Project, program, and portfolio management in large Dutch organizations

Enschede, 9 December 2008

René ter Haar

Master thesis

Project, program and portfolio management in large Dutch organizations

Determining the maturity of project, program, and portfolio processes and identifying bottlenecks in further professionalizing the project organization

Master thesis – Final version

Enschede, 9 December 2008

Graduation committee:

J.N. Hicks (chair man)
Research Associate
Department of Information Systems and Change Management
Faculty of Management and Governance
University of Twente

Drs. M.L. Ehrenhard
Research Associate
Dutch Institute for Knowledge Intensive Entrepreneurship
Faculty of Management and Governance
University of Twente

Ir. S.W. Nijenhuis
Managing Director
Fortes Solutions B.V.

Author:

René ter Haar
Industrial Engineering and Management
Information Technology and Management track
University of Twente

Management summary

The research objective of this study is determining the maturity of project, program, and portfolio management processes in large Dutch businesses and the main bottlenecks in further professionalizing the project organization. A suitable way to measure how well organizations are doing is to measure process maturity, where maturity refers to a state where the organization is in a perfect condition to achieve its objectives. Maturity can be measured by using a maturity model which aids in defining, understanding, and measuring an organization's processes and their effectiveness. In this study 11 maturity models are tested on their suitability using 5 selection criteria. According these critieria the model should be a best practice model, able to assess maturity on project, program, and portfolio management level, method-independent, suitable to use in large Dutch organizations, and compliant with PRINCE2. Based on these selection criteria the Portfolio, Programme and Project Management Maturity Model (P3M3) was chosen as most suitable maturity model to adopt in this study.

Main survey findings on maturity of project, program, and portfolio management processes

(1) Using the P3M3 maturity model the project, program, and portfolio maturity levels estimation are respectively 2.6, 2.2 and 2.1. This means the maturity is in between level 2: Repeated process and level 3: Defined process. In a repeated process standard approaches exist in some areas, e.g. projects, but there is no consistency of approach used in the organization. In a defined process a consistent set of standards is being used across the organizations with clear process ownership (2) Management control and financial management are relatively well evolved process areas. Benefits management, stakeholder management, and resource management are relatively less evolved process areas (3) Project management is a relatively well evolved process level. Program management and portfolio management are relatively less evolved process levels (4) Organizations have a tendency to overrate their maturity, especially at project and corporate level (5&6) Large (project) organizations are more mature than small (project) organizations (7) Organizations with autonomous parts have a lower maturity than organizations without such separate structures (8) Maturity differs for distinct lines of business; particular sectors are more evolved than others (9) Specialist knowledge about project related activities results in a lower maturity level estimation (10) A high-level overview of project related activities results in a lower maturity level estimation.

Main interview findings on bottlenecks in further professionalizing the project organization

(1) An ineffective project organization, (2) Lack of clarity in selecting, doing, and benefits realization of projects, (3) Lack of measuring instruments, (4) Insufficient planning and resource allocation, (5) Lack of uniformity in project approach, (6) lack of focus in human resource management, and (7) underestimation of the necessity of a good project preparation.

Recommendations based on survey findings on maturity

1. The average maturity of project, program, and portfolio management processes in large Dutch organizations is 2,3. Therefore organizations should concentrate using a consistent set of standards by all projects across the organizations with clear process ownership.
2. Organizations should focus on improving program and portfolio management processes.
3. Organizations should focus on improving the process areas of benefits management, stakeholder management, and resource management.

Recommendations based on interview findings on further formalizing the project organization

1. Organizations need to select the right projects that contribute to the strategic objectives.
2. Once the right projects are chosen, business need to focus on doing projects in the right way.
3. Organizations should keep a clear and detailed overview of the project portfolio at any time.
4. Organizations should realize that further professionalizing the project organization is a change process, which is a non-trivial approach that should avoid classic pitfalls.

Table of contents

List of tables and figures

Acronyms

$(PM)^2$	(University of California, Berkeley's) Project Management Process Maturity model
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integrated
EFQM	European Foundation of Quality Management
INK	Instituut voor Nederlandse Kwaliteit
MINCE	Maturity Increments IN Controlled Environments Model
K-PMMM	Kerzner's Project Management Maturity Model
OPM3	Organizational Project Management Maturity Model
P1M3	Project Management Maturity Model
P2M3	Program and Project Management Maturity Model
P2MM	PRINCE2 Maturity Model
P3M3	Portfolio, Program and Project Management Maturity Model
PEM	Project Excellence Model
PjM	Project Management
PgM	Program Management
PfM	Portfolio Management
PMBOK	Project Management Body Of Knowledge
PMMM	See P1M3
PMO	Project Management Office
PMS-PMMM	PM Solutions' Project Management Maturity Model
PMS-PPMMM	PM Solutions' Project Portfolio Management Maturity Model
PPM	Project Portfolio Management
PRINCE2	PRojects IN Controlled Environments 2

Glossary

Benefits management
Assesses how well the organization defines, tracks and ensures achievement of performance improvement from the investment [OGC, 2008a, 3].

Financial management
Assesses how well the organization manages and controls the investment through business cases and budgetary control [OGC, 2008a, 3].

Management control
Assesses how well the organization maintains control of the initiatives currently "in flight" [OGC, 2008a, 3].

Maturity
Webster defines 'mature' as having reached the state of full maximum development [Webster, 1988]. Organizational maturity refers to a state where the organization is in a perfect condition to achieve its objects [Andersen and Jessen, 2003].

Maturity model
A maturity model aids in defining, understanding, and measuring an organization's processes and its effectiveness

Organizational governance
Assesses how well the organization controls the initiation and alignment of its investments with the corporate strategy [OGC, 2008a, 3].

Portfolio
The totality of an organization's investment (or segment thereof) in the changes required to achieve its strategic objectives [OGC, 2008a, 2].

Portfolio management
A coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual operations [OGC, 2008a, 2].

Program
A temporary, flexible organization created to co-ordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organization's strategic objectives. A program is likely to have a lifespan of several years [OGC, 2008d, 20].

Program management
The coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance [OGC, 2008d, 21].

Program office
See *Project office*

Project
A temporary organization that is created for the purpose of delivering one or more business products according to a specified business case [OGC, 2008d, 21].

Project management
An unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case [OGC, 2008a, 3].

Project-based organization
See *Project office*

Project management office
An organizational entity established to assist project managers, teams and various management levels on strategic matters and functional entities throughout the organization in implementing project management principles, practices, methodologies, tools and techniques [Ward, 2000].

Project office
An organizational entity established to manage a specific project or a related series of projects, usually headed by a project or program manager [Ward, 2000].

Project organization
See *Project office*

Project-oriented organization
See *Project office*

Project portfolio
See *Portfolio*

Project portfolio management
See *Portfolio management*

Resource management
Assesses how well the organization develops its own talent and utilizes the opportunities from the supply chain to overcome peaks and troughs [OGC, 2008a, 3].

Risk management
Assesses how well the organization is able to minimize impact of threats and maximize opportunities [OGC, 2008a, 3].

Stakeholder management
Assesses how well the initiatives engage with and communicate with the external environment to minimize the negative implications engagement can achieve [OGC, 2008a, 3].

Preface

This assignment is the graduation project of my Master Industrial Engineering and Management (IEM) with Information Technology and Management (ITM) as specialization track. During my Bachelor Business Information Technology (BIT) and my IEM Master my interest was awoken in organizational change management and, in specific, the reasons why the majority of these initiatives are not considered as a success in practice. Therefore I became interested in a research which was related to managing change. A master's project related to this topic would be a perfect opportunity to identify in what way academic research and practitioner experience are related about this topic and write a master thesis about it.

I am grateful to Sander Nijenhuis of Fortes Solutions B.V. for providing me this wonderful opportunity and guiding me during this project. I enjoyed his interesting stories about being an entrepreneur and am thankful for his useful suggestions and feedback about business practice. Furthermore I would like to thank Jeff Hicks and Michel Ehrenhard of the University of Twente for their helpful suggestions and guidance during my master's assignment. A special word of thank would be to Jeff since he supervised me during my internship project in Costa Rica as well. I specifically was fascinated by his alternative approach to consulting practice and his philosophical view on reality. Furthermore I enjoyed our discussions about organizational change management. Above all, Jeff has been a very inspiring mentor to me the last year. Finally I would like to thank all people that participated in the interviews and survey of this research, which are too many to mention them all by name.

Additionally I would like to thank Pieternel and my parents for their great support during my educational period at the University of Twente. Without them I would not be capable of aiming for maximum results. I am sure they are pleased that I have finished education after seven years and soon will be starting with my professional life in business.

This graduation project was an interesting and learning experience. Above all I hope the reader enjoys reading the report and gains some new insights in project, program, and portfolio management practice.

René ter Haar

Enschede, 24 November 2008

1. Introduction

This section gives an introductory description of the project. It presents a picture of the intern company. Additionally it describes the scope, objective, problem statement and research questions of the project. Furthermore three personal goals are defined in this project.

1.1 The company

Fortes Solutions BV is software supplier of the Principal Toolbox, a web-based tool that offers functionality for managing projects, programs, and portfolios. Fortes is also responsible for the implementation of the software and the additional organizational change that is needed. The company was founded in 1997 in the Dutch city of Enschede. Besides the main office in Enschede a second office was opened in Amersfoort in 2007. Fortes furthermore has sales representatives in High Wycombe (United Kingdom), Adelaide (Australia), and Frankfurt (Germany). The clients of Fortes are large organizations in which project management is used for internal development of the project organization. The Royal Bank of Scotland, British American Tabacco, Achmea, Philips, Fortis ASR and the Dutch and Australian Department of Defense are a few of Fortes' main customers. The last few years Fortes Solutions was among the Dutch technology companies with the highest growth percentage of revenues – 1.476% – during the last five years. This resulted in the 11th position in the Deloitte Fast 50 ranking of 2007 in the Netherlands and the 106th position in the Deloitte EMEA Technology Fast 500 ranking of 2007 in Europe. In June 2008 Fortes Solutions received the Van Den Kroonenberg price, a yearly award for relative new companies that have a link with Twente University and excel by means of their innovative products or innovative style of management [Fortes Solutions, Deloitte Fast 50, Deloitte Fast 500, 2008]. The organization chart of Fortes Solutions can be found in Figure 1.

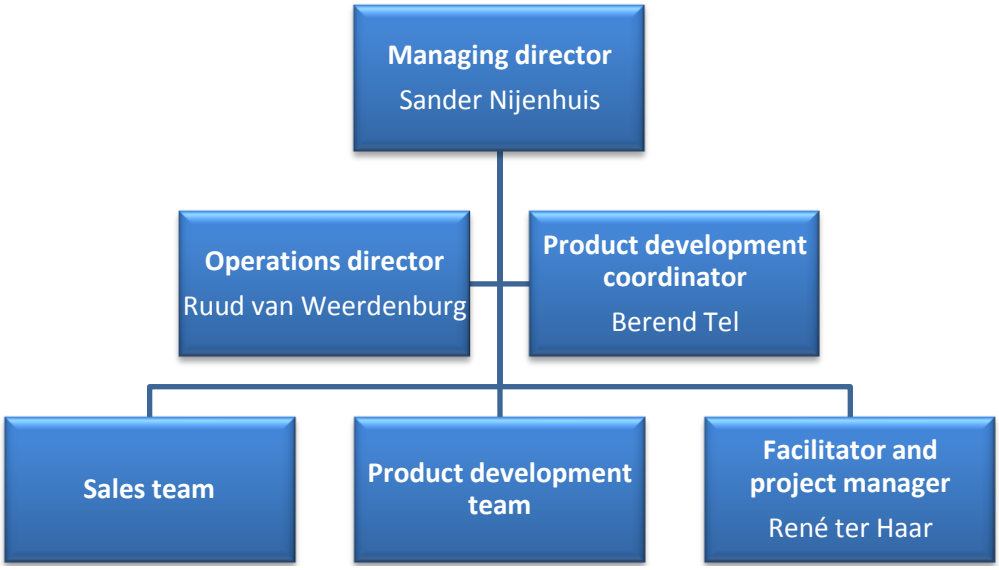


Figure 1: Organization chart of Fortes Solutions

1.2 Rationale

In response to rapid and discontinuous business change, project work has become increasingly important for some time compared to ongoing business operations. This means project work, i.e. temporarily organized team-based work, as compared to permanent organizational operations. In the 1990s, in response to a growing number of ongoing projects, companies began to introduce another layer of coordination and administration known as project office (or its synonym project management office or its abbreviation PMO), whose responsibility it was to coordinate project related activities in the broad sense.

An additional development has been portfolio management, borrowing concepts from financial management not only to coordinate projects, but also to evaluate and manage projects as an investment portfolio [OGC, 2008a, 2]. Next to this projects in the portfolio should contribute to the corporate strategy besides just delivering financial value to the organization. Fortes Solutions is supporting companies in their project management office and portfolio management activities. A major limitation, however, is that there is great difference in the amount of progress (i.e. maturity) made by various customer companies – some companies have not even started with simple project coordination, while others have sophisticated and structured portfolio management organizations in place. Depending on where a company stands in terms of maturity, the offerings of Fortes will differ. The purpose of this graduation project is to identify how maturity can be measured, assessing the maturity of project, program, and portfolio management processes, and identifying the key roadblocks that stand in the way of further professionalizing the project organization.

1.3 Scope

The focus of this study is on project, program, and portfolio management processes of large organizations in the Netherlands. In this research a large organization is defined in terms of employees, i.e. over 500 employees.

1.4 Objective

The purpose of this study is to identify the level of maturity in project portfolio processes and determine what the challenges are in improving the project organization. The contribution of this graduation project is:

- Identifying how maturity can be measured
- Assessing the maturity level of project, program, and portfolio management in large Dutch businesses by using a best practice model
- Identifying the main bottlenecks in further professionalizing the project organization in large Dutch businesses

This project is focused on companies that perform projects with the purpose to develop their own organization and not on companies that run projects for other companies, e.g. consultancy projects. Furthermore the focus is on large businesses in the Netherlands. In an organization several organizational entities can be distinguished. In this research a distinction is made between the functional organization and the project organization. The first group are departments and its employees being involved in core processes of the organization. The second group consist of temporary project teams that perform project-based work to support core processes and is also involved in coordinating project processes. This coordinative role, in some organizations known as project management office or similar organizational structure, is considered as ‘change organization’ and therefore is subject of study in this project. In this report several synonyms of project management office like project office, project organization are used interchangeably and have the same meaning. Previously the term ‘professionalizing’ is used which can be explained as improving processes in a structured way. This means defining why the organization cannot make progress, instead of defining the current issue the organization is dealing with. Another term that is used for ‘professionalizing’ throughout the report is ‘formalizing’ which both have the same meaning.

The research objective of this project is stated like this:

Research objective

Determining the maturity of project, program, and portfolio management processes in large Dutch businesses and the main bottlenecks in further professionalizing the project organization.

1.5 Problem

Based on the research objective that is given above a description of the problem statement and accompanying research question can be defined:

Problem statement

There is a lack of insight in business about the status of project, program, and portfolio management in large Dutch businesses and the main bottlenecks in further professionalizing the project organization.

Based on the problem statement the following research question can be defined:

Research question

What is the maturity of project, program, and portfolio management processes in large Dutch businesses and what are the main bottlenecks in further professionalizing the project organization?

The research question can be split up into several parts:

1. What is the maturity of project, program, and portfolio management processes in large Dutch organizations?
   a. What best practice models exist for determining the maturity of project, program, and portfolio management processes?
   b. What criteria can be used to select a suitable best practice maturity model?
   c. How can the maturity of project, program and portfolio management processes be measured with the selected best practice model?

2. What are the main bottlenecks in further professionalizing the project organization in large Dutch businesses?
   d. What main bottlenecks can be found in scientific literature?
   e. What main bottlenecks can be retrieved from business practice?

Now the research question is divided in manageable chunks which can be handled one after another.

1.6 Personal goals

One of the requirements for the master's project is to define personal learning goals which can be reflected upon in a later stage. In this project the personal goals are writing a literature review, executing a survey, and conducting interviews. Each of the personal learning goals are described in more detail below.

1.6.1 Writing a literature review

The first learning goal is to provide a thorough literature review about the research topic of this project and its related fields. The purpose is to deliver a literature synthesis about the topics organizational change, portfolio management, the project organization, and maturity of project portfolio processes in organizations. The sources that are used for the literature review should be considered as relevant (e.g. published in a peer-reviewed journal, cited by other articles).

1.6.2 Executing a survey

The second goal is to provide some quantitative numbers about the maturity level of project, program, and portfolio processes in business practice. The purpose is to define an assessment tool that can be used in an online survey.

The objective is to gather as many respondents as possible for estimating maturity of project organizations in business practice and to provide an indication of the maturity of project, program, and portfolio management processes as possible. No specific quantitative number is defined since no contact list is available that can be used for approaching potential participants. Therefore practitioners that are employed in large Dutch organizations and are working in the project management field are randomly invited to participate in this research. Since it is hard to estimate a reasonable number of potential participants no specific number is predefined.

1.6.3 Conducting interviews

The third learning goals is to construct and conduct a number of interviews. For constructing an interview scientific literature should be used as a basis for carrying out the interview in a proper way. The purpose of the interview is to provide qualitative data about bottlenecks in formalizing the project organization in the way they are experienced in business practice. Hopefully this provides some interesting new insights from the field as an addition to scientific literature.

2. Method

This section describes the research method that is being used during this project. It describes the concepts of mixed methods, triangulation, and exploratory research. The mixed method used in this study consists of a literature review, qualitative interviews, and a web-based survey.

