to the project mostly buy paying them. The companies want to co-exist in symbiosis with the trade association and trade unions in order for them to grow. Stakeholder demands, requirements and interests are regulated to contracts and documents and can be prioritized according to this.

Financial management

Since all projects keep to the budget no strong correlations have been found between the attributes.

Resource management

Resources have mainly been recognized as the connection channels and stakeholder engagement practices. These resources are nurtured by regularly meetings and feedback reports. These types of resources are linked to key persons and with organisational change the resource might not be available to the project. Common resources at Svenska Mässan are shared between the different project groups depending of the project size. Projects at Göteborg & Co. are depended on allocating resources externally since no common resource plan exists.

Human resource management

Some differences in the maturity level within human resource management between the two organisations exist. No significant correlations between project type, length or budget exist.

A big difference between the two organisations is that Svenska Mässan hires personnel and keeps them within the organisation. These are later on allocated between the different project groups depending on their skills and backgrounds. Career paths are regularly

reviewed in order to place right people on right place. Team members are more efficient since they are familiar with the standard tools and know what is expected from them. Employees can get up to date with their work much faster; this creates both a more efficient organization and profitability.

Projects at Göteborg & Co. hire personnel on project basis and dissolve the project group after the project is delivered. The process of employing new staff to the project group for the next project costs both money but also takes up valuable time from the project manager. Since new employees are hired for each project the efficiency of these members will take time to reach an acceptable level.
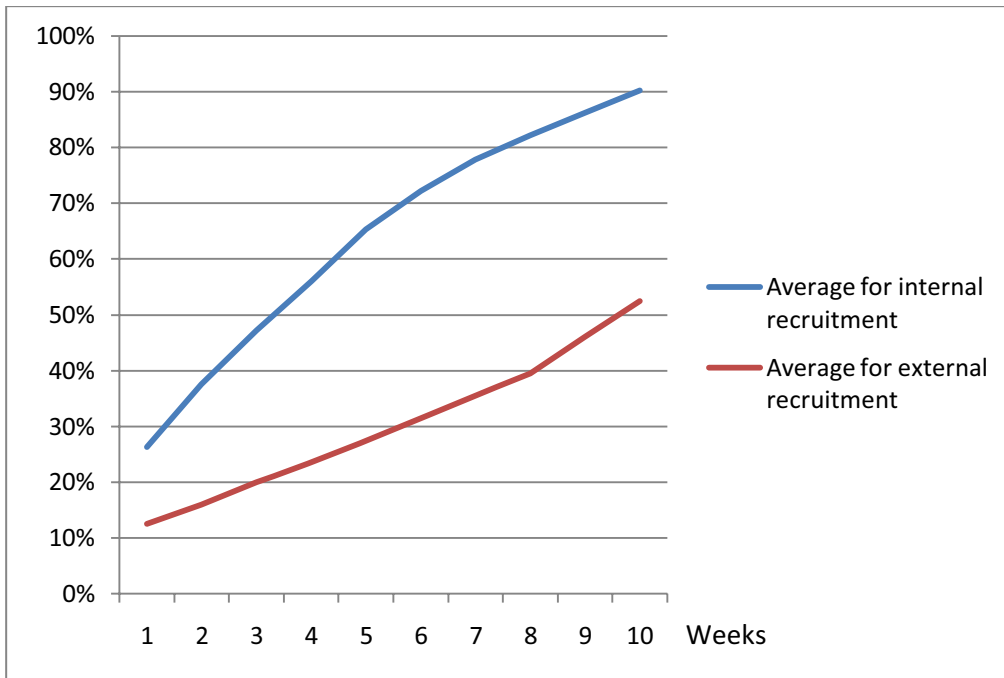
Figur 15- Employee efficiency of a new team member

Because projects within Göteborg & Co. hire people on project basis they are selective when employing new team members. Due to the fact that projects within Göteborg & Co. are loosely linked; each project team is responsible for hiring people to the project. Low level of cooperation with the other projects makes it impossible to reallocate team members from one project to the other. Since some of the projects are run biennial the workload varieties and there seems to be not enough work for all project members. In addition to this team members will not be motivated to continue within the same project group from one year to another.