2.1 Mixed method and triangulation

One of the relatively new developments in research methodology are the concepts mixed methods and triangulated design. Before defining these concepts first a short historic overview is given of the development of research methodologies and its struggle in using the 'right' method. During the larger part of the twentieth century quantitative research with a positivist approach was the dominant paradigm in social and behavioral research. Traditional quantitative research is focused on "deduction, confirmation, theory and hypothesis testing, explanation, prediction, standardized data collection, and statistical analysis [Johnson and Onwuegbuzie, 2004]." Value neutrality was a major concept and researchers were expected to deliver basic research with 'objective' measures. This is considered as the first movement in social and behavioral research. During the last two decades a new paradigm of qualitative research and a constructivist approach arose as a reaction on the quantitative research movement. Strauss and Corbin describe qualitative research as "any type of research that produces findings not arrived at by statistical procedures or other means of quantification. It can refer to research about person's lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning, social movements, cultural phenomena and interactions between nations. Some of the data may be quantified as with census or background information about the persons or objects studied, but the bulk of the analysis is interpretive [Straus and Corbin, 1998, 11]." Therefore qualitative research is more subjective, social and cultural oriented, can be described as applied research and is considered as an innovative way in answering questions. Both quantitative and qualitative methods and its corresponding rigor of procedures, validity of outcomes has been heavily criticized by adherents of the 'opponent' methodology. The 'paradigm wars' and its discussions and controversies concerning both methods resulted in the mixed methodology, which is known as the 'third wave', that combined the strengths of both approaches in a pragmatic way. Mixed methods are used extensively in recent social and behavioral studies to solve practical research problems [Tashakkori and Teddlie, 2003, ix]. Mixed method designs can be described as "those that combine qualitative and quantitative approaches into the research methodology of a single study or multi-phased study [Tashakkori and Teddlie, 2003, 29]." Another definition of mixed method research is "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study [Johnson and Onwuegbuzie, 2004]." Triangulation is a concept that is closely related to mixed methods. Triangulation can be defined as "the combination of methodologies in the study of the same phenomenon [Denzin, 1978, 291]." Researchers "collect both qualitative and quantitative data, merge the data, and use the results to best understand a research problem [Creswell, 2003, 564-565]." The research methodology that is adopted in this project is mixed methods and triangulated design. The reason for adopting this method is that in using a combination of qualitative and quantitative methods, as is presented in the definitions above, leads to better results than just using a single method. The mixed method that is being used during this project is a combination of a literature review, qualitative interviews, and a web-based survey. The three methods combined add up to the mixed method and triangulated design. The mixed methods consist of both sequential as parallel elements. The initial stage is performing a literature review which is sequentially succeeded by a second stage. This stage consists of qualitative interviews and an web-based survey that are both executed in parallel (Figure 2). In addition the study is exploratory research which "seeks to find out how people get along in the setting under question, what meanings they give to their actions, and what issues concern them. The goal is to learn 'what is going on here?' and to investigate social phenomena without explicit expectations [Schutt, 2006]."

"The objective of exploratory research is to gather preliminary information that will help define problems and suggest hypotheses [Kotler *et al.*, 2006, 122]."

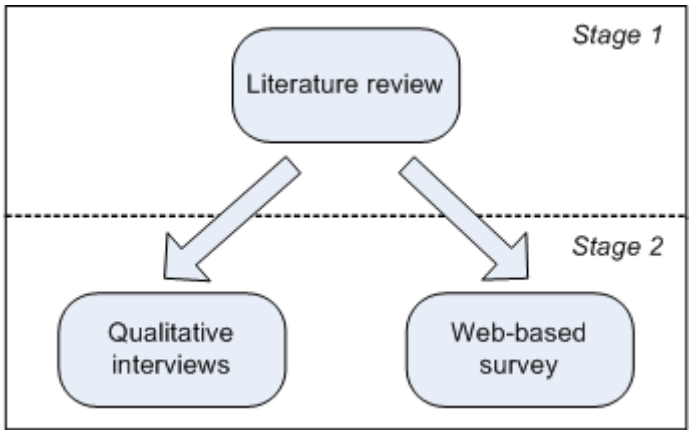


Figure 2: Mixed method consisting of a literature review, qualitative interviews and a web-based survey

2.2 Triangulated design

The triangulated design consists of a literature review, qualitative interviews and a web-based survey, since all methods contain elements in which the same phenomena is discusses (e.g. bottlenecks in professionalizing the project organization is discussed both in the literature review, interviews, and survey). All methods are discussed in more detail in the sections below.

2.2.1 Literature review

The purpose of a literature review is to highlight all relevant and recent developments on a particular subject. First of all project, program, and portfolio management is discussed since this is the main topic of this study. Then the project organization and the project management office are described. In addition organizational maturity, maturity of project, program, and portfolio management processes, and maturity assessment models are discussed. Finally the role of change management in further professionalizing the project organization concerning project, program and portfolio management is discussed. Another reason for conducting this literature review is to provide an overview of challenges in project, program, and portfolio management that can be helpful as preliminary information for setting up the qualitative interview. Furthermore an overview of the main maturity models is given and the most suitable best-practice maturity model is selected and identified how it can be adopted as assessment tool in this study. The literature review both contains qualitative and quantitative data, e.g. empirical findings from research. In addition the literature review can be considered as the foundation for the qualitative interviews and the web survey. Although no track record was kept during search, some general comments can be made of the literature search process. The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar. In this way independent scientific sources are filtered from others, e.g. sources with commercial interests. Next to this the relevance can be determined using the number of citations of a particular source. Furthermore articles from peer-reviewed journals are considered as more relevant than those of non-peer reviewed sources. The main electronic journals related to project management were examined, i.e. the International Journal of Project Management and the Project Management Journal, both peer-reviewed journals. In addition articles were selected by means of their title, abstract and keywords. The order for determining whether a source was considered as relevant is listed below:

1. Number of citations
2. Appearance in peer-reviewed journal
3. Title
4. Abstract
5. Keywords
6. Conclusions

The search process about project, program, and portfolio management is discussed in section 3.1. In addition the search process about the project organization and the project management office is discussed in section 3.2. Subsequently the search process about maturity and corresponding maturity models is described in section 3.3. Finally the search process about change management was discussed in section 3.5.

2.2.2 Web-based survey

A quantitative maturity assessment is done in which the maturity of project, program, and portfolio management processes in large Dutch organizations is determined. The web-based survey, which is a method that can be used for finding quantitative data, is used to determine maturity. ThesisTools is a web application that is used to design the survey [ThesisTools, 2008]. The group of individuals that is approached as participants are people that are working in the project management field. This can be project members, project managers, program managers, portfolio managers, etc. who are involved in project, program, and portfolio management. Several sources have been used since no list was available with contacts that could be used for sending a request for participation in the survey. Visitors of the Fortes seminars on 'Best practices towards an effective project management office' [Nijenhuis, 2008a] and 'Best practices for the implementation of portfolio management' [Nijenhuis, 2008b] have been approached for participating in the survey. The first seminar was visited by about 110 attendants of which 12 were approached with a request for participating in the survey. The second seminar was visited by 130 attendants of which 21 were approached with a request for participating in the survey. The 8 interviewees of the companies that participated in the interview about bottlenecks in further professionalizing the project organization have been requested to fill out the online survey too. Also 7 acquaintances that work in organizations which are running projects are approached with the request if they can disseminate the research description and survey link to colleagues to whom they think this study is of concern. Furthermore 9 of the largest Dutch companies according to FEM Business [FEM Business, 2008] were approached by email with the request to participate in the survey. In addition 77 random employees in the project management field and their email addresses could be derived using the search engine Google with keywords 'project manager'. All these people are asked by email for participating in the survey. The International Project Management Association – Netherlands [IPMA-NL, 2008] posted a research description with a link to the survey on their website. IPMA-NL contains more than 2300 members. Additionally messages have been posted on the message boards of the project management community websites of the Dutch PMForum [PMForum, 2008a], PMForum international [PMForum, 2008b], AllPM [AllPM, 2008], and Gantthead [Gantthead, 2008]. The Dutch PMForum has 44 members and the posted message on the message board of this website has been viewed 167 times. Furthermore an email was submitted to all 38 members that were registered at that time, in which was asked if they are willing to participate in the survey. PMForum International is a project management community with more than 5500 members worldwide. The posted message on the message board of PMForum International is viewed 279 times. AllPM is a project management community with more than 40,190 members worldwide and the posted message on the message board of AllPM is viewed 38 times. Gantthead is a project management community with 335000 members worldwide. No data could be found on the number of views of the posted message on the message board of Gantthead. The participants of the survey are all employed in the project management field in Dutch organizations.

It appeared that 81 participants started with the survey (just the first page with their background information but hardly any assessment questions), 67 of these participants filled out the survey for the larger part, and 50 of them fully completed the survey. A question that may arise is why just over half of the participants that started with the survey completed it. It appeared that nearly all participants filled in the questions about their background, e.g. country, industry sector, organization size, etc. When the questions about specific business processes on project, program, and portfolio management level arose, some participants abandoned the survey. A possible explanation may be that participants find it hard to estimate how mature their organization is. Reasons for this is that their job or organization does not perfectly fit with the subject of study. For example, it may be hard for employees with few working experience in project related activities to judge their organization. Another reason may be that participants that begun working a short time ago in a specific organization find it hard to assess its processes. Some of the participants replied by email that they were the only employee of their company and hence they were not the right persons to participate in the survey. Other participants send a message that they were currently doing projects in external companies and they cannot assess this organization. It appeared that of the 67 participants that filled out the survey for the larger part a number of 48 participants are working in a large Dutch organization with more than 500 employees. The origin of the respondents can not be traced since the survey was anonymous. Respondents had the opportunity to fill out their e-mail address after participation if they were interested in the results of the research. Not all respondents filled out their email addresses and some of are not direct approached by email. In this way it is hard to determine by what source, e.g. email, message board, through colleagues, the respondents got aware of the survey. Therefore no statements can be made about response rates. Initially both a Dutch and an international version in English of the web survey have been defined. This international version was focused on non-Dutch companies that are located abroad and resulted in a total of 4 respondents. Therefore the results from the international version are excluded in this research and the focus of the study was explicitly changed to large Dutch organizations afterwards. No specific actions were taken to secure a random sample of Dutch companies due to a lack of time and resources available in this project. The participants represent a generous cross-section of both small and large companies, based in different locations, and from a wide range of industries. Since there is a relative small number of respondents the results are less suitable to generalize. No firm conclusions can be drawn from such a small number of respondents and hence no statistical analysis is done in this study. Therefore the objective is merely to deliver results that can be relevant for business practice. Hence the purpose of this survey is primarily to give an indication of the maturity of project, program and portfolio management processes in large Dutch organizations using a best-practice model.

2.2.3 Qualitative interviews

During this study the qualitative research interview is used as method for determining bottlenecks in formalizing the project organization. As discussed above the qualitative interview is a suitable method to deal with topics about organizational life and this method is known for its flexibility. It can both cover topics in detail as in the broad sense. The purpose is to carry out 10 interviews in total which are equally spread over 5 companies, which means 2 interviews per company. Preferably these companies are large Dutch organizations with many employees and consisting of multiple divisions or offices. The focus was on large companies in the east of the Netherlands. The companies that have been approached are a brewery, a tire manufacturer, a device manufacturer, a civil construction company, and a health insurer which all took part in the interviews. Furthermore contact was made with a cable manufacturer, a consultancy company, and a textile fabrics manufacturer, but this resulted not in an interview appointment. First all companies were contacted by phone and was asked if they were interested in participating in this research about project, program, and portfolio management and, in specific, about bottlenecks in further professionalizing the project organization. Preferably two seniors of each organization that are involved in project related activities should take part in the interview.

This should lead to a more reliable picture of the organization with regard to the challenges in further professionalizing the project organization than is the case with just one participant. The organizations that were called asked for some time to discuss the request within the organization and look for suitable employees who could take part in the interview. After this initial call an email was submitted the specific organizations in which the interview objective was explained in more detail. After a week these companies were contacted again to see if there was some progress has been made and if the company already had found one or two suitable employees that were willing to participate and if it was possible to make an interview appointment. This resulted in 8 appointments with 5 companies. The participants were a project manager and a senior project manager of a brewery, a senior project manager and a program manager of a tire company, a project portfolio controller of a health insurer, a project manager of a device manufacturer, and a project process manager and a business office executive of a civil construction company. The interviews were conducted face-to-face at the offices of the concerned companies. Before the interview was conducted an interview guide was made as aid to carry out the interview. The first version of the interview guide can be found in Appendix D – Interview guide v1. Based on the input received during first interview meeting the interview guide was modified with the purpose to get a better fit with business practice and the interview objectives. This second and adapted version of the interview guide can be found in Appendix E – Interview guide v2.

3. Literature review

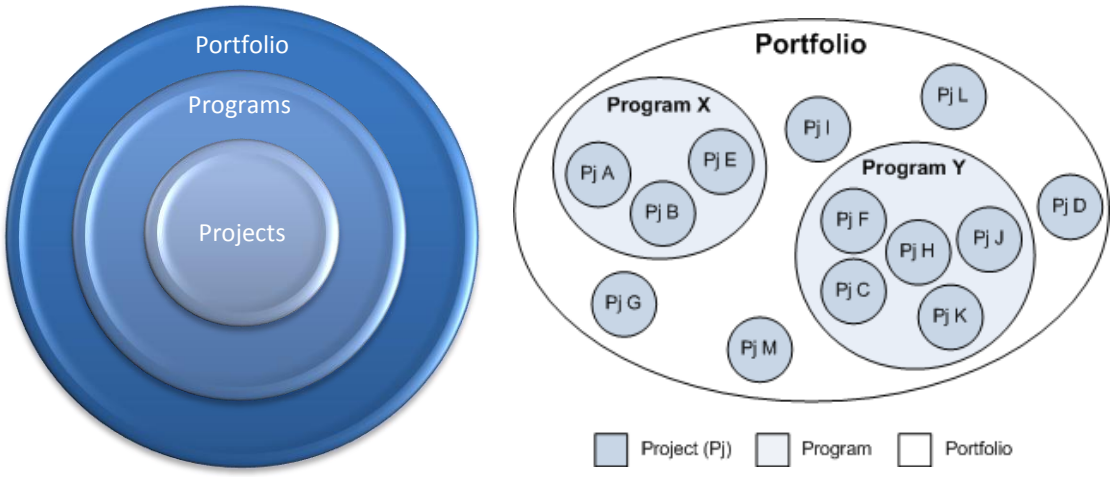
In the previous section many terms were mentioned which may not be instantly clear to the reader of this report and need some explanation. In the sections below the concepts project, program, and portfolio management and their relation are discussed. Subsequently the concept of the project organization and a common structure known as project management office are explained. In addition maturity and corresponding models to assess this maturity are described. Finally the importance of change management with regard to professionalizing the project organization concerning project, program, and portfolio management is discussed.

3.1 Project, program, and portfolio management

In this section the concepts project, program and portfolio and the fields project management, program management, and portfolio management and their mutual relations are discussed. Additionally the bottlenecks in portfolio management as defined in scientific literature and business practice are described. Information about project, program, and portfolio management and their relation was found by searching in the key journals on project management, i.e. the International Journal of Project Management [IJPM, 2008] and the Project Management Journal [PMJ, 2008], both peer reviewed journals. The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar using the keywords project portfolio management, portfolio management, multi project management, program management, project management, corporate portfolio management. More information about the search process in general can be found in section 2.2.1.

3.1.1 Relation between projects, programs, and the portfolio

In this section the relation between projects, programs, and the portfolio is discussed that is found in scientific literature.
A program includes multiple related projects which together achieve strategic benefits. The portfolio includes all projects and programs in an organization, whether they are related or not. The purpose of the corporate portfolio is to determine what resources should be allocated to distinct projects and programs and whether they contribute to strategy. The portfolio is used to make decisions about the priority of projects and programs, whether they should be started, resumed, stopped, or killed. The relation between projects, programs, and the portfolio is illustrated in Figure 3.



Source: [Rajegopal *et al.*, 2007, 12]

Figure 3: Relation between projects, programs, and the portfolio

Furthermore, project management and portfolio management can be considered as completely different paradigms. Project management is primarily focused on finishing projects within time and budget constraints. Portfolio management, on the other hand, is focused on selecting the right mix of projects and programs, allocating resources, maximizing overall business benefit, and delivering to corporate strategic objectives. One can argue there has been a changing view on measuring the success of projects. Projects are no longer static or isolated linear entities but have complex interdependencies with the business and other projects. Additionally complexity increased due to managing multi-project environments. Difficulties appeared such as project selection based on subjective factors, a lack of a dynamic process for understanding project benefit realization, and the lack of a real-time view of resource capability. Consequently alignment was needed between projects and the business occurred since projects are regarded as an integral part of the business for realizing the business strategy. Portfolio management is a necessity in order to bridge the gap between projects, the management process and the accountability to the business, and, in doing this, it brings together strategic and operational levels. Furthermore the bottom-up approach of project management does not work for portfolio management, which should be a top-down approach.

3.1.2 Projects, programs and the portfolio

In this section the concepts project, program, portfolio and their corresponding fields project management (PjM), program management (PgM), and (project) portfolio management (PfM) are discussed in more detail below.

3.1.2.1 Projects and project management

Project management dates back to ancient times. A few examples of famous projects are the pyramids in Egypt and the Great Wall in China, which shows project management exists for a long time. Projects in a business context only exist for a few hundred years. Since the terms project and project management are very trivial a few definitions of these concepts are given below. A definition of a project is "a temporary endeavor to create a unique product or service [PMI, 2000]." The definition of a project that is being used throughout this report is "a temporary organization that is created for the purpose of delivering one or more business products according to a specified business case [OGC, 2008d, 21]." A definition of project management is "the application of knowledge, skills, tools and techniques to project activities to meet project requirements [PMI, 2000]." The definition of project management that is being used throughout this report is defined as "an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case [OGC, 2008a, 3]."

3.1.2.2 Programs and program management

In this section the concepts programs[1] and program management are described. Next to this the difference between projects and programs are discussed. An example in which the difference between projects and programs becomes clear is given below. During an enterprise systems implementation (e.g. SAP) the technical implementation of the enterprise system can be considered as a project, which for example takes about six months to complete. The organizational change trajectory of the business required for implementing the system (e.g. technical implementation, user training, creating awareness of urgency, overcoming resistance, etc.), which for example takes about five years, is considered as a program. A real life example is the SPEER (Strategic Process and Enabled Reengineering) program of the Dutch Ministry of Defense (MoD). The purpose is to standardize financial and logistics operations of the three MoD departments land forces, air force, and the navy, which all have been independent departments in the past. MoD has selected SAP as supportive enterprise system [Atos Origin, 2008].

[1] The terms 'program' and 'program management' are also known as their British equivalences 'programme' and 'programme management'. For consistency reasons the former terms will be used only throughout this report.

Pellegrinelli states the following about the difference between projects and programs: "A program is a framework for grouping existing projects or defining new projects, and for focusing all the activities required to achieve a set of major benefits. These projects are managed in a coordinated way, either to achieve a common goal, or to extract benefits which would otherwise not be realized if they were managed independently. Programs differ from projects in that they do not necessarily have a single, clearly defined deliverable, or a finite time horizon [Pellegrinelli, 1997, 142]. The definition of a program that is being used throughout this report is "a temporary, flexible organization created to co-ordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organization's strategic objectives. A program is likely to have a lifespan of several years [OGC, 2008d, 20]." Program management can be defined as "the integration and management of a group of related projects with the intent of achieving benefits that would not be realized if they were managed independently [Lycett *et al.*, 2004, 289]." The definition of program management that is being used throughout this report is "the coordinated organization, direction and implementation of a portfolio of projects and activities that together achieve outcomes and realize benefits that are of strategic importance [OGC, 2008d, 21]."

3.1.2.3 The portfolio and portfolio management

In this section the concepts portfolio and portfolio management are discussed. Besides the emergence from the project management field, the origins of portfolio management date back to financial investment theory in the 1950s where portfolio management was used to select stock portfolios [Markowitz, 1952]. The last decade portfolio management has been widely used to manage IT projects [Kersten and Verniers, 2004; Reyck, *et al.*, 2005] and new product development projects [Cooper *et al.*, 2001]. Currently there is no full consensus on the concept of portfolio management. Different terms like project management, multi-project management, program management, and project portfolio management are used interchangeably for the same concept in scientific literature [Elonen and Artto, 2003]. A few definitions of the portfolio and portfolio management are given below. The definition of the portfolio that is being used throughout this report is "the totality of an organization's investment (or segment thereof) in the changes required to achieve its strategic objectives [OGC, 2008a, 2]." Portfolio management can be defined as "the entire collection of projects a company is engaged in, in order to make decisions in terms of which projects are to be given priority, and which projects are to be added to or removed from the portfolio [Reyck *et al.*, 2005]." Another definition is "the process of analyzing and allocating organizational resources to programs and projects across the organization on an ongoing basis to achieve corporate objectives and maximize value for the stakeholders [Thiry, 2006]." The definition of portfolio management that is being used throughout this report is "a coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual/operations [OGC, 2008a, 2]." The concepts projects, programs, and the portfolio and their related fields project, program, and portfolio management are discussed in the sections above. What can we tell about recent developments in these areas and the challenges business is currently dealing with?

3.1.3 Challenges in portfolio management

Project portfolio management is a relatively new field and is considered as a complex matter in practice. Not surprisingly, there are a lot of challenges that have to be addressed. Below an overview is given of bottlenecks that are common in the portfolio management field. Cooper *et al.*, 2000 claims that the main problem areas are resource balancing, prioritizing project against one another, making go/kill decisions in the absence of solid information, and the presence of too many minor projects in the portfolio. Resource balancing can be described as the existence of too many projects and the finiteness of resources. Prioritization is difficult because project selection methods fail to classify projects against each other.

Companies usually decide on 'quick-wins' and select a surplus on small projects and consequently have few major hits [Cooper *et al.*, 2000]. Artto, 2001a states that "a fundamental question is the problem of how to organize the whole corporation's responsibilities, decision making, and objective setting concerning projects. These issues relate also to questions of relevant information content, information sharing, and aspects of learning [Artto, 2001a]." Furthermore Artto, 2001b describes the main problems in multi-project environments as each key individual is involved in too many projects – under capacity, the competence in other individuals is not used effectively – overcapacity, similar work entities are run in parallel in different parts of the organization – lack of coordination, results of project activities are not used in other projects – lack of coordination, too many (small) projects, too many projects as compared to available resources, projects do not support achievement of business objectives; projects do not carry appropriate value for the business, a lack of balance of projects as a whole, and too much information; lack of relevant information [Artto, 2001b]. Elonen and Artto, 2003 states that the main managerial problems in project portfolios are no link between strategy and project selection, poor-quality portfolios, reluctance to kill projects [Staw and Ross, 1987], scarce resources and additionally a lack of focus, selecting short-term and easy projects, information overflow and lacking quality of information, and decision making based on power. Furthermore the authors define six problem areas based on the managerial problems that have been found. The problem areas that can be distinguished are inadequate project level activities, lacking resources, competencies and methods, lacking commitment, unclear roles and responsibilities, inadequate portfolio level activities, inadequate information management, inadequate management of project-oriented business [Elonen and Artto, 2003]. Kendall and Rollins, 2003 reports about the missing link between strategic planning and project management, project manager stress from limited human capital, splitting resource pools, bad multitasking, and the multi-project resource conflict [Kendall and Rollins, 2003]. The latter is also mentioned in Engwall and Jerbrant, 2003 which describes the allocation of resources between simultaneous projects as a challenge [Engwall and Jerbrant, 2003]. Rintala *et al.*, 2004 defines three categories of problems. Resource allocation can be problematic in a multi-project environment. Examples of this are key persons suffer from project overload while others work in under capacity, and lack of overall coordination and transparency between projects. Another problem is the strategic context of project composition. Projects are not aligned with the strategy or balanced optimally against different objectives at the portfolio level. The third problem is work activities that are hindered by blizzard of information and in the same time lack of information [Rintala *et al.*, 2004]. Levine, 2005 defines problems associated with portfolio management such as how to implement PPM, ranking value and benefits, the size of the portfolio pipeline, the impact of uncertainty on projects and portfolios, and the benefits/risks relationships [Levine, 2005]. Now that the challenges with regard to portfolio management are known, what can we do to deal with these challenges?

3.2 The project organization

The project organization is an attempt to address the issues that are discussed in the previous section since it tries to add stability by using a specific structure for organizing projects. In the sections below the project management office, a well-known organizational structure for managing projects, is discussed. In addition challenges in the project management office in Dutch business practice is discussed. Subsequently characteristics for improving project management effectiveness are described. Information about the project organization and about the project management office was found by searching in the key journals on project management, i.e. the International Journal of Project Management [IJPM, 2008] and the Project Management Journal [PMJ, 2008], both peer reviewed journals. The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar using the keywords project oriented organization, project based organization, project management office, project organization. More information about the search process in general can be found in section 2.2.1.

3.2.1 The project management office

One of the recent trends in the project (portfolio) management field is the project management office (PMO), which is known in many different guises. Some terms that are used extensively are the project office, program office, the project-oriented organization, project-based organization, center of excellence, or center of expertise. The term project management office is used in a consistent way to refer to all of these concepts since they have more or less the same meaning. Ward describes a project office as "an organizational entity established to manage a specific project or a related series of projects, usually headed by a project or program manager." Ward, 2000 defines a project management office as "an organizational entity established to assist project managers, teams and various management levels on strategic matters and functional entities throughout the organization in implementing project management principles, practices, methodologies, tools and techniques [Ward, 2000]." Since information in companies is often widely scattered over different strategic business units (SBUs) it can be difficult to make informed decisions. This issue also holds for project related activities. As a result the new paradigm of the project-oriented organization came up in the 2000s which was in contrast with the traditional mechanistic organization. The new strategy of a project organization is 'management by projects'. Now we got acquainted with the concept of the project management office, what can be considered as challenges with regard to the PMO in business practice?

3.2.2 Challenges of the PMO in Dutch business practice

Since the focus of this study is on Dutch organizations, an interesting matter is what Dutch business practice in the Netherlands considers as challenges of the project management office, which is discussed in this section. During a seminar on 'best practices towards an effective project management office [Nijenhuis, 2008a] two presentations were given succeeded by an interactive discussion about further professionalizing project organizations of companies in business practice. About 120 practitioners in the project, program, and portfolio management field attended this seminar. At the seminar Nijenhuis described challenges of the PMO that need to be addressed based upon his experience as project portfolio management consultant and salesman during the last years. The challenges that are considered as very common are making appointments about methods to use – uniformity, being too busy with paperwork and consequently there is no time for improving procedures and techniques, deliverance of data, reuse of best practices, efficiency, mandatory reporting, validity of data, software support, completeness of data, lack of overview, and a consistent approach. According to Nijenhuis the biggest challenges of the project management organization are governance and transparency, uniformity in processes, and increased efficiency. Furthermore Nijenhuis defines main showstoppers which are discussed below. Administrative trouble gives employees the feeling they do not get to the real work. Existing processes are not taken into account and as a result departments are forced to use a procedure that does not fit with their specialism or level of maturity. Furthermore a single sided approach is used. An example of this is improving portfolio management, but not the related processes in projects. Another showstopper is being too ambitious in making stepwise improvements which consequently lead to a lack of focus. Finally there are no personal wins and as a result employees do not see the urge to change [Nijenhuis, 2008]. Hoek describes the main challenges of the project management office as prioritizing projects, resource and capacity management, separation between projects and business line activities, administrative trouble such as mandatory reports like the project initiation document (PID), and finding project managers with the right 'soft skills' which are able to vary in their managing style with different types of customers [Hoek, 2008]. Now that we know what the challenges of the project management office in the Dutch business environment are, what can be done to improve project management effectiveness?

3.2.3 Improving project management effectiveness

Dai and Wells, 2004 calls for the establishment of a PMO to improve the effectiveness of project management activities. They suggest that a PMO should acquire knowledge to learn from past failures and successes in projects [Dinsmore, 1999; Fleming and Koppelman, 1998; Knutson, 1998]. Block and Frame, 1998 states that the establishment of a PMO leads to consistency and project management professionalism and bans inefficiencies in project activities. Furthermore they suggest some characteristics to improve the organization's effectiveness of project management. These are project support to offload administrative burdens, consulting and mentoring, development and application of standards and methods based on best practices, training and certification to improve individual skills, assistance in staffing projects, and playing a high-tech support role [Block and Frame, 1998]. Bates subsequently argues that tasks such as providing project risk assessment, performing post-project evaluation services lead to effective project management in an organization [Bates, 1998]. In Dai and Wells, 2004 also empirical research is done about the PMO. The main findings of their study are the presence of a high level of management confidence in the project management office in organizations that are establishing a PMO or already have done so, a high correlation between project management standards and methods and project performance, a high correlation between the use of project historical archives and project performance, and pioneers in establishing PMOs are providing information and advice on essential policies and documents that should accompany the establishment and use of a PMO [Dai and Wells, 2004]. This shows the PMO leads to increased organizational performance of project management activities. Now it is evident that project management effectiveness can be improved, but how do we measure how well organizations are doing their project and portfolio activities?

3.3 Maturity of project, program, and portfolio processes

A measure that can be used to determine how well organizations are doing is maturity. In this section organizational maturity and its practical relevance is discussed. Additionally project management maturity and the outcomes of previous studies on this topic is described. Subsequently an overview is given of maturity models that exist in scientific literature or are used in practice. Then criteria are formulated for selecting the best suitable maturity model for this study. Additionally this model is discussed more in depth and a description is given how this model can be used for assessing the maturity of an organization on project, program, and portfolio level. The literature that was used about maturity and maturity assessment models was found by searching in the key journals on project management, i.e. the International Journal of Project Management [IJPM, 2008] and the Project Management Journal [PMJ, 2008], both peer reviewed journals. The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar using the keywords maturity, project management maturity, program management maturity, portfolio management maturity, maturity model. More general information about the search process can be found on in section 2.2.1.

3.3.1 Organizational maturity and its practical relevance

Before being able to discuss maturity models first some concepts related to maturity need to be clarified. Webster defines 'mature' as having reached the state of full maximum development [Webster, 1988]. Organizational maturity refers to a state where the organization is in a condition to achieve its objects [Andersen and Jessen, 2003]. A maturity model aids in defining, understanding, and measuring an organization's processes and its effectiveness (Figure 4). A maturity model consists of several levels of maturity which succeed each other. For example, if business activities currently occur in an ad-hoc way the primary goals of the company should be to progress to the second level planned and control before being able to progress to a higher level. The level of maturity can be determined by using a general accepted maturity model. Once the maturity level is determined, it can be used as a roadmap to improve specific processes in the organization.

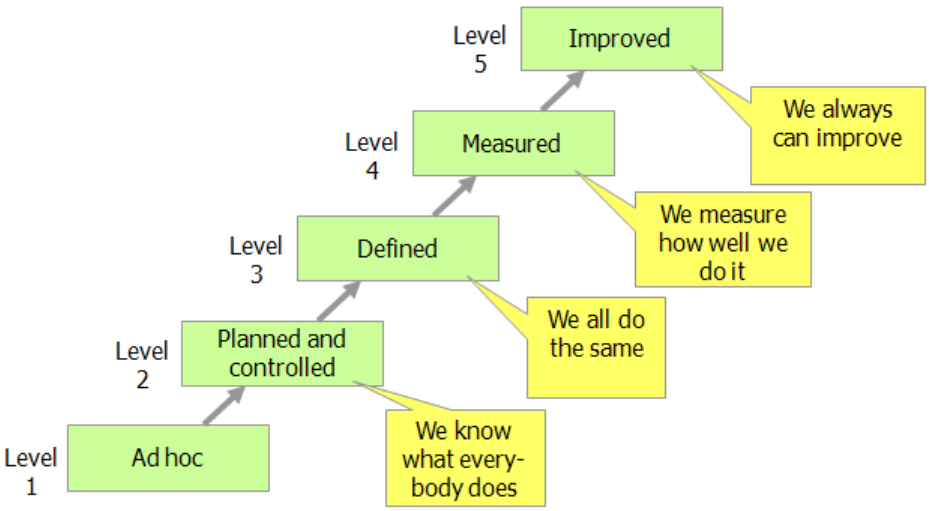


Figure 4: A maturity model with five levels (source: Hedeman, 2007)

Maturity models date back to the Capability Maturity Model (CMM) of Carnegie Mellon's Software Engineering Institute (SEI). CMM's development started in 1986 and initial release followed in 1991. CMM is focused on software process improvement in software engineering projects. In 2000 appeared the Capability Maturity Model Integrated (CMMI), CMM's successor, which can be considered as a more general approach to process improvement. CMMI integrates several areas (e.g. software engineering, product and service development, acquisition, etc.) to improve the effectiveness of processes. Improving maturity can lead to a reduction in the variability of the process and an improvement in the performance of the process [Cooke-Davies *et al.*, 2001]. Furthermore a relation exists between higher levels of maturity and improved organizational performance [Herbsleb *et al.*, 1997]. Bourne and Tuffley argue assessing the organization's capability using a maturity model can lead to a substantial return on investment. These authors also suggest that other benefits can be an increased productivity, improved quality, increased customer satisfaction, improved employee morale, less defects, reduced costs, and reduced costs of quality [Bourne and Tuffley, 2007]. Crawford, 2006 argues that determining a correct maturity level is not an easy task since many factors are involved like individual interviews, evaluating artifacts, processes, standards, knowledge, and company culture. Therefore it is important to use an assessment tool that is tested and proven on delivering consistent results. There is some misuse of maturity models and should not be seen as a model that solves issues but as a path forward in which project management capabilities can be improved. Crawford, 2006 states that progress in maturity levels are evolutionary steps with a specific focus and measurable goals to realize benefits within a predetermined period of time, usually a number of months. Furthermore companies should not strive for the highest maturity level but to a minimum level at which the benefits and desired results are achieved [Crawford, 2006]. Now the concept of organizational maturity and its relevance is known, what can we tell about maturity in the project related activities?

3.3.2 Project management maturity

Not surprisingly, the concept of maturity also diffused to the project management field. Different views exist on maturity related to project management. Project maturity is focusing mainly on what organizations and people do as operational activities [Ibbs and Kwak, 2000; PMI, 2008]. Skulmoski extends the view and mentions maturity and competence for improving project success. Competence is considered as a combination of knowledge, skills, and attitude to increase performance [Skulmoski, 2001]. Another possibility is to define project maturity as the sum of action (ability to act and decide), attitude (willingness to be involved), and knowledge (an understanding of the impact of willingness and action).