Another problem with this kind of approach is that the managers can become solely reliant during the hiring process that once a person with lack of motivation is hired, the project manager will have a difficult task to fulfil his responsibility to the project and the stakeholders.

By employing the way projects at Göteborg&Co. is doing, managers, more than likely, will not need to motivate their employees as much or as often. This is not to say that

motivation can be neglected at any point. Managers must continually motivate their employees, but this can be made easier by attempting to hire self-motivated employees and impressing high standards upon them and reinforcing the standards on a daily basis.

Benefits management

Benefits are measured by both organisations by surveys, evaluations and based on the numbers of visitors. Customer benefits can be measured by the number of signed contracts or the number of business made on the fair. The very need for the project creates benefits for the involved parties. Hence the existence of different fairs and conferences with different goals and aims to cover the needs or even create the need for them.

Risk management

Risk management is not standardised at either of the organisations. Project managers put forward that due to their experience they are aware of the typical risks each project can meet. Projects at Svenska Mässan are using the risk plan that is embedded within the project management model but this plan is rarely updated. Moreover is a SWOT-analysis included in the project management plan but the risks are not quantified or ranked. Project risk management is a vital part within project management that identifies the probability and impact of positive events and decrease the probability and impact of events adverse to the project (PMBOK, 2008). No such plans or objectives were noticed within the two organisations.

Organizational governance

The identified correlating factor was the alignment of projects in order to achieve the strategic goals or the organisations. Depending on what organisation the project belongs to the variable affecting the level of maturity is affected.

Knowledge management

No consistent plans for knowledge management or knowledge transfer exist within projects at Göteborg & Co. Project managers rely on employing staff with the right knowledge and right background to meet the project goal. It is up to individual project managers to enable knowledge flow and knowledge sharing to ensure that everyone understands the project scope.

Svenska Mässan provides both internal and external courses for those who need it. Mentorship and regular meetings makes it possible for knowledge among the employees to be shared across the organization. Lessons learned meetings enable all parts of the organisation to share best practices and methods openly with each other. In addition to this Svenska Mässan is providing career paths for its employees and therefore promoting various courses in both management and sales area.

Göteborg & Co. usually hire experienced and well educated personnel. Even if some of them lack pure project management skills, they are having experience from running large scale projects. This approach is therefore observed as one of the reasons for not promoting additional training or external courses for its staff. Each project provides training for new

staff regarding its IT and database systems. Since no standardized information tools exist, each project has developed its own information and database systems optimized for its own business and project processes. This way of working gives each project the freedom to optimize its tools for the intended tasks regarding the project processes. A problem with independent and non-standardized information tools will not only cost much in development and maintenance but the learning curve for new team members will be high as well. Because of the interdependencies of projects in Göteborg & Co. imposed legislation on each project forces them to individual project procurements.

During the interviews, one project manager put forward that the best way of disseminating knowledge and information within the organisation is by face-to-face interaction. Internal meetings are held once a week and during these meeting the team will have the opportunity to present the project processes they are working on at the moment and explain complications, solutions etc. This makes it possible for the involved team members to disseminate knowledge and questions regarding the project will be pondered and answered.

4.4 Discussion

In this chapter, the emphasis shifts towards a general discussion of findings and analysing them with the theoretical frame of reference in mind.

The researcher's approach of interviewing the different project managers with face-to-face interviews made it possible to understand each individual project and its processes and work methods. The researcher could adapt the question as necessary, clarify doubts and make sure that the responses were properly understood. Answers will be interpreted and judged according to the researcher narrowing the source of error to the researcher.

Project uniformity

Projects within Göteborg & Co. are many times seen as external organisations with loose ties to the main organisation. This approach comes with a number of problems during the project life cycle. First of all will the project manager deals with issues such as recruiting team members, and training them to fully understand the project specific tools and work methods. Knowing that the team member is hired on project basis that will leave the project after its delivery will make it hard to motivate the project manager to fully concentrate on the core processes of the project. Much of the valuable time that is supposed to be put on the project processes will instead be on issues that is not important for the project delivery.

Project uniformity with a standardised project model makes it possible to fully concentrate on the project deliverables and not use resources from the project to issues that the main organisation is supposed to provide. Recruitment and training taking up project time will not only cost much but it will negatively affect the project. PMBOK (2008) put forward that project manager controls the assigned project resources to best meet project objectives, while the project management office optimizes the use of shared organisational resources across all projects.