Furthermore Andersen and Jessen state that "the basic assumption is that modern societies are typified by their change ability and their willingness to change. And change generates needs. Needs are in turn the prerequisite for development. Most individuals in modern societies are in situations were they continuously experience needs. The result is that they have to prioritize, and thus decide." Project management maturity can be described as the ability of the organization to deal with its projects. In the real world the fully matured organization does not exist; Andersen and Jessen argue that no organization have ever reached maturity and no organization ever will. Nevertheless it is useful being able to describe organizational maturity in someway it can be measured or characterized. As a result maturity models have been designed to assess the level of maturity in organizations. Different types of assessment exist for determining the level of maturity like a baseline assessment and an comprehensive assessment. A baseline assessment enables the organization to identify the areas where it can expect the greatest return on investment and to show where actions have impact. A comprehensive assessment checks all areas where project management influences the business and progress is evaluated periodically. Three stages of maturity can be distinguished: 1. project management maturity, 2. program management maturity, and 3. portfolio management maturity. For each of these stages should be determined what the maturity is. Andersen and Jessen hypothesize that it is likely that a higher stage is less capable – or has a lower maturity – than a lower level. It is plausible to assume it is harder to fulfill the requirements in higher stages (e.g. portfolio management) compared to lower stages (e.g. project management) [Andersen and Jessen, 2003]. What studies were recently conducted about maturity of project, program, and portfolio management?

3.3.3 Previous studies on project management maturity

In this section a few studies on project management maturity are discussed. The first section describes two scientific studies on project management maturity and one scientific study on project, program, and portfolio management maturity. The latter is the actual purpose of this study. The second paragraph describes a study from the field conducted by a commercial party.

3.3.3.1 Academic studies on project management maturity

Ibbs and Kwak conducted a project management maturity assessment using the PMBOK Guide as main reference. The survey consisted of 148 multiple choice questions which were divided over 8 knowledge areas and 6 phases. A number of 38 different companies and government agencies participated in the survey which were working in 4 different industries. These industries are engineering and construction, information management and movement – also known as telecommunications, information systems – also known as software development, and hi-tech manufacturing. A relative scale from 1 (lowest) to 5 (highest) is used and an overall project management maturity is calculated by averaging the scores of all 148 questions. It appeared the project management maturity for all companies had an average of 3,26 in this study [Ibbs and Kwak, 2000].

Andersen and Jessen have carried out a project management survey among 59 middle managers and project management of the Norwegian School of Management which were attending the Master of management program in Project Management. The purpose of this study was just to test the questionnaire and its concepts. The survey consisted of a questionnaire with 36 questions, or statements, which all had the same weight. In this study a scale of six choices ranging from 'completely disagree' (1) to 'completely agree' (6) was adopted. The authors examined the three process levels of maturity project management, program management, and portfolio management which respectively reach an average maturity level of 4.01, 3.93, and 3.90. The findings are in line with the authors' hypothesis described above that the capability, or level of maturity, at a higher stage (e.g. portfolio management) is lower than at a lower stage (e.g. project management). Furthermore the maturity dimensions attitude, knowledge, and action are looked after which respectively achieve a maturity level of 4.07, 3.98, and 3.82.

This shows the attitude (capability to carry out different tasks) and knowledge (willingness to take them out) is greater than the actions (actually doing them) that are taken [Andersen and Jessen, 2003].

Grant and Pennypacker, 2006 has measured the project management capabilities among and between different industries. In this survey the authors adopted the PM Solutions Project Management Maturity Model (PMS-PMMM). This model consists of two dimensions. The first dimension is based on the SEI Capability Maturity Model (CMM). The second dimension is based on the nine knowledge areas of the Project Management Institute (PMI). The authors approached member of the Center for Business Practices (CBP) Consortium, containing over 900 senior practitioners in the project management field. A number of 42 detailed components of maturity were examined by using a specific question for each component. The survey was conducted among 126 North American organizations including 17 distinct industries. The following four major industries professional, scientific, and technical service; information; finance and insurance; and manufacturing were compared, but no significant in project management maturity between industries have been found. The median maturity level is 2 out of 5 with respect to 36 of the 42 components analyzed [Grant and Pennypacker, 2006]. These findings are in line with a previous study of the same authors in which 13.7% of the respondents operated at level 1 – initial process, 53.2% at level 2 – structured process and standards, 19.4% at level 3 – organizational standards and institutionalized process, 7.3% at level 4 – managed process, and only 6.5% at level 5 – optimizing process [Pennypacker and Grant, 2003]. In this section have discussed three relative small academic studies on project management maturity. In what way can this be compared to a global study by a commercial party about project management maturity in organizations world wide?

3.3.3.2 A practitioner's study on project management maturity

PricewaterhouseCoopers conducted a global survey on the current state of project management maturity in organizations across the world. This survey is held in 2004 among 200 companies worldwide in which 3.488 directors, project and portfolio managers participated that were involved in about 10.600 projects with an estimated revenue of 4,5 billion USD per year. The main findings of Nieto-Rodriguez and Evrard are discussed more in depth below. A higher maturity level leads to a higher overall project performance (i.e. performance of the complete project portfolio). The total average maturity level is 2,5 meaning the current state of project management is at the level of informal processes and hence so far institutionalization is lacking. This is also one of the main reason why many projects are unsuccessful these days. It appears most organizations are not content with their current maturity level. These levels of maturity can be compared by sector and location. About 30% of Technology, Information, Communication, and Entertainment reaches a maturity level of above 3. Not surprisingly, since this is the youngest sector which also require high investments in project management. Financial Services and Industrial and Consumer Products and Services achieve an average maturity level between 1 and 3. In the Public Sector the majority of organizations (56,3%) only gets to a maturity of 1. The Pharmacy sector closely follows the Public Sector. When comparing locations highest maturity can be found in Asia with an average level of 3,1 followed by the Americas with 2,8 en Europe with 2,5. The maturity levels are in line with project performance in the three areas where Asia, the Americas, and Europe respectively achieve a performance rate of 53%, 50%, and 46%. Project failures are often related to organizational matters that project managers can hardly influence. Hence it is not justified in most cases that senior management is blaming their project managers for delivering poor project results. Another factor that influences project performance is staff development and professional certification. In practice it appears that in about 60% of the organizational no development program exists and organizational are afraid of investing in their people. This is an undeserved thought since possible benefits are significantly higher than the risks companies take. Besides this a systematic approach to change management in projects is essential in excellent performance. A clear correlation exists between the fields project performance, maturity level, and change management.

The best performing and most mature companies with frequently apply change management in their projects. Additionally the degree of software use is correlated with maturity levels. It appears the lower the level of maturity the more difficult it is to implement project management software. In addition project management software is not used to its full potential in facilitating and automating the reporting process. Though reporting is time consuming and provides low value it is an essential project management activity. Furthermore projects can be better staffed with a majority of internal than external sources as a guarantee of success. However, moderated use (i.e. not more than 25%) of external sources have proven to add value and lead to higher performance of project activities. Furthermore there are some interesting and perhaps even remarkable findings. Companies can not advance more than one level in maturity at a time since a collective transformation in corporate culture is required which involves anyone. Project 'failure' is still expressed in internal project performance measures (e.g. bad estimates, failing deadlines, impact of scope changes) instead of delivering value to the corporation as a whole. The best performing companies adopt a 'projectized' structure or matrix-structure since this gives project managers significantly more influence, though this does not work out with companies with a small number of projects. Only 13% of the companies surveyed incorporates change management since this is an essential part of project management. Finally 21% of all companies does not use software in their project management activities [Nieto-Rodriguez and Evrard, 2004].

In Table 1 the maturity values from the studies above are summarized. Some of these values are recalculated in such a way that the same scale of choices ranging form 1 to 5 is used. It appeared just a few quantitative studies exist on maturity of project, program, and portfolio management processes. Most studies [Ibbs and Kwak, 2000; Pennypacker and Grant, 2003; PricewaterhouseCoopers, 2004; Grand and Pennypacker, 2006] are only focused on project management maturity. Just a single study [Anderssen and Jessen, 2003] can be found that describes both project, program and portfolio management maturity. Nevertheless values can not be compared with one another since different maturity assessments approaches have been used.

Source	Project management	Program management	Portfolio management
Ibbs and Kwak, 2000	3,26	-	-
Andersen and Jessen, 2003 [2]	3,34	3,28	3,25
Pennypacker and Grant, 2003 [3]	2,4	-	-
PricewaterhouseCoopers, 2004	2	-	-
Grant and Pennypacker, 2006	2,5	-	-

Table 1: Maturity values of the project management surveys described above

In this section four studies are discussed about project management maturity and another study about both project, program, and portfolio management (Table 1). All of them use different maturity models for determining maturity. What maturity models can be found in scientific literature and what model is most suitable to measure maturity in this research?

3.4 Maturity models

In the sections below an overview is given of the main maturity models. In addition selection criteria are defined that can be used to select the model that is best suitable to use in this study. Subsequently the chosen maturity model is discussed that is used as assessment tool in this research. Finally a description is given how the maturity model is adopted in the web survey and the way it used as assessment tool.

[2] The values for project, program, and portfolio management are modified from a six choices to a five choices scale
[3] The values for project management are transformed to a five choices scale

3.4.1 Overview of maturity models

In this section an overview is given of the main maturity models that can be found in scientific literature and are used in business practice. The literature that was used about maturity models was found by searching in the key journals on project management, i.e. the International Journal of Project Management [IJPM, 2008] and the Project Management Journal [PMJ, 2008], both peer reviewed journals. The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar using the keywords maturity model, project management maturity, program management maturity, portfolio management maturity, maturity model or a combination of these terms. More general information about the search process can be found on in section 2.2.1. Appendix A – Maturity models gives an extensive description of the models that were found and below only the names of these particular models are listed:

- The Capability Maturity Model (CMM) or its improved version the Capability Maturity Model Integrated (CMMI) of Carnegie Mellon University's Software Engineering Institute (SEI)
- The European Foundation of Quality Management (EFQM) Excellence model or its Dutch equivalence Instituut voor Nederlandse Kwaliteit (INK)-model
- Berenschot's Project Excellence Model (PEM)
- Kerzner's Project Management Maturity Model (K-PMMM)
- PMI's Organizational Project Management Maturity Model (OPM3)
- OGC's the PRINCE2 Maturity Model (P2MM)
- OGC's Portfolio, Programme and Project Management Maturity Model (P3M3)
- The MINCE2 Foundation's Maturity Increments IN Controlled Environments Model (MINCE)
- PM Solutions' Project Management Maturity Model (PMS-PMMM)
- PM Solutions' Project Portfolio Management Maturity Model (PMS-PPMMM)
- University of California's or Berkeley's Project Management Process Maturity $(PM)^2$ model

In the next section criteria are defined for selecting an appropriate maturity model that can be used for measuring maturity in this study.

3.4.2 Selection criteria for maturity models

In this study an overview is given of a number of maturity models without having determined their usefulness so far. This is done in this section. One of the objectives of this study is to determine the maturity of project, program, and portfolio management processes in large Dutch businesses using a best practice model. Based on this research objective and the desires of Fortes Solutions the following selection criteria were defined:

1. The maturity model should be a best practice model, i.e. developed by an independent party in cooperation with business practitioners since business should be able to handle the model peculiarities in a natural way without putting a lot of time and effort in it to understand the model. In this way the model can be easily adopted in business practice.
2. The model should be able to assess maturity on three process levels: project management, program management, and also portfolio management level.
3. The model should be method-independent and not depend on a single standardized approach for measuring maturity in organizations, e.g. simply and solely the project management method PRINCE2. If this is the case only specific organizations can attend in the survey that have adopted such a specific standardized approach, which is not the intention of this study.

4. The model should be suitable to use in Western Europe countries and, more specific, it should be proper to use in large Dutch organizations which is the focus group of this study. Cultural differences can lead to different assumptions on project related activities which consequently may result in models that are suitable to use in a particular region (e.g. Europe, America, Asia), but are less suitable to use in other regions.
5. The model should be compliant with PRINCE2, since this method is considered as the de facto project management standard in Dutch organizations, i.e. 61% and 72% of the participants in the surveys of respectively [KPMG, 2004] and [Vrije Universiteit Amsterdam *et al.*, 2007]. Hence organizations and practitioners are familiar with the PRINCE2 terminology.

Based on these five selection criteria the eleven maturity models listed above can be compared with one another. It appears the Portfolio, Programme and Project Management Maturity Model (P3M3) satisfies all five selection criteria and therefore is the most suitable model to use in this study (Table 2) and is discussed in more detail in the next section.

Maturity model	1	2	3	4	5
Capability Maturity Model (CMM) / Capability Maturity Model Integrated (CMMI)	✓	-	✓	✓	-
European Foundation of Quality Management (EFQM) Excellence model / Instituut voor Nederlandse Kwaliteit (INK)-model	✓	-	✓	✓	-
Project Excellence Model (PEM)	-	-	✓	✓	-
Kerzner's Project Management Maturity Model (K-PMMM)	-	-	✓	-	-
Organizational Project Management Maturity Model (OPM3)	✓	✓	✓	-	-
PRINCE2 Maturity Model (P2MM)	✓	-	-	✓	✓
Portfolio, Programme and Project Management Maturity Model (P3M3)	✓	✓	✓	✓	✓
Maturity Increments IN Controlled Environments Model (MINCE)	-	-	✓	✓	-
PM Solutions' Project Management Maturity Model (PMS-PMMM).	-	-	✓	-	-
PM Solutions' Project Portfolio Management Maturity Model (PMS-PPMMM)	-	✓	✓	-	-
Berkeley's Project Management Process Maturity $(PM)^2$ model	-	-	✓	-	-

Table 2: Eleven maturity models compared based on five selection criteria

3.4.3 The Portfolio, Programme and Project Management Maturity Model

The Portfolio, Programme and Project Management Maturity Model (P3M3) was first released in February 2006 and was developed as an enhancement of the Project Management Maturity Model (P1M3), both described in more detail in Appendix A – Maturity models. P1M3, on its turn, is based on the process maturity framework that evolved into the Software Engineering Institute Capability Maturity Framework (SEI-CMM), which was developed between 1986 and 1991. A new, second and updated version of OGC's Portfolio, Programme, and Project Management Maturity Model (P3M3) is released recently in June 2008 at the annual Best Practice Showcase in London [APMG UK, 2008]. The Portfolio, Programme and Project Management Maturity Model contains three models which are:

- Portfolio Management Maturity Model (PfM3)
- Programme Management Maturity Model (PgM3)
- Project Management Maturity Model (PjM3)

Additionally, similar to SEI-CMM, the P3M3 is described by a five level maturity framework. With the following maturity levels can be distinguished:

- Level 1 – Awareness of process
- Level 2 – Repeatable process
- Level 3 – Defined process
- Level 4 – Managed process
- Level 5 – Optimized process

In level 1 – Awareness of process the organization recognizes projects, but hardly any structured approach exists for dealing with these projects. In level 2 – Repeatable process standard approaches exist in some areas, e.g. projects, but there is no consistency of approach used in the organization. In level 3 – Defined process a consistent set of standards is being used by all projects, for example, across the organizations with clear process ownership. In level 4 – Managed process the organization monitors and measures its process efficiency and applies active intervention to improve performance based information. The organizational focus is on quantitatively managed processes to consider changing business needs and external factors. It is anticipating for future capacity demands and capability requirements, for example through portfolio analysis. In level 5 – Optimized process the organization's focus is on optimization of quantitative managed process for considering changing business needs and external factors. Furthermore the organization is anticipating to future capacity demands and capability requirements to meet the delivery challenge.

Besides this the P3M3 describes seven process perspectives that exist on all three models (i.e. Portfolio Management, Programme Management, and Project Management) and can be assessed on all five maturity levels (i.e. level 1: Awareness of process, level 2: Repeatable process, level 3: Defined process, level 4: Managed process, and level 5: Optimized process). These process perspectives are:

- Management Control
- Benefits Management
- Financial Management
- Stakeholder Management
- Organizational Governance
- Risk Management
- Resource Management

OGC describes these process perspectives as follows. Management Control assesses to what extent an organization maintains control of initiatives that are currently 'in flight'. Benefits Management assesses how well an organization defines, tracks, and ensures performance improvement from investments. Financial Management assesses how well an organization is managing and controlling investments by using business cases and budgetary control. Stakeholders Management assesses how well the organization is engaged in an communicates with the external environment and minimizes negative implications with relations. Corporate Governance assesses how well the organization is able to control the initiation and alignment of investments with the corporate strategy. Risk Management assesses how well the organization is able to minimize impact of threats and maximize opportunities. Resource Management assesses how well the organization assesses its talent and uses the opportunities of the supply chain to maximize effective use of resources. For all three models, each of the seven process perspectives, and all five levels of maturity a number of attributes, both generic and specific, exist that can help improving the organization's current maturity. A few generic attribute can be distinguished that are common for all perspectives, which are planning, information management, and training and development [OGC, 2008a; OGC, 2008b]. Figure 5 represents the P3M3, its three levels, and its seven process perspectives.

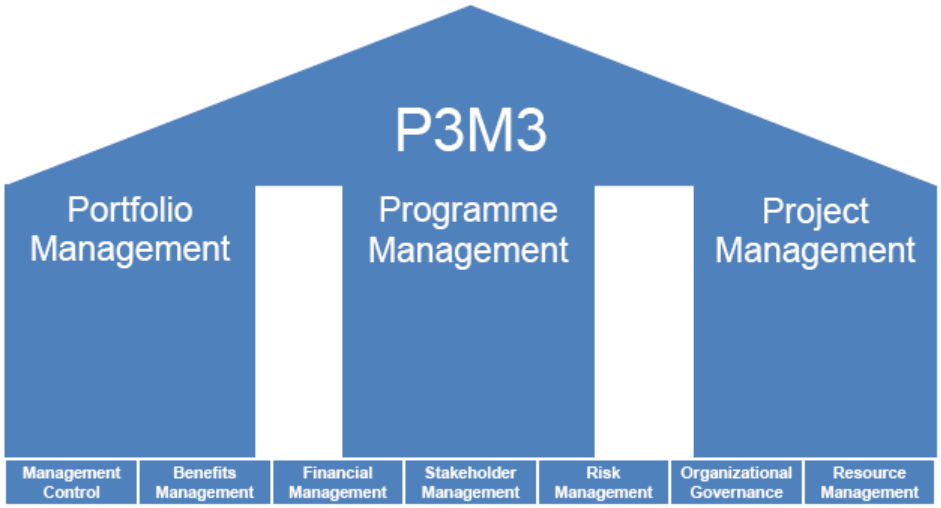


Figure 5: The Portfolio, Programme, and Project Management Maturity Model (P3M3) – source: [OGC, 2008b]

3.4.4 P3M3 maturity assessment

Until recently no public assessment tool for determining the level of maturity was available. So far a Portfolio, Programme and Project Management Maturity Model (P3M3) maturity assessment was executed by registered consultants that were accredited by the APM Group, an accreditation and certification institution, that has designed a series of assessment tools based on OGC's P3M3 [APM Group, 2007]. With the publication of P3M3 v2.0 in June 2008 also a self-assessment tool was published that is able to measure the maturity of project management, program management, and portfolio management in organizations. The focus of the P3M3 self-assessment is on the process perspectives Management Control, Benefits Management, Financial Management, Stakeholder Management, Risk Management, Organizational Governance, and Resource Management which that have been discussed in the previous section.

The P3M3 self-assessment is described in [OGC, 2008c] and contains a step-by-step guide for performing the P3M3 self-assessment (Figure 6). This guide consists of the six different steps which are respectively deciding the scope, deciding the approach, determining the assessors, completing the assessment, analyzing the assessment results, and considering the next steps. The latter two steps are not performed in this study due the following reasons. The analysis of the assessment results is done in the context of the organization's goals or intent. The next step is, having analyzed the results, to consider and plan the next steps (e.g. continue to improve project, program, and/or portfolio management) *within* an organization. It is not the purpose of this study to analyze and improving particular organizations, but simply to get an overview of an 'average' maturity level among organizations. Therefore only the former four steps will be carried for this particular research which are discussed in more detail below.

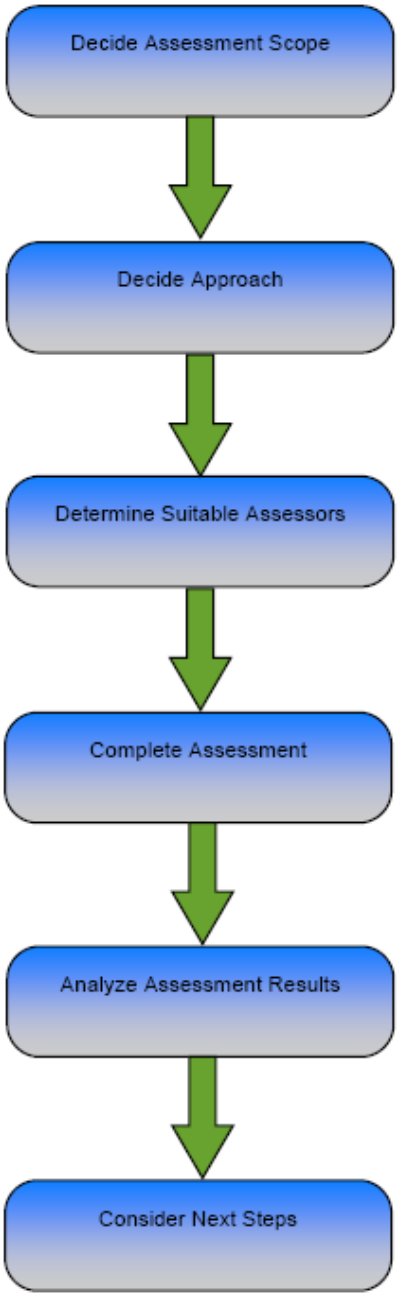


Figure 6: Generic approach to P3M3 self-assessment – source: [OGC, 2008c]

3.4.4.1 Assessment scope

In determining the scope of the self-assessment a decision needs to be taken on the three models, i.e. a particular combination of portfolio, and/or program and/or project management. The scope of this research is on project, program, and portfolio management processes.

3.4.4.2 Approach

The next step is to determine the intent of the self-assessment, i.e. determining the parts of the overall organization to be included and the range of areas to be covered. The parts of the overall organization can be the whole organization, particular divisions, or departments. The range of areas are the particular subset of perspectives to be examined. The intent of this self-assessment is to examine whole organizations on all seven P3M3 perspectives.

3.4.4.3 Determine suitable assessors

Additionally the group of people to carry out the self-assessment is determined. This can be an individual with knowledge about project, program, and/or portfolio management processes and practices. Furthermore it can be a group of people, or an internal or external facilitator. A facilitator identifies key individuals – either individually or in groups, collects answers and analyzes the responses. Since this self-assessment is performed using a web-based survey one could speak of an external facilitator, i.e. the researcher and author of this report, that identifies the group of individuals, collects the answers and analyzes the responses. The group of individuals that is approached as participants are people who are working in the project management field. This can be project members, project managers, program managers, portfolio managers, etc. who are involved in project, program, and portfolio management. Several sources have been used since no list was available with contacts that could be used for sending a request for participation in the survey. How this is exactly done is discussed in more detail in section 2.2.2.

3.4.4.4 Complete assessment

The self-assessment can be completed by referring to the answer model specification that also included in [OGC, 2008c] which is given in Table 3. The participants should give the most appropriate response that best reflects the processes and practices concerning project, program, and portfolio management within their organization.

Question	**Focus**	*1*	*2*	*3*	*4*	*5*	Result
Management control	Project						
	Program						
	Portfolio						
Benefits management	Project						
	Program						
	Portfolio						
Financial management	Project						
	Program						
	Portfolio						
Risk management	Project						
	Program						
	Portfolio						
Stakeholder management	Project						
	Program						
	Portfolio						
Organizational governance	Project						
	Program						
	Portfolio						
Resource management	Project						
	Program						
	Portfolio						
Does the organization	Project						
	Program						
	Portfolio						
Organization	Overall						

Table 3: P3M3 answer model specification - Source: OGC, 2008c

When a group of individuals have given their answers a process need to be found for combining individual scores. This can be a minimum or an average score. In this research is chosen to determine an average score. This is illustrated with an example. In Figure 7 the maturity of all process perspectives (i.e. Management Control, Benefits Management, Financial Management, Stakeholder Management, Risk Management, Organizational Governance, and Resource Management) on a specific process level is assessed (i.e. project management, program management, and/or portfolio management).

It appears the score on the specific process perspective in this case is 3, 2, 3, 2, 4, 3, 4. The average of this score is 3, so the average maturity is level 3 – defined process. In practice this means in the organization a consistent set of standards is being used by all projects, for example, across the organizations with clear process ownership. In this study an indication of the overall average of all participating organizations is calculated in a decimal, e.g. 2,7. In this case the average overall maturity is in between level 2 and 3, but closer to level 3.

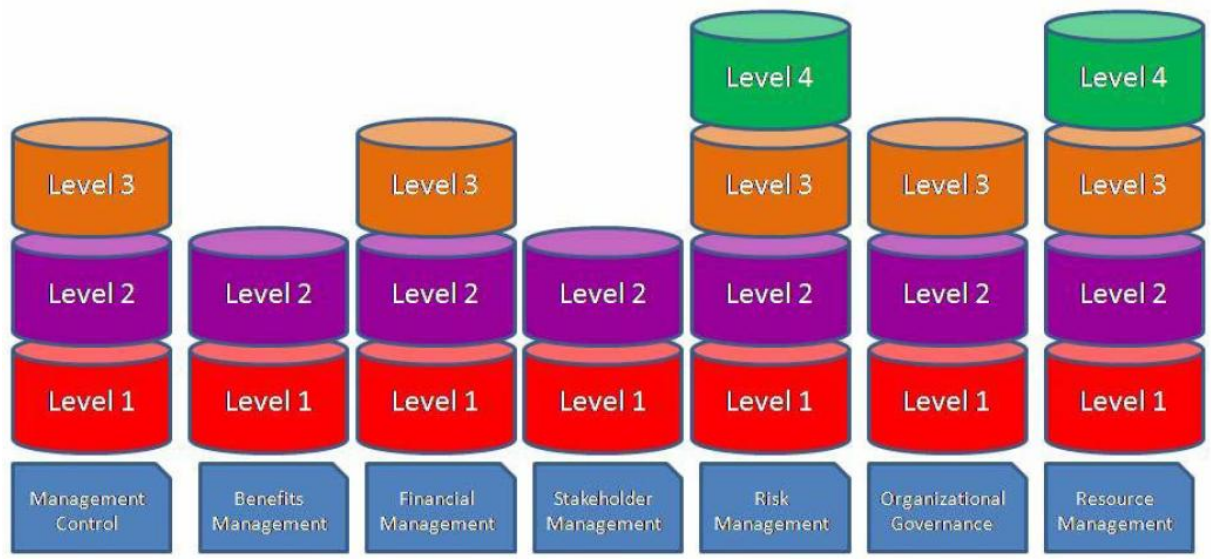


Figure 7: Example of P3M3 self assessment - Source: OGC, 2008c

As discussed in the P3M3 self-assessment guide the scope and approach of the self-assessment can be determined given the purpose of a study. This is also done in the case of this study, meaning the questions and answers are not duplicated one-by-one, but minor modifications have been made due to the comprehensive texts that are less suitable for using in the web-based survey. The P3M3 self-assessment contains a set of questions that can be found in [OGC, 2008c] and is used as foundation for constructing the survey. The questions all consist of multiple choice answers with five options, corresponding with the maturity levels 1 up to 5. The English and Dutch versions of adapted maturity self-assessment tools that are used in the web survey can be respectively found in Appendix B – Maturity survey English and Appendix C – Maturity survey Dutch.

In the sections above is discussed how we can address the maturity of project, program, and portfolio management processes. Furthermore it is clear how we can measure this maturity, i.e. by means of the best practice maturity model P3M3 which is most suitable for this specific study. By performing a maturity assessment we can estimate the maturity or project, program, and portfolio management processes in large Dutch organizations. The next step is what we can do about further professionalizing the project organization with regard to project, program, and portfolio management processes. Can further professionalizing the project organization be considered as a trivial and stepwise approach or is it not as straightforward as it seems to be?

3.5 Change management

Since change management is a broad term, as is discussed in this section, no specific sources in particular are consulted for finding literature on this topic. However, the focus was on alternative views on change management since the majority of change initiatives do not lead to satisfying outcomes [Beer and Nohria, 2000; Clegg and Walsh, 2004]. Therefore this fact was used as a starting point for further analysis.

The search engines that have been mainly used are Web of Science and Scopus, supplemented with Google Scholar using the keywords organizational change and change management. More information about the search process in general can be found in section 2.2.1.

Further professionalizing the project organization with regard to project, program, and portfolio management is not a trivial approach since it affects all business layers up to the strategic level. It may not be a surprise that tacit elements are involved in this process. One of these tacit elements which is of great importance is change management. Change management can be situated in the field of organizational development which is related to the organizational behavior field. Both organizational behavior and organizational development are subfields of organizational theory. Organizational theory can be considered as the common denominator which concerns all scientific organizational knowledge and that, besides the subfield of organizational development, literally contains hundreds of other subfields (Figure 8).

Figure 8: Relation between organizational theory, organizational behavior and organizational development

Now that we now how change management can be situated, i.e. as a subset of the organizational development field, an overview is given of the recent developments in this area.

3.5.1 Recent developments in organizational change

One of the major developments in the field of organizational change during the last decade is the split between a traditional, widely accepted approach and some alternative views. This division can be explained as a result of disappointing outcomes in change initiatives. Studies have shown that about 70% of these initiatives do not meet the expectations [Beer and Nohria, 2000; Clegg and Walsh, 2004]. Given this fact a new movement appeared which tried to find out *why* change initiatives fail by using an unconventional approach. In order to answer this question the new movement has studied the current practices of change initiatives and, in specific, the methods that are used decades ago up till now. It appeared that the commonly accepted methods, that are all based on the same principles, did hardly evolve – and their success rates in practice neither. What are these principles of managing change that often lead to disappointing outcomes?

3.5.1.1 Classic principles of managing change

A few of the pioneers that came up with these principles for organizational change are Fayol, Lewin, and Beckhard. Fayol already published in 1916 the classic characterization of management which is defined as "planning, organizing, commanding, coordination and controlling".

Management is seen as control mechanism with a top-down, hierarchical view of managing [Fayol, 1949]. Lewin can be considered as the founder of organizational development and is famous for the three stage change process of freeze, change, and refreeze. In the 'unfreeze' stage the organization should try to overcome inertia and dismantle the existing mind set which may lead to defense mechanisms (i.e. resistance) that should be bypassed. In the second stage the change occurs and this leads typically to a period of transition and confusion. Old ways are abandoned but there is no clear view yet how these should be replaced. In the '(re)freeze' stage a new mind set falls into place and people start feeling comfortable again like before the change process started [Lewin, 1951]. Beckhard gave an initial description of the concept organizational development like is stated above. He is credited for the Formula for Change (also known as Gleicher's Formula), together with David Gleicher. This formula can be defined as:

$$D \cdot V \cdot F > R \tag{1}$$

In equation (1) the symbols are explained as follows:

D = Dissatisfaction with how things are now
V = Vision of what is possible
F = Concrete steps that can be taken towards the vision
R = Resistance

In practice this formula can be used as recipe for organizational change. The central thought is that the product of D, V, and F should be larger than the resistance in order to make change to a success. In this way one can determine a strategy for each of the factors such as vision and concrete steps to be taken [Beckhard, 1969]. It should be remarked that the pioneers that are discussed in this section could be easily extended with or replaced by others. Now that we are aware of the classic foundations of change management what are the main criticisms on the traditional approach?

3.5.1.2 Growing criticism on traditional approach

The traditional approach is criticized for a few reasons. The first has to do with the concepts organizing versus organization and its underlying principles. The second is about perceptions of whether changes should be organized or not. Both of them are discussed below.

Organizing versus organization and its underlying principles

Nearly all business and IT consultancy practices contain elements of the concepts discussed above– whether this is business process reengineering, enterprise systems implementation (e.g. SAP), or further professionalizing the project organization with regard to project, program, and portfolio management. It is interesting to find out what principles these authors have in common such as their view on the organization, which is considered as an entity. It is easy to pass over the idea that the organization is nothing more than a formal entity with the purpose of getting things done or, in other words, *organize*. Therefore, when matters turned out to be more complex, the bureaucracy emerged since this is a more rigid way to keep control. Considering this thought a number of studies [Brunsson and Olsen, 1993; Weick and Quinn, 1999; Tsoukas and Chia, 2002; Grey and Sturdy, 2003] made the assumption that an organization as an entity is the same as organizing. This is not the case since an organization is static, designed, and controllable. This is in contrast with organizing that is dynamic, emergent and partially controllable at its best. With this in mind it is evident that consultancy projects seems to be a way of organizing things since these projects are situated in a dynamic environment in which outcomes are uncertain. Paradoxically, consultancy approaches in practice turn out to be based on principles of an organization: static, designed and controllable [Hicks and Nair, 2007]. This resulted in n-step or contingency models which assume control can be kept and outcomes can be guaranteed as long as models are applied in a correct way. In business, as every experienced consultant can confirm, there is a big difference between theory and practice.

It is the question why failure rate is still very high after decades of enhancing these models. A possible reason may be that these models, given their prescriptions from theoretical perspective, were not applied in the right way in business practice. This is a valid argument in the case of customer dissatisfaction when a consultancy organization claims that a client organization did not apply their model in a proper way. In such case the expectation is that consultancy organizations and their client firms gain experience in change initiatives through the years. Nevertheless, this did not lead to higher success rates after decades of 'learning on the job'. Did people not learn from their mistakes or is there something wrong with the underlying assumptions?

Perceptions about organizing change

Another point of attention it that the traditional theories on managing change are based on the assumption of episodic change, which assumes organizations move from one state of the equilibrium to another. Tsoukas and Chia, 2002 describes an organization as "the attempt to order the intrinsic flux of human action and as a pattern that is constituted, shaped, and emerging from change." Furthermore this study claims even organizational routines are by far not as stable as one might think. More specifically, these routines evolve overtime as a result of human actions. According to this view an organization is both a change outcome and cause for enabling change. Nevertheless, Tsoukas and Chia, 2002 argues it depends on the level of analysis how organizational routines can be judged: as a somewhat static piece with a stable character or as dynamic entity that changes as a result of individual actions and outcomes. An organization is both a quasi-stable structure (i.e. established functional categories) and an emerging pattern (i.e. constant change of categories to local conditions). Therefore change is not seen as something that is organized by a change agent, but as a something that constantly happens. Grey and Sturdy, 2003 argues that change is the only reality in business, whether this concerns people, organizations, ideas which all are temporary resting points. Tsoukas and Chia, 2002 goes even a step further by declaring that even stability is considered as unnoticed change. Weick and Quinn, 1999 describes the differences between the concepts planned, episodic and continuous change. Episodic change assumes an organization fails in adapting to a changing environment. Change is infrequent, discontinuous and intentional. The emphasis of change is a short-run adaptation which is driven externally and replacement and substitution occurs by means of revolution. Overall, change should be dramatic and the current working practices should be changed with rigor. Consultancy practice shows this leads to problems regarding resistance and gaining acceptance. A possibility would be to consider change as less dramatic and radical. Nevertheless, this requires another view on the organization in which it is dynamic and in which change should be embraced as a fact, not as an exception. If this is the case, continues change as opposite of episodic change addresses these issues. In this way one should directly improve minor organizational issues regarding processes and practices and as a result the organization evolves without ending in a final state. If such an organization is compared with the one a few years ago noticeable differences have occurred without the problems that are involved in episodic change [Weick and Quinn, 1999; Tsoukas and Chia, 2002; Grey and Sturdy, 2003]. Do we need to 'organize' change in a dramatic and episodic way with all its negative consequences or should deal with change as a given fact in our organization and should we focus on addressing its implications the best we can?