Göteborg & Co. is recognized as a project management office that coordinates various projects under its domain. A project management office (PMO) is usually providing management support functions in the form of training, software, standardised policies and procedures in order for the project to deliver its objectives. Göteborg & Co. plays a role that is in-between PMO. This is due to the nature of the different projects sponsors and external project stakeholders/initiators. All projects are not fully initiated by Göteborg & Co. and it can therefore not act as PMO with the authority to make recommendations or even terminate the project. Very few of the key features of a PMO are covered by Göteborg & Co.

Svenska Mässan can be identified as a typical PMO who shares and coordinates resources across all projects it is administrating. With the standardised project management model all projects are uniformed to a degree where the supportive functions such as training, software, project policies, templates and other shared documentation is standardised and uniformed for all its projects. Svenska Mässan is recognized to have the authority where it can act as an integral stakeholder and a key decision-maker during each stage of the project. The authority enables the organisation to make recommendations and is involved in the selection of management, shared project personnel and finally has the authority to terminate the project.

Motivated team members and knowledge dissemination

Göteborg & Co. and Svenska Mässan are both working with knowledge transfer and have recognised its importance for successful project outcomes. A main concern with projects within Göteborg & Co. is that its approach for hiring team members on project basis creates a risk where key competence and important knowledge is not retained within the organisation. There are some approaches from project managers to document some of the suggestions for future improvements; most of the tacit knowledge is not taken care of. Several project managers agreed that the personal network of colleagues and project managers is most commonly used and by far the most effective way of gaining knowledge and information. This is consistent with the theory Ba and the SECI model that Nonaka & Konno (1998) presented at the theoretical frame of references. Face-to-face meetings are the most efficient way for disseminating knowledge and have been recognized by both organisations. Regular meetings, conferences, seminars and training is provided and promoted at Svenska Mässan where Göteborg & Co. are promoting face-to-face activities by having morning meetings once a week with a joint breakfast.

Separate interviews with some of the team members hired on project basis put forward that motivation and focus on project deliverables is disturbed at the final phase of the project. Focus is instead shifted to locate a new job and little effort is spent on project activities. Organisational culture does not support knowledge transfer by allocating the employee to other projects within the organisation when the project is delivered. The loosely ties to the main organisation prevents long term employment and therefore key knowledge linked to individuals is lost when leaving the organisation.

Another problem to motivate employees working on the same project for several years is that only limited career opportunities exist and due to the loose ties with the main organisation no other job functions can be provided to the employees within the project. Roles and responsibilities are already predefined and since the authority is shifted from the main organisation to other key stakeholders and initiators this factor is hard to change. The "job enrichment model" mentioned in the theoretical framework presented by Boddy (2002) put forward that several basic needs must be covered in order to motivate employees. Many of the characteristics cannot be applied by project managers within Göteborg & Co. due to the nature of the organisational structure and the approach it has adapted to deliver projects. Svenska Mässan on the other hand is suited to implement various motivational increasing steps in order to align its employees to the project needs. The organisation have accepted mentorship and recognizes it as the most efficient, rapid and natural way of introducing newly employed into routines, work procedures and organisational culture.

Courses and seminars is another factor for Svenska Mässan's projects to gain new knowledge on an individual level and if disseminated properly, it will create new knowledge on an organisational level. Projects within Svenska Mässan have personal development plan and career plan which is discussed together with the managers. It is also in the organisation's interest to provide courses and seminars for the employees in order to develop new knowledge and better understanding for the project processes.

None of the interviewed projects have fully accepted knowledge management as a systemised routine for disseminating knowledge. Knowledge management is embedded in the project management model provided to the projects at Svenska Mässan. Some of the interviewed project managers put forward that it is due to lack of time and prestige that inhibits knowledge dissemination. The main organisation should therefore provide space and time for the projects to disseminate knowledge. In addition to this is knowledge dissemination dependent on the workplace design. Projects at Svenska Mässan have created an open design with open doors together with an office landscape. This was also noticed at some of the projects at Göteborg & Co. and the result from this approach is noticeable on the project management maturity level for these projects. Communication within projects is imperative for learning and by varying the constellations within the project teams, knowledge is better disseminated. This is also one of the factors affecting the project management maturity level. When project team can jump between projects not only motivation is affected positively but knowledge transfer channels are also affected positively.