Critical management studies

Since it was plausible that management pioneers such as Fayol, Lewin, and Beckhard were right in their ideas, hardly any criticism occurred for many decades. A very small minority recently started to question the current approaches and their principles as a consequence of high failure rates in business practice. One could question why the principles of these pioneers can be considered wrong, or at least partly right. The reason for this is that they are neglecting other viewpoints in considering organizational change. Sturdy and Grey, 2003 argues that all dominant approaches or perspectives on change are based on 'classics' like Lewin. The danger in this is that there is little allowance for alternative voices or criticism.

This is also the concern of the critical management studies or education (CMS/E) since mind sets are formed in academic education among scholars and students and once this has happened it is hard to change it. Next to this, these scholars become business practitioners who influence the new generation with their points of view. The danger in this is the existence of a mutual assumption that is considered as being 'wrong'. The CME movement argues for skepticism in existing theories and not taking theories for granted, even if these theories are part of the educational program. Facts and values are two total different things and blend easily. Just like interests in which business influences educational programs for economical reasons. It is up to scholars to remain skeptical about these issues and be able to distinct facts from value judgments like 'a managed world is preferred to an unmanaged world' [Grey, 2004]. This is also applicable to issues on control and the highly prescriptive 'how to' texts on organizational change as is discussed in [Grey and Sturdy, 2003]. The core assumption is change can, should and must be managed. This is the assumption of controllability that has been discussed before. Should we take mainstream theories on change management for granted or should we be skeptical and think out-of-the-box and, stick to the facts of high failure rates, and be open to alternative views? How can we deal with change?

3.5.1.3 Alternative views on managing change

Besides the mainstream thoughts about organizational change, a small minority argues a radical break is needed regarding the philosophical assumptions on managing change. These leading edge principles – based on 'forgotten and neglected' research in the early decades of the 1900s – are gaining more attention as a result of the ever-failing consultancy practice in the last decades. One of the philosophical challenges is whether change *is* manageable and, if this is the case, *how* this can be done. Palmer and Dunford, 2006, 2008 address this issue by presenting six different images of managing change which are based on assumptions about change outcomes, and management. Change outcomes can be intended, partially intended, or unintended. According to the view of intended change outcomes planned change outcomes can be achieved, which is the dominant assumption over the past fifty years. Change is considered as the realization of intended plans. In the model assumption about partially intended change outcomes some, but not all, change intentions are achievable. Furthermore there is no direct link between what is intended and the final outcome. Besides intended also some intended consequences may emerge from the actions of change managers. If one considers change as unintended this implies that managers have great difficulty in achieving intentional change outcomes. Change is internally prevented by politics and deep-rooted beliefs and externally by market trends and legal events. This image is less popular, both in research and practice. Managing can be seen as controlling of activities or as shaping of capabilities. The perspective of management as controlling makes use of the classic management characterization as being planning, organizing, coordinating and controlling. Management is associated with top-down and hierarchies. A machine metaphor is used to characterize the organization. The assumption is that inputs and outputs can be controlled. These thoughts completely correspond with the vision of Fayol, 1949. Another perspective is that management is about shaping an organization and what happens within it. This is associated with a participative style and decentralized decision making. Organic and system metaphors are used to characterize the organization. The assumption is that organizational behavior can be shaped but not controlled. Together these images form the six images of managing change which are directing, navigating, caretaking, coaching, interpreting, and nurturing (Table 4).

Assumptions about change outcomes	**Assumptions about managing**	
	Controlling	*Shaping*
Intended	Directing	Coaching
Partially intended	Navigating	Interpreting
Unintended	Caretaking	Nurturing

Table 4: Images of managing change [source: Palmer and Dunford, 2008]

The six different images of a change manager are discussed below:

- The director considers managing as controlling and change outcomes as being achievable. The change manager directs the organization to produce the required change and assumes that change is a strategic choice managers make. Various 'n-step models of change' originated from the directive view. The non-linearity of change is recognized, but anyhow is assumed desired outcomes can be produced.
- Management action of the navigator is still focused on control, but other factors influence outcomes. Outcomes are seen to be at least partially emergent. This vision assumes change is non-linear and continuous (e.g. does not lead to an ending state).
- Management action of the caretaker is still focused on control, but severely constrained by internal and external factors. This view is a bit pessimistic and considers that managers shepherd the organization as best they can.
- The coach assumes that change managers can intentionally shape the organization's capabilities. The coach focuses on building skills and values instead of specifying the actions they take, like the director would. This approach is humanistic, democratic, and stressing individual development.
- The interpreter creates meaning for other organizational members, by helping members 'make sense' of events and actions. Various interpretations compete for 'interpretive dominance' with the best explanation or interpretation in determining what action is to be taken.
- The nurturer assumes even small changes may result in large organizational impact. Managers can not control these events or their outcomes, but can nurture the organizational qualities thought to help the organization be the best it can be. It promotes self-organizing and is in line with Chaos theory. Like the navigating view, this image assumes change is continuous and has no final ending point, is focused on the organization maintaining its own equilibrium, although each new initiative is considered to contain the seeds of its own eventual demise.

The caretaker and nurturer are less popular, both in research as in practice, since these views are passive and assume management control is low [Palmer and Dunford, 2006, 2008].

Now we are aware of classic pitfalls of change management and we have shown how academic literature proposes to deal with this. What factual data is available on managing change from business perspective?

3.5.2 Survey about organizing change management in business

In this section survey figures are discussed about organizing for successful change management in business. However, one should be wary that these findings may be in line with traditional assumptions on managing change, which may be plausible. Therefore they may contradict findings about alternative views on change management that were discussed in the previous sections. The key drivers of a successful transformation are represented in a global survey of McKinsey. According to this survey which is held among executives and received 1.536 responses sustaining energy and clear and creative communication are essential in managing change. The main transformational goals for change are reducing costs, improving effectiveness (both over 50% of the respondents), restructuring (e.g. merging, splitting up, divesting a part of the organization), turning around a crisis situation, and catching up rival companies (all three more than 25% of respondents). The success of the transformation is evaluated in two ways: the company's subsequent performance (e.g. profitability, return on capital employed, market value), and the sustainment of long-term corporate health (e.g. upgraded capabilities, closer partner relationships, positive shift in organizational culture). The respondents consider the first as 'completely' or 'mostly' successful in 38% of the cases and the latter 30% 'completely' or 'mostly' successful. About 10% of the respondents consider the transformation they have involved in as 'mostly' or 'completely' unsuccessful. There is a striking difference between the numbers of evaluating performance and health, and the transformation of energy.

The previous 30% and 38% now level up to about 55% if it concerns successfulness in mobilizing and sustaining the energy. The executives consider the impact of clear goals for the next two years, compelling communication, and offering inspiring view of better long-term future as energy boosters. Factors that support the sustainment of energy are the integration of goals of the transformation program into key processes (such as budgeting, performance management, and recruiting), regularly and publicly acknowledging successes related to the transformation program, and building new capabilities. Specific features of transformation programs that have proven successful compared to others are raising expectations about future performance, addressing shot-term performance, engaging people at all organizational levels, including a clear and coordinated program design and making the change visible. Emotions play an important role in transformation programs, both positive and negative which are in equal proportions. The most common negative mood is anxiety, headed by confusion and frustration. Sense of focus and enthusiasm are the most well known positive emotions experienced by top performers [Krause, 2006].

3.6 Discussion

The last decade a split emerged between a traditional, widely accepted approach and some alternative views on change management. This is the result of high failure rates of change initiative outcomes that is persisting for decades using the traditional approach. This traditional approach is based on a classic description of management as "planning, organizing, commanding, coordination and controlling [Fayol, 1949]." Furthermore change is a stepwise process of freeze, change, and refreeze [Lewin, 1951] in which on organization moves from one state of the equilibrium to another in an episodic and radical way. The criticism on this thoughts are that organizing and organization have the same meaning, which is not the case. This is not the case since an organization is static, designed, and controllable. This is in contrast with organizing that is dynamic, emergent and partially controllable at its best. Paradoxically change initiatives are based on the controllability principle of the organization in which is assumed control can be kept and outcomes can be guaranteed as long as the right approach is used. Unfortunately history has shown no significant improvements were made and failure rates remained high, despite decades of 'learning on the job'. Did people not learn from their mistakes or is there something fundamentally wrong with the underlying assumptions? Another criticism on the traditional approach is that is based on the assumption of episodic change, which assumes organizations move from one state of the equilibrium to another and they fails in adapting to a changing environment. Change is infrequent, discontinuous and intentional. Overall, change should be dramatic and the current working practices should be changed with rigor. Change management practice shows this leads to problems regarding resistance and gaining acceptance [Weick and Quinn, 1999]. Some authors [Weick and Quinn, 1999; Tsoukas and Chia, 2002; Grey and Sturdy, 2003] claim that change is constantly happening in the organization, i.e. continuous, and not episodic after all. Do we need to 'organize' change in a dramatic and episodic way with all its negative consequences or should deal with change as a given fact in our organization and should we focus on addressing its implications the best we can? Given this criticism on the traditional approach on change management, should we take these mainstream theories or should we be skeptical due to these high failure rates and be open to alternative views? What if we apply the six images which are directing, navigating, caretaking, coaching, interpreting, and nurturing for managing change [Palmer and Dunford, 2006, 2008]? Would this lead to more satisfying outcomes and lower failure rates of change initiatives? How is this related to the subject of study?

In response to rapid and discontinuous business change, project work has become increasingly important for some time compared to ongoing business operations. This means project work, i.e. temporarily organized team-based work, as compared to permanent organizational operations.

In the 1990s, in response to a growing number of ongoing projects, companies began to introduce another layer of coordination and administration known as project organization (or its synonym project management office), whose responsibility it was to coordinate project related activities in the broad sense. In relation to the alternative views on change management one can argue that the project organization is another attempt to add stability, to turn organizing into organization—only this time for projects. This transition is no different than what has already happened with organizations in general. As the amount of work done in projects increases, people once again begin to put static structures in place, this time around projects. In addition further professionalizing the project organization and improving project, program, and portfolio management are change processes. One could think of addressing the challenges about project, program, and portfolio management that were discussed in several studies [Cooper *et al.*, 2000; Artto, 2001a, 2001b; Staw and Ross, 1987; Elonen and Artto, 2003; Kendall and Rollins, 2003; Engwall and Jerbrant, 2003; Rintala *et al.*, 2004 Levine, 2005]. Nevertheless, it all depends on an organization's assumptions on managing change considering the six images that were discusses in the previous section (Table 4). No 'best approach' exists, but it depends on the situation and the principles that the organization's members have about how organizations can and should be controlled and managed. Nonetheless, the aim of discussing change theories is just to create awareness about the high failure rates which may be the implication of traditional assumptions on change management that have proven to stress improvements in the success rate of change outcomes. Being aware of this, one can avoid classic pitfalls which most certainly have a negative impact on such change outcomes.

4. Findings and analysis

In this section the finding and analysis of the research results are discussed. In the first section the key findings of the survey in which the maturity of project organizations are described. Additionally the second section discusses the key findings from the interviews about the bottlenecks in professionalizing the project organization are discussed.

4.1 Maturity of project organizations

The key findings of the web survey on the maturity of project organizations are discussed in this section. Table 5 represents an indication of the average maturity in large Dutch organizations, i.e. organizations with more than 500 employees. It appeared that of the 67 participants that filled out the survey for the larger part a number of 48 participants are working in a large Dutch organization with more than 500 employees. The maturity levels are specified by means of the seven process areas and three process levels that are given in the P3M3 model. The distinct process areas are management control, benefits management, financial management, risk management, stakeholder management, organizational governance, and resource management. The process levels are project level, program level, and portfolio level. Furthermore a corporate maturity is given for each process area based on an average of the three process levels. Additionally an average process level maturity is given for the three process levels based on the average of the seven process areas. Finally an overall corporate maturity indicator is given which is the average of all maturity levels of the seven process areas and the three process levels (i.e. 21 indicators).

Process level	*Project*	*Program*	*Portfolio*	***Overall process area***
Process area				
Financial management	2,7	2,7	2,6	*2,7*
Management control	3,0	2,3	2,1	*2,5*
Organizational governance	2,6	2,2	2,4	*2,4*
Risk management	2,7	2,3	2,0	*2,4*
Stakeholder management	2,3	2,2	1,9	*2,1*
Resource management	2,4	2,0	1,8	*2,1*
Benefits management	2,3	1,9	1,7	*2,0*
Overall process level	*2,6*	*2,2*	*2,1*	***2,3***

Table 5: Average maturity level of large Dutch organizations on the basis of seven process areas and three process levels

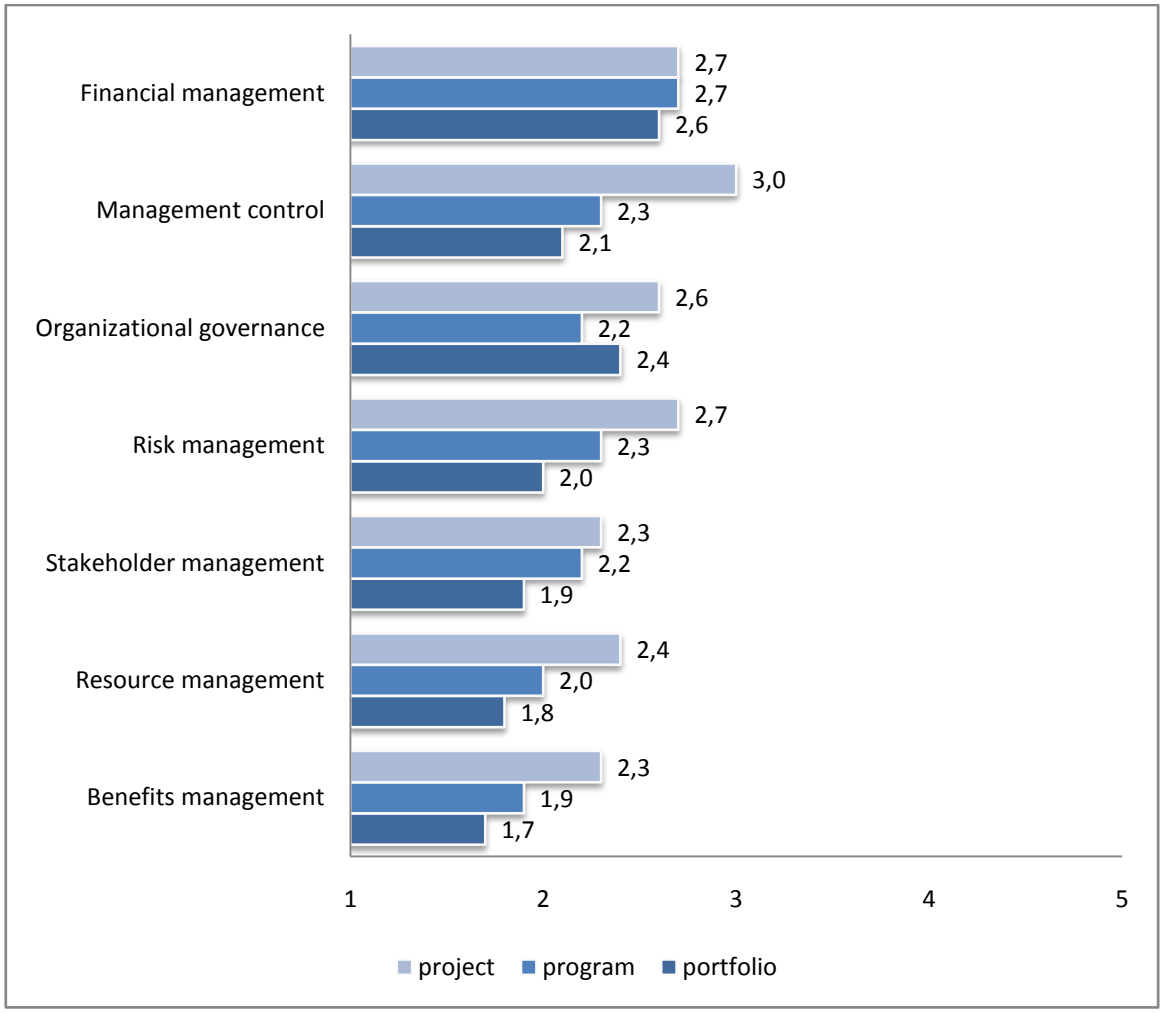


Figure 9: Average maturity level of large Dutch companies on the basis of seven process areas and three process levels