4.5   Conclusions

Projects within Göteborg & Co. are independently managed with no or little authority of the PMO. The two organisations are in many cases working in the same business area but are in fact complementing each other. Svenska Mässan with its PMO is providing the means and tools for its projects to be optimized in its aim to deliver successful projects. The

organisation is covering all aspects such as providing owned conference hall, hotels, booking and IT systems and marketing channels together with human resources. This approach together with the provided project management model allowing its projects to expand and grow as it wishes. Projects at Svenska Mässan is also profit based and this forces the main organisation to cut all extra costs such as allowing individual projects to procure for services externally. Procurements are instead done by the main organisation that not only keeps the costs low but it is also shared across all projects. All assets are owned instead of being leased.

Göteborg & Co. is by not being the project initiators to some of the projects it is covering; not providing the same type of support as Svenska Mässan. Administrative function are provided but as some of the project managers at Göteborg & Co. put forward is that they are paying for that service and could in fact be provided by external partners as well. The same is the case for IT tools such as website design and CMS tools used by some of the projects.

Considering the result from the project management maturity model it is very much clear that project managers at Göteborg & Co. are using much of the project scheduled time on recruiting the right team members to its project. It is vital to hire the right type of person to the project group since no additional training or mentorship exists. Self-motivated and people with high academic background are preferably hired to overcome some of the problems. Team members are introduced to the project with an initial briefing along with presenting the tool without providing documentation or walk-through guides for the commonly used tools at the project.

One project manager at Göteborg & Co. put forward that there was a desire to hire a key team member who was regularly involved in hiring students to the fair during its peak period. This person was only hired on project basis and would leave the project team to another organization during its low activity period. Due to employment freeze orders from the main organization, the project manager could not hire him fully dedicated to the project and make him available to the organization as whole. In contrast to this is Svenska Mässan working just the opposite where key knowledge and people are maintained within the organization and made available to all its project teams. Working in this way not only saves money and time but the competence and knowledge is maintained within the organization and each individual project manager is able to allocate this type of resource to his/her project only when needed.

Due to the organizational culture of the two organisations, there are two different approaches to motivate team members. Since team members at Svenska Mässan are permanently employed within the organisation, a long term approach to motivate its staff exists. Regular meetings, kick-offs, conferences and seminars are made available to the employees. The intention is to break the barriers that might exist and create an atmosphere were both tangible and intangible rewards are made available. Some of the interviewed project managers put forward that thanks to the career possibilities that Svenska Mässan provides; they could climb on the careerpath from working at the hotel reception to suddenly be fully responsible for a multimillion project. Boddy (2002) acknowledges this as mentioned at the theoretical framework that team members are doing effectively when

their individual interests are aligned with the collective ones of the project work itself. Permanent employment not only creates a positive ground for the employees but it also makes it possible to extract the right knowledge from each of the team members. The stable ground is also put forward by Abraham Mashlow's need hierarchy theory (1943) where it is highlighted the level of importance for human needs. In order to cover up the needs from the bottom to top an organisation needs to secure all of these needs. This can fully be done if the organisation has a long term view for each of its employee

The approach of temporary employing team members to the projects at Göteborg & Co. the motivation factors are put aside. Working on the same project from year to year with little or no job variation will lead to low job satisfaction. The absence of intrinsic rewards results in dissatisfaction and will eventually affect the project performance. The absence of uniformity among projects at Göteborg & Co. is by many of the interviewed project managers described as "frustrating".Each project is forced to deal with every aspect of the project, from procurement of IT tools, marketing, and employment to fully focus on the project deliverables. One of the project managers at Göteborg & Co. had proposed to the main organisation a model where in-house projects would act under an "umbrella-organisation" where common resources would be allocated between the projects and better cooperation would lead to the benefit of all projects. A recognized problem with working under the suggested "umbrella-organisation" is that due to different project initiators, internal competitions and barriers prevents this type of collaboration. A total organisational change could be one solution where projects with different initiators, sponsors and stakeholders could be extracted to the "umbrella-organisation" where better support and coordination could be provided by Göteborg & Co. The HR-manager put forward that they have understood and are aware of the problem and a new business system is under development that will cover some of the missing pieces. More details about the new business system are not revealed at the moment and cannot be verified for its impact on the projects.