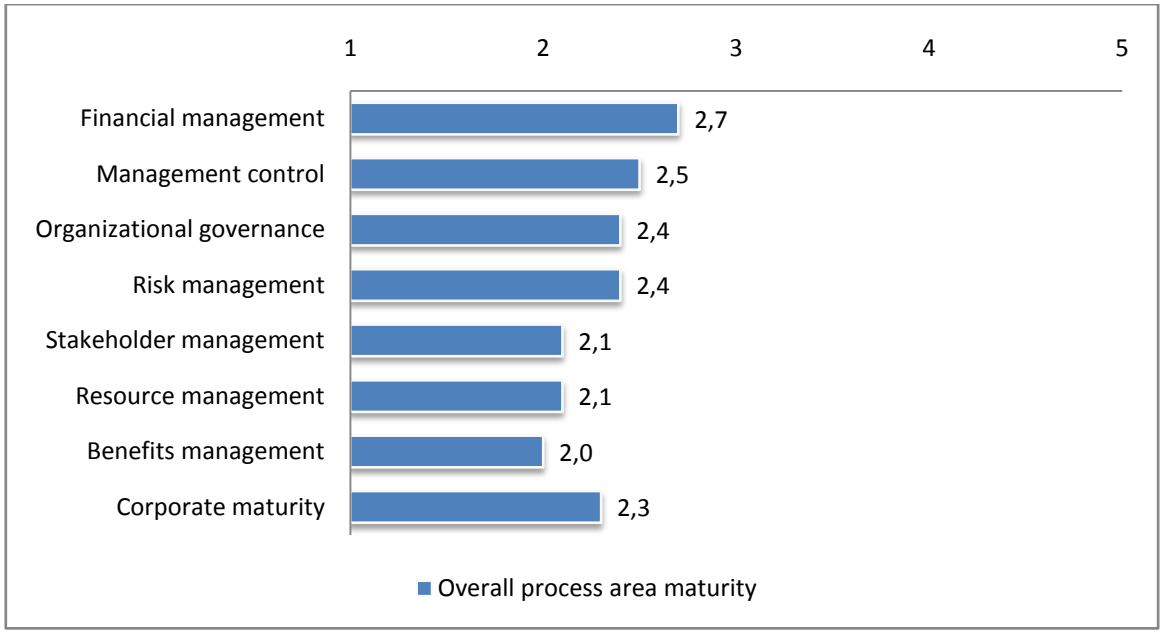


Figure 10: Average overall maturity level of large Dutch organizations on the basis of seven process areas

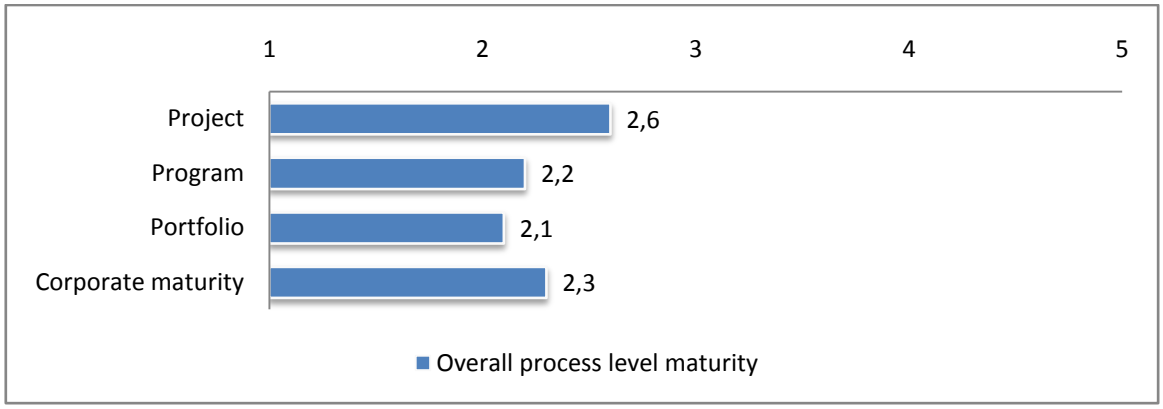


Figure 11: Average overall maturity level of large Dutch organizations on the basis of three process levels

The figures given in Table 5 are graphically represented in Figure 9, Figure 10 and Figure 11. Based on these figures the following can be stated:

- The process maturity level of respectively project level, program level, portfolio level are 2.6, 2.2, and 2.1. This means project management is relatively more evolved than respectively program management and portfolio management in large organizations in Holland.
- At project level the process areas management control, financial management, and risk management are with respectively 3.0, 2.7, and 2.7 relatively well evolved. Benefits management, stakeholder management, and resource management are with 2.3, 2.3 and 2.4 relatively less evolved. Therefore the focus should be on these areas since here are the best opportunities for improvement.
- At program level the process areas management control, financial management, and risk management are with respectively 2.3, 2.7, and 2.3 relatively well evolved. Benefits management, and resource management are with 1.9 and 2.0 relatively less evolved. Therefore the focus should be on these areas since here are the best opportunities for improvement.
- At portfolio level the process areas financial management, and organizational governance are with respectively 2.6 and 2.4 relatively well evolved. Benefits management, stakeholder management, and resource management are with respectively 1.7, 1.9 and 1.8 relatively less evolved. Therefore the focus should be on these areas since here are the best opportunities for improvement.
- At overall corporate process level the process areas management control, and financial management are with respectively 2.5 and 2.7 relatively well evolved. Benefits management, stakeholder management, and resource management are with respectively 2.0, 2.1 and 2.1 relatively less evolved. Therefore the focus should be on these areas since here are the best opportunities for improvement.
- At overall process level the process level project management is with 2.6 relatively well evolved. Program management, and portfolio management are with respectively 2.2 and 2.1 relatively less evolved. Therefore the focus should be on these areas since here are the best opportunities for improvement.
- The overall corporate maturity indication is 2.3. This means the corporate maturity is in between a 'repeatable' and a 'defined' process as defined in the P3M3 model, though closer to level 2. In level 2 – Repeatable process standard approaches exist in some areas, e.g. projects, but there is no consistency of approach used in the organization. In level 3 – Defined process a consistent set of standards is being used by all projects, for example, across the organizations with clear process ownership.

Based on the statements described above the following can be concluded:

Finding 1:
Using the P3M3 maturity model the overall corporate maturity can be estimated on 2,3 and the project, program, and portfolio maturity levels estimation are respectively 2.6, 2.2 and 2.1. This means the maturity is in between level 2: Repeated process and level 3: Defined process. In a repeated process standard approaches exist in some areas, e.g. projects, but there is no consistency of approach used in the organization. In a defined process a consistent set of standards is being used by all projects, for example, across the organizations with clear process ownership.

Finding 2:
Management control and financial management are relatively well evolved process areas. Benefits management, stakeholder management, and resource management are less evolved process areas.

Finding 3:
Project management is a relatively well evolved process level. Program management and portfolio management are less evolved process levels.

Maturity indicator	*Project*	*Program*	*Portfolio*	***Overall***
Average of seven process areas	2,6	2,2	2,1	***2,3***
Single question estimate	3,0	2,3	2,3	***3,0***

Table 6: Maturity levels based on seven process area average and single question estimate

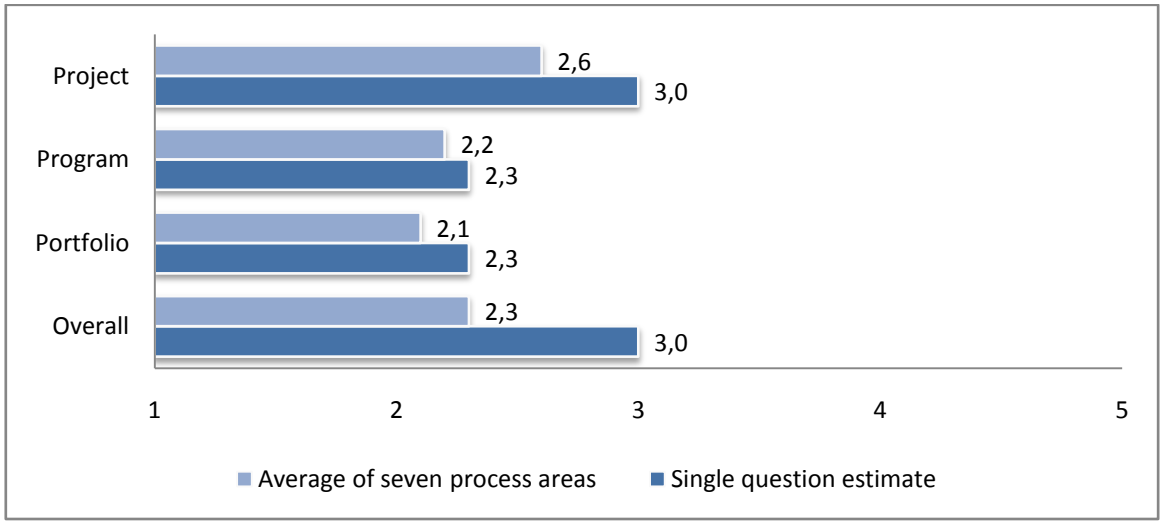


Figure 12: Maturity levels based on seven process area average and single question estimate

Table 6 and Figure 12 represents the maturity based on the average of seven process areas and on estimate using a single question. The seven process areas and there average maturity levels are discussed before and can be found in Table 5 and Figure 11. The single question estimates are the averages of the following multiple-choice survey questions at respectively project, program, portfolio, and overall corporate level:

28. Does the organization at project management level:
29. Does the organization at program management level:
30. Does the organization at portfolio management level:
31. Our organization can be best characterized as having:

Based on Table 6 and Figure 12 the following can be stated:

- Respondents value their maturity higher when they have to give an estimate using a single question than when they have to do it on seven process areas, i.e. a number of seven questions for each process level.
- There is not much difference in the distinct program and portfolio maturities, though the maturity at project and overall corporate levels are striking.

Based on the statements described above the following can be concluded:

Finding 4:
Organizations suffer from 'optimism-bias' and have a tendency to overrate their maturity. This especially holds at project level and corporate level.

Organization size (# employees)	*Project*	*Program*	*Portfolio*	***Overall***
0 – 500	2,4	1,8	1,9	***2,0***
500 – 5.000	2,6	2,1	2,0	***2,2***
More than 5.000	2,6	2,4	2,3	***2,4***

Table 7: Maturity levels based on differences in organization size (total number of employees)

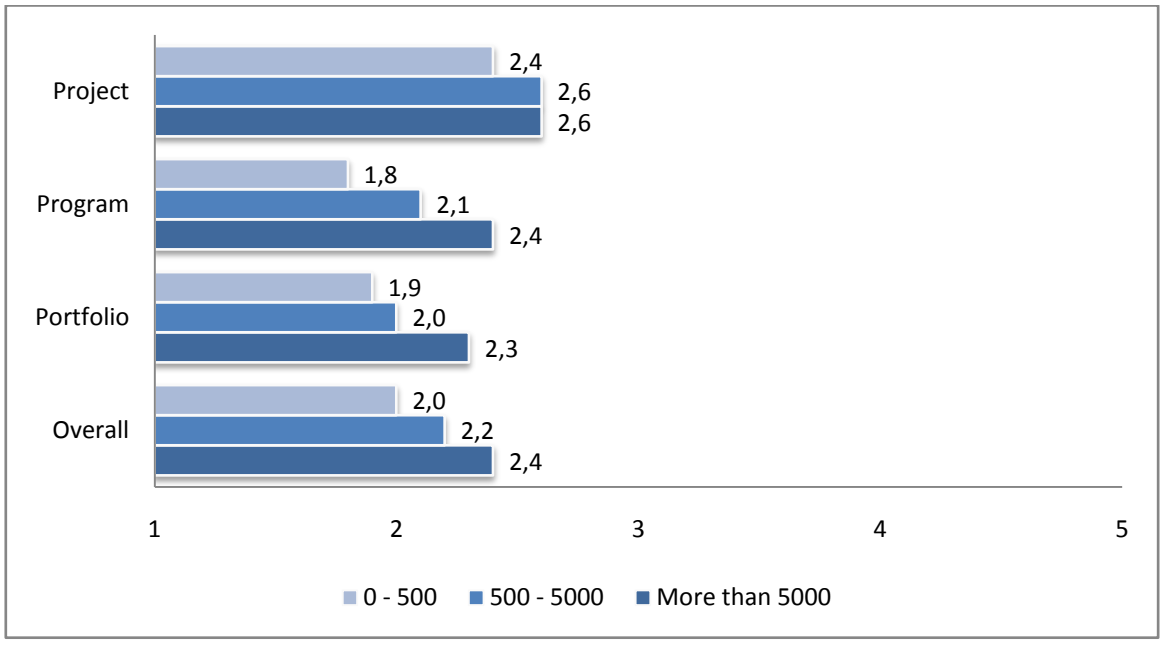


Figure 13: Maturity levels based on differences in organization size (total number of employees)

Table 7 and Figure 13 represent the maturity levels based on differences in organization size, i.e. total number of employees. Based on these figures the following can be stated:

- The maturity at project level is higher than respectively at program level and portfolio level.
- The maturity in large organizations is higher than in small organizations. There may be a higher formalization in large organizations.

Based on the statements described above the following can be concluded:

Finding 5:
Large organizations have a higher maturity than small organizations.

Project organization size (# employees)	*Project*	*Program*	*Portfolio*	***Overall***
0 – 50	2,3	1,8	1,8	***2,0***
50 – 500	2,4	2,0	1,8	***2,1***
More than 500	2,9	2,6	2,5	***2,7***

Table 8: Maturity levels based on differences in project organization size (total number of employees)

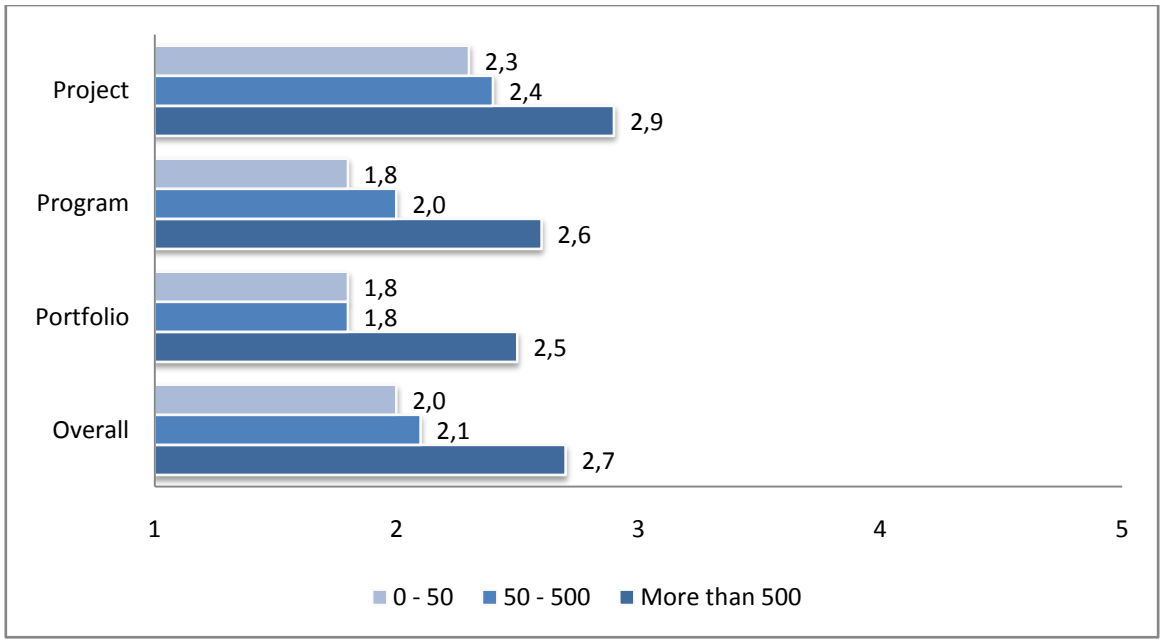


Figure 14: Maturity levels based on differences in project organization size (total number of employees)

Table 8 and Figure 14 represent the maturity levels based on differences in project organization size, i.e. total number of employees that are specifically involved in projects. Based on these figures the following can be stated:

- The maturity at project level is higher than respectively at program level and portfolio level.
- The maturity in large organizations is higher than in small organizations. There may be a higher formalization in large organizations.

Based on the statements described above the following can be concluded:

Finding 6:
Large project organizations have a higher maturity than small project organizations.

Organization structure	*Project*	*Program*	*Portfolio*	***Overall***
Without divisions or SBUs	2,6	2,1	2,0	***2,2***
With divisions or SBUs	2,4	2,0	2,0	***2,1***

Table 9: Maturity levels based on differences in organization structure (with or without divisions or SBUs)

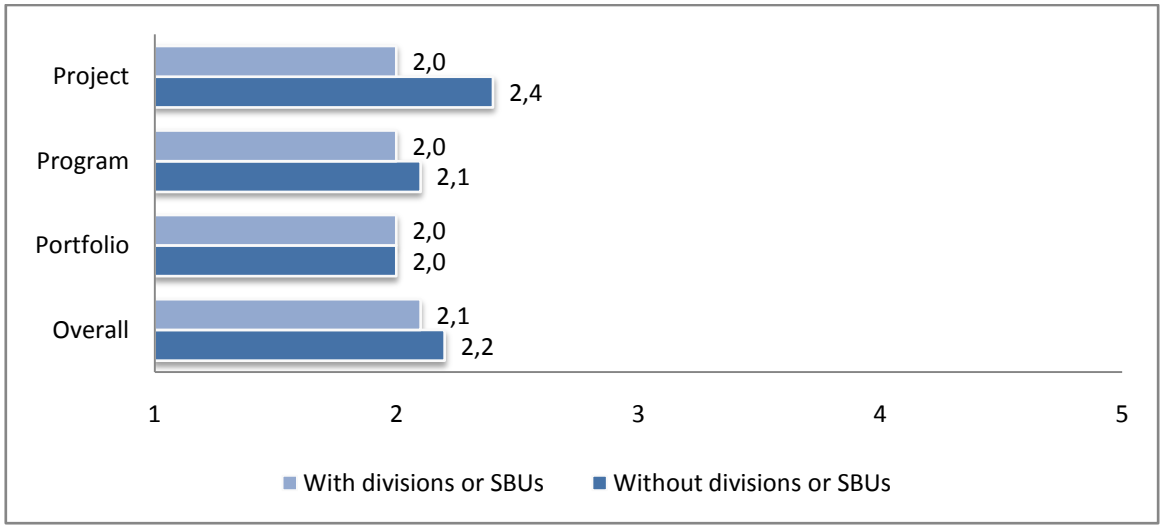


Figure 15: Maturity levels based on differences in organization structure (with or without divisions or SBUs)

Table 9 and Figure 15 represent the maturity of organizations with and without separate divisions or strategic business units (SBUs). The following can be stated on these figures:

- The maturity is higher in organizations without divisions or SBUs than in organizations with divisions or SBUs. A reason for this may be that the latter may be more autonomous and has to deal with a higher level of complexity than the first. In such a case it may be harder to establish a project organization. It is likely these factors result in a lower maturity level.