By benchmarking all projects and every department of the organisation at Göteborg & Co. with standardised questions and answers, a better view of future improvement needs can be aligned with the organisations vision. The development of a new business system needs to involve the whole organisation in order to maximize the outcome from it.

Since the governing organisation is the most correlating factor in the maturity model, improvements at organisational levels are critical for the project maturity. There is a need for organisational change where the organisational culture needs to be established in order to create a supportive workforce. By standardising practices, communication channels, knowledge and share resources Svenska Mässan is able to align all its projects to support the organisations vision. The standardised practices have created the conditions to support ongoing development through extensive efficiency enhancement measures to make each individual project grow.

4.6   Proposals for improvement

Observing the higher maturity level at Svenska Mässan where the main correlating factor identified is the governing organisation. This can only be interpreted that efficiency is due to the organisational project management model implemented at Svenska Mässan. Better coordination and long term strategies for its employees create a mature organisation that can tackle setbacks and mobilize changes to the market needs. By acting as a PMO, the organisation is able to centralise and coordinate the management of projects, resources and tools under one domain. Each project is initiated by the main organisation and supported by the PMO and grouped in order to coordinate planning, prioritisation and execution of projects. It also covers the overall needs in the form of training, IT, standardized policies and directs responsibilities in order to deliver successful projects with profit.

Profit is perhaps another issue that distinguishes the two organisations. By working in an atmosphere where each project is forced to deliver profit to the main organisation, each project manager is forced to cut costs. Some of these costs cannot be cut directly by each project manager but instead the main organisation needs to be involved. By doing procurement on a large scale the costs can be held down on the organisational level. The resources can therefore be allocated from the main organisation instead of external partners. Additonal benefits from this approach are that stakeholders with influence are held low.

Even if projects at Göteborg & Co. are non-profit based, they should act and work as if they were profit base. The generated profit should be invested in future improvements and growth of the project. There should be a demand for profit by the main organisation and the profit should be calculated in the budget in order to achieve its goal.

Göteborg & Co. should review the organised projects in order to retake the authority from external partners and sponsors. Only if the project is fully owned and initiated, the change and influence from the main organisation can take place. Currently it is impossible to influence some of its projects due to the various initiators or sponsors. It should act as a PMO in order to provide the support and resources each projects need. It should also identify and develop a project management methodology, best practices and standards in order to optimise the overall project quality.

A new strategy for employment is needed at Göteborg & Co. where long term benefits are valued higher rather than looking in shorter term. Human resources should be provided by the main organisation and not be a burden on each individual project. This would also make it possible for key individuals to remain within the organisation and be allocated where better needed. Knowledge sharing attitudes should be promoted where regular meetings between team members extract new knowledge. Mentorship is another method to implement in order for individuals to better learn the organisation and project processes. Instead of letting each organisation develop its own databases and tools for the project, the main organisation could procure a common tool that is easy to modify and adapt for each project. Marketing and IT resources should be provided by the main organisation in order to support project growth. By providing a common framework for all its projects, the risk of being dependent on individual project managers key competence or key team members would be low. The common framework would also enable new project managers to access

insight of projects or review of the work accomplished to quicker manoeuvre it. The standardised model would also make it possible to gather resources and competence to newly initiated projects. This approach would both be cost effective and the project could be delivered with higher quality on time.

Svenska Mässan has a well functioning organisation but needs to work more hands on with risk management. Some of the projects that were interviewed put forward that no additional risk management approaches exist except the initial SWOT-analysis that is included in the marketing plan. More focus should be put on risk identification in order to determine which risk might affect the project and documentation of risk characteristics should be made. A more qualitative risk analysis is necessary for numerically analyzing the effect on project objectives. Risk response planning and actions should be documented and updated along with the project.

Another improvement that some of the projects at Svenska Mässan should focus on is to narrow its project portfolio. Some of the projects could be merged down to one project in order to maximise profit. More efforts could be focused on creating new communication and collaboration channels with sponsors and trade organisations. Today most of the projects at Svenska Mässan put forward that trade organisations, unions and other stakeholders are paid in order to support the project. This is not the case with projects at Göteborg & Co. and Svenska Mässan can learn from this approach. Trade associations should be involved where their influence is limited to their engagement in the project. Finally should projects at Svenska Mässan work more with budget estimations in order to meet current market trends. Changes to the business environment are continuous and project managers should adapt to the change more rapidly in order to manoeuvre the project accordingly. Refined budget estimation allows the project manager to cut costs and plan the deliverables according to the business environment.

5 Bibliography

Andersen, E. S., & Jessen, S. A. (2003). Project maturity in organisations. *International Journal of Project Management* , 457-461.

Bennett, T. M. (2009). A study of the management leadership style preferred by it subordinates. *Journal of Organizational Culture, Communications and Conflict , 13* (2), 1-26.

Boddy, D. (2002). *Managing Projects: Building and Leading the Team* (2 ed.). Essex: Pearson Education.

Cheung, S. O., Wong, P. S., & Wu, W. A. (2010). Towards an organizational culture framework in construction. *International Journal of Project Management* , xxx-xxx (article in press).

Chilton, M. A., & Bloodgood, J. M. (2008). The dimensions of tacit & explicit knowledge: a description and measure. *International Journal of Knowledge Management , 4(2)*, 75-91.

CMMI Product Team. (2009). *CMMI ® for Services, Version 1.2.* Pittsburgh: Software Engineering Institute.

Collyer, S., & Warren, C. M. (2009). Project management approaches for dynamic environments. *International Journal of Project Management , 27*, 355-364.

Cooke-Davies, T. J., & Arzymanow, A. (2003). The maturity of project management in different industries: An investigation into variations between project management models. *International Journal of Project Management , 21*, 471-478.

Crawford, K. J. (2007). *Project Management Maturity Model.* Boca Raton: Auerbach Publications.

Dinsmore, P., & Cooke-Davies, T. (2006). *The right projects done right - From business strategy to succesful project implementation.* San Francisco: Jossey Bass.

Goel, L., & Mousavidin, E. (2008). A proposed framework for designing sustainable communities for knowledge management systems. *International Journal of Knowledge Management , 4(3)*, 82-100.

Grabher, G. (2007). *Temporary Architectures of Learning:Knowledge Governance in Project Ecologies.* Bonn: SAGE Publications.

Gray, R. J. (2001). Organisational climate and project success. *International Journal of Project Management , 19*, 103-109.

Hamza, S. E. (2009). Capturing tacit knowledge from transient workers: improving the organizational competitiveness. *International Journal of Knowledge Management , 5(2)*, 87-102.

Huemann, M., Keegan, A., & Turner, R. (2007). Human resource management in the project-oriented company: a review. *International Journal of Project Management , 25*, 315-323.

Jennex, M. E. (2007). *Knowledge Management in Modern Organizations* . San Diego: Idea Group Inc.

Kasvi, J., Vartiainen, M., & Hailikari, M. (2003). Managing knowledge and knowledge competences in projects and project organisations. *International Journal of project management* , 571-582.

Kirton, G., & Green, A.-M. (2009). The costs and opportunities of doing diversity work in mainstream organisations. *Human Resource Management Journal , 19* (2), 159-175.

Maylor, H. (2005). *Project Management.* Essex: Pearson Education.

Meng, X. (2010). Assessment framework for construction supply chain relationships: Development and evaluation. *International Journal of Project Management* , xxx-xxx (article in press).

Munns, A. K., & Bjeirmi, B. F. (1996). The role of project management in achieving project success. *International Journal of Project Management , 14*, 81-87.

Nonaka, I., & Konno, N. (1998). The concept of "Ba": building a foundation for knowledge creation. *Carlifornia Management Review , 40*, 40-54.

Office of government commerce. (2010). *P3M3 - Programme model.* London: Office of government commerce.

Office of government commerce. (2010). *P3M3 - Project management Self assessment. v.2.1.* London: Office of government commerce.

Office of Government Commerce. (2010). *Portfolio, Programme and Project Management Maturity Model.* London: Office of Government Commerce.

Parker, S. K., & Skitmore, M. (2005). Project management turnover: causes and effects on project performance. *International Journal of Project Management , 23*, 205-214.

Pervaiz, A. K., Kwang, L. K., & Loh, A. Y. (2002). *Learning Through Knowledge Management.* MassachusettsButterwort :h-Heinemann.

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

Pollalis, Y. A., & Dimitriou, N. K. (2008). Knowledge management in virtual enterprises: A systemic multi-methodology towards the strategic use of information. *International Journal of Information Management* , 305-321.

Rice, J. L., & Rice, B. S. (2005). The applicability of the SECI model to multi-organisational endeavours: an integrative review. *International Journal of Organisational Behaviour , 9 (8)*, 671-682.

Salisbury, M. (2009). A framework for managing the life cycle of knowledge in organizations. *International Journal of Knowledge Management , 5(1)*, 61-77.

Schein, E. H. (2004). *Organizational Culture and Leadership.* Massachusetts: Jossey-Bass.

Sense, A. J. (2007). Structuring the project environment for learning. *International Journal of Project Management , 25*, 405-412.

Skulmoski, G. (2001). Project maturity and competence interface. *Cost engineering* , 11-18.

Skulmoski, G. (2001, June 1). Project Maturity and Competence Interface. *Cost Engineering , 43* (6), pp. 11-18.

Thomas, J., & Jugdev, K. (2002). Project management maturity models: the silver bullets of competitive advantage? *Project Management Journal , 33*, 4-14.

Zwikael, O., & Unger-Aviram, E. (2010). HRM in project groups: The effect of project duration on team development effectiveness. *International Jurnal of Project Management , 28*, 413-421.

Zwikael, O., Shimizu, K., & Globerson, S. (2005). Cultural differences in project management capabilities: a field study. *International Journal of Project Management* , 454-462.

6 Appendix A

	type	Education	Budget	organisation	length	Mgmt.ctrl	Stakeholder	financial	resource	HR	benefits	risk	governance	knowledge	average
type	1	,124	0,906	-,239	,311	,155	,139	,131	-,087	,032	,210	-,043	,222	,245	,130
Education	,124	1	,318	-0,846	,591	0,872	,254	0,747	,522	0,626	0,657	0,677	0,696	0,773	0,762
Budget	0,906	,318	1	-,477	,382	,312	,337	,323	,157	,294	,435	,242	,414	,460	,374
organisation	-,239	-0,846	-,477	1	-,279	-0,909	-,473	-0,684	-0,684	-0,861	-0,912	-0,895	-0,857	-0,951	-0,941
length	,311	,591	,382	-,279	1	,306	,214	,401	,120	,112	,110	,104	,145	,225	,214
Mgmt.ctrl	,155	0,872	,312	-0,909	,306	1	,516	0,81	,513	0,794	0,84	0,737	0,826	0,92	0,91
stakeholder	,139	,254	,337	-,473	,214	,516	1	,340	,159	,520	,594	,374	,495	,517	,561
financial	,131	0,747	,323	-0,684	,401	0,81	,340	1	,537	0,742	,596	0,622	0,79	0,819	0,819
resource	-,087	,522	,157	-0,684	,120	,513	,159	,537	1	0,865	,482	0,896	,569	0,725	0,739
HR	,032	0,626	,294	-0,861	,112	0,794	,520	0,742	0,865	1	0,794	0,943	0,806	0,938	0,956
benefits	,210	0,657	,435	-0,912	,110	0,84	,594	,596	,482	0,794	1	0,8	0,809	0,877	0,889
risk	-,043	0,677	,242	-0,895	,104	0,737	,374	0,622	0,896	0,943	0,8	1	0,79	0,889	0,915
governance	,222	0,696	,414	-0,857	,145	0,826	,495	0,79	,569	0,806	0,809	0,79	1	0,914	0,915
knowledge	,245	0,773	,460	-0,951	,225	0,92	,517	0,819	0,725	0,938	0,877	0,889	0,914	1	0,989
average	,130	0,762	,374	-0,941	,214	0,91	,561	0,819	0,739	0,956	0,889	0,915	0,915	0,989	1

Table 1: Correlations between factors and their affections on project management maturity