Based on this statement described above the following can be concluded:

Finding 7:
Organizations consisting of autonomous parts (e.g. divisions or SBUs) have a lower maturity than organizations that do not consist of distinct structures.

Line of business	*Project*	*Program*	*Portfolio*	***Overall***
Consultancy and IT	2,5	2,0	1,9	***2,1***
Finance and insurances	2,7	2,2	2,1	***2,3***
Public and non-profit	2,4	1,9	1,7	***2,0***

Table 10: Maturity levels based on differences in line of business

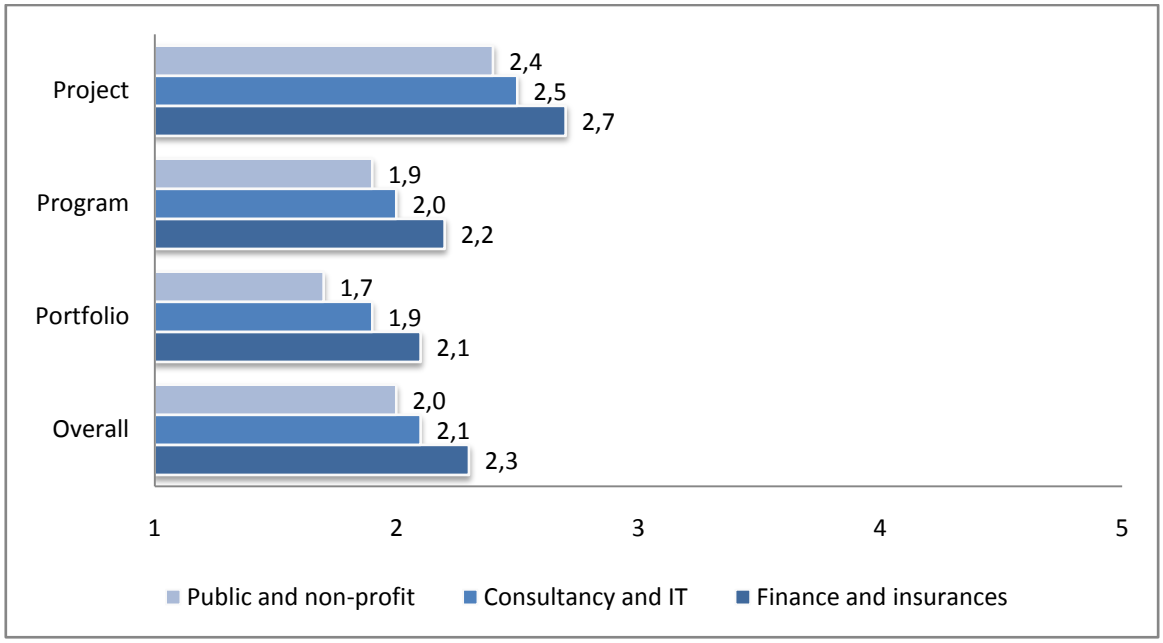


Figure 16: Maturity levels based on differences in line of business

Table 10 and Figure 16 represent the maturity of organizations in different lines of business. The following can be stated on these figures:

- Maturity levels are higher in finance and insurances organizations than in organizations that respectively are working in consultancy and IT, and public and non-profit. In more general terms this means the maturity differs for organizations in separate fields of work.

Based on this statement described above the following can be concluded:

Finding 8:
Maturity differs for distinct lines of business. Therefore some sectors are more evolved than others.

Function	*Project*	*Program*	*Portfolio*	***Overall***
Project manager	2,6	2,3	2,2	***2,4***
Department manager	2,8	2,1	2,0	***2,3***
Program or portfolio manager	2,3	2,0	1,9	***2,1***

Table 11: Maturity levels based on assessments by employees working in distinct functions

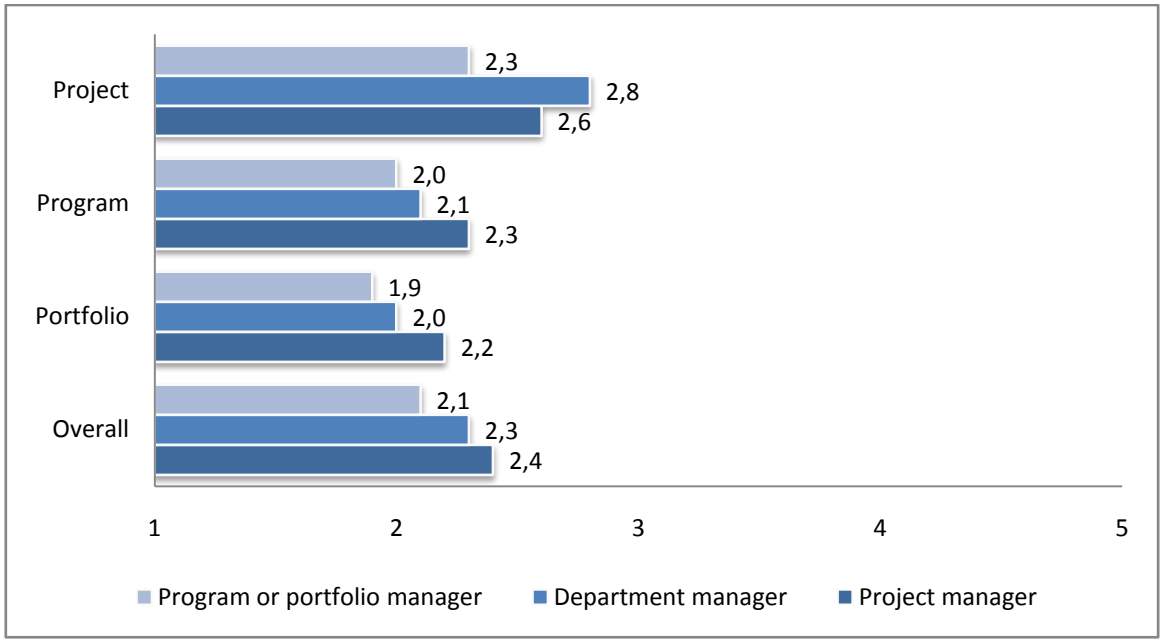


Figure 17: Maturity levels based on assessments by employees working in distinct functions

Table 11 and Figure 17 represent the maturity of organizations as assessed by people working in different jobs, respectively as project manager, departmental manager, or program or portfolio manager (since in practice these functions are more or less the same). The following can be stated based on these figures:

- It appears that people with different jobs have different points of view about the maturity of their organization. A possible explanation may be the differences in focus of the distinct functions that are all related to the project management field. These functions differ in level of abstraction and expertise in the project management field. The focus of a project manager is on single projects and their results in a high level of detail, but not on having the overview about projects. The focus of the department manager is on having the overview on projects that are passing his specific department, but his knowledge about project management practice is relatively low. The focus of a program or portfolio manager is on the overview of the sum of projects through the entire organization, but not on detailed information about single projects. This may explain the differences in how people working in different functions rate the maturity of their organization.

Based on this statement described above the following can be concluded:

Finding 9:
Specialist knowledge of individuals working in the project management field leads to a lower maturity level estimation.

Finding 10:
A higher level of overview of individuals working in the project management field leads to a lower maturity level estimation.

4.2 Key findings from the interviews

The purpose of the interviews is to determine the bottlenecks in professionalizing the project organization concerning project portfolio management. The bottlenecks that are found are an ineffective project organization, lack of clarity in selecting, doing, and benefits realization of projects, lack of measuring instruments, insufficient planning and resource allocation, lack of uniformity in project approach, lack of focus in human resource management, and an underestimation of the necessity of a good project preparation and are discussed below.

4.2.1 An ineffective project organization

A lot of project organizations are currently ineffective. Reasons for this are a lack of a clear vision, leadership, and decisiveness of the executive board. Next to this there can be an imbalance between the functional and project organization or between responsibilities and authorities. Additionally changes results in resistance. These are all discussed in more detail below.

4.2.1.1 Lack of clear vision, leadership, and decisiveness of executive board

The board does not propagate a clear vision, leadership and decisiveness are missing at executive level. Because the board does not get involved in project-based working it is undoable to make progress in formalizing project-based working. This is illustrated by a few examples from practice. The existing corporate culture may be a threat for professionalizing.

- According to a project process manager of a civil construction company the board does not propagate a clear vision about the professionalization steps that have to be taken. Additionally leadership and decisiveness is missing in the board concerning executing this vision.
- A senior project manager of a brewery states that the board should be crystal clear about the focus and show its decisiveness in executing the vision. This should happen both top-down and bottom-up since this has to do with the organizational discipline.

4.2.1.2 Imbalance in functional and project organization

An imbalance exists between the functional organization and the project organization. A disturbance in one leads to a disorder in the other. The matrix organization as organizational structure has some important disadvantages regarding project-based working. These matters are shown below by some practical examples.

- A project manager of a brewery states that there is some friction between the process organization (i.e. the functional organization) and the project organization. An unsteady equilibrium exists, but a disturbance in the process often also leads to a disturbance in a project. A possible consequence is that there will be less concern for the project since the process has a higher priority. Therefore a separation of the process and project organization to a high degree is advisable.
- A program manager of a tire manufacturer states that establishing an organization, thus also a project organization, as matrix-organization has a few important disadvantages besides the many advantages:
    - Project managers may become confused when they have to justify themselves with two parties. On the hand this is the program manager and on the other hand the department manager who is responsible for the resources. This is some field of tension. Project managers that are located on such a ‘crossroad’ sometimes do not know what to do. Another possible consequence is that project manager misuse their power to play off the department and program manager against one another. This can lead to a extreme tension. This issue is also known as the ‘two-superiors problem’.

  - The department manager and the program manager should have a good relationship and should be able to communicate with each other.

  This program manager argues that a possible solution is to combine the role of program manager and functional manager and make a single person responsible for both jobs. This also solves the 'two-superiors problem'. In this organization the responsibilities are taken care of in a way that the program manager is only responsible for coaching and support and the department manager holds the hierarchical power.
- A senior project manager of a brewery states that there should be a balance between the functional responsibility and the project responsibility since otherwise things go wrong. It must be very obvious which type of organization has the priority in the case both organizations are in conflict with one another.

4.2.1.3 Imbalance in responsibilities and authorities

The responsibilities of a project manager are ambiguous. Project managers should be made fully responsible for the end result and they should directly justify themselves by reporting to the board.

- According to a project controller of a health insurance company there is a disorder between responsibilities and authorities. There is a tendency of maintaining existing control structures and authorities although this possibly frustrates the effectiveness and efficiency of the organization as a whole. There is a lack of unbiased reporting and assessment to the board.
- A project process manager of a civil construction company states that there is an unclear positioning of responsibilities of project managers. A project manager is missing that is responsible from the beginning to the end, and that on tactical level directly justifies oneself to the board.
- A project controller of a health insurer states that a consensus, compromise decision model exists which results in a lack of decisive power and this is not beneficial for the company. It would be better to use a central decision mechanism.

4.2.1.4 Corporate culture is a threat for professionalization

A corporate culture ensures existing structures are maintained and this may be a threat in professionalizing. In such cases a cultural change is needed. Culture is a result of strategy, structure, and way of directing the organization. This is illustrated by a few examples from practice.

- A project manager of a tire manufacturer states that the company culture hinder the professionalization of the project organization. Putting effort in your job is not enough and employees should also deliver maximum results. Existing behavior patterns of employees should be broken down and one should talk to each other about how way things are done. A cultural change is required in which not only projects are delivered on time, but the complete project portfolio is on time; everything is connected to one another. This awareness should be there and therefore project managers need to fulfill their role in a more mature way.
- A program manager of a tire manufacturer states that the right subculture needs to be created to professionalize project management. The conditions for existence which are discussed in the right to exist, livability, organization, and management model.[4] This model discusses the relation between the external environment in relation to the corporate strategy, structure, culture and way of directing. Culture is a derivative of strategy, structure and management style. A (project) culture that is already embedded in the organization can be changed by having a clear view of the strategy, establishing a clear structure, way of directing, people that are recruited, preferred behavior, and rewarding.

[4] Bestaansrecht, Leefbaarheid, Inrichting en Management (BLIM) model, Lubberding *et al*., 2006.

4.2.1.5 Organizational change results in resistance

Professionalizing the project organization is a change process which results automatically in resistance. This is illustrated by a few examples from practice.

- A senior project manager of a brewery states that change always results in resistance. Therefore it is important to propagate a clear vision and goal as organization. Next to this it is important to show the upcoming change makes sense and to break through the confidence barrier. If these conditions are not fulfilled the change will never settle down.
- According to a project process manager of a civil construction company professionalizing is change process which leads to resistance. It is the question in what way the management deals with this resistance. A possibility is to choose to use directive power and implement the change. Another option is to involve people and use their feedback. Next to this one can choose to manage the change themselves or hire an external party for implementing the change.
- A program manager of a tire manufacturer states that changing project-based working is a means of intervention and change management is required for this. People get a different role in the organization in a natural way. The purpose is to manage this change with the current occupation and without recruitment. Change asks for 'freshness of spirit', takes energy, and leads to uncertainty. People want to maintain their current structures and there must be a balance between expertise and readiness to change.

4.2.2 Lack of clarity in selecting, doing, and benefits realization of projects

One of the main findings is a lack of clarity in the broad sense which is explained below. A distinction is made by means of decision making points in time. The succeeding paragraphs describe the lack of clarity and its relation with selecting projects, project execution, and project completion.

4.2.2.1 Difficult to select right projects

Before projects can start the management first needs to decide which projects should be done. It appears it is unclear how to prioritize projects and therefore it is hard to decide which projects should and which projects should not be selected to be part of the project portfolio. Currently this decision making is primarily done by means of expertise and intuition of board members and not on the basis of assessment criteria. Below a few examples are given from business practice to support these statements.

- A project controller of a health insurer states that the board chooses about what projects to do, not to do, and the reasons why. At this specific company the 'expert-approach' is used, which means deciding with eleven 'wise men' who know what is best for the company. The company would like to make things clearer than they are now, for example by using specific checks. It would be more insightful to assess if a business case really satisfies the strategic objectives. One would like to determine how the business case contributes to the Balanced Score Card, since this is the control mechanism that is used here. A more rigorous check regarding this point is desired.
- A project process manager of a civil construction company states that decision making of the board is not explicit, but definitely implicit. It is especially a matter of experience, sense, and also strategy. There are some points for improvement regarding the translation from strategy towards 'how?' and 'why?'.
- A project manager of a brewery agrees decision making is hard. At a certain moment in time one needs to decide 'do we continue or do we not?' and it usually takes a while before a decision is taken. The question is how to decide and what choices to make.

4.2.2.2 Bad overview of running projects

Although an extensive view is available on separate projects a general overview is missing about the complete project portfolio and its progress during project execution. Examples of this are the availability of relevant project information and the possibility to observe bottlenecks early in a way that control measures can be taken. Some practical situations are described underneath.

- A project process manager of a civil construction company states that someone is missing in the organization that has a long distance view. He notices that in every project there are some steps that always need to be done are inconvenient and suggests this can be done in a more clever way. Someone is needed with an overall view who is less concerned with the project contents.
- A project manager of a tire manufacturer wishes an easy way to view the planning status. Currently a clear overview of all project activities is missing.

4.2.2.3 Extent of benefits realization after finishing projects is unclear

When projects are finished it is not always clear in what way they satisfied the initial project goal. Time and budget numbers are often available, but other information about benefits realization and contribution to the business remains unclear. This is illustrated with a few examples from business practice.

- A project controller of a health insurance company states that although there is some information on project results this is mainly time and financial based. An overall view of the sum of projects that are delivered is not there yet. Another question is when the goals in the business case are being realized. Suppose a system is delivered meaning this leads to a reduction of 5,0 full-time equivalents (FTEs) of a specific department. It would be interesting to see when we can remove these five FTEs from this department's budget.
- A project process manager of a civil construction company states that it is hard to measure what a project potentially contributes to the business goals. It would be an improvement to make things more explicit and define a kind of business goal for each project.

4.2.3 Lack of measuring instruments

There is a lack of test criteria. Currently projects are usually assessed on time and budget information after completion. These criteria should be extended and the focus should be on predicting and controlling future project outcomes instead of checking project results. In the latter case results can not be influenced anymore since projects are finished. Next to this more attention is required for criteria such as measuring quality, risks and opportunities. This is illustrated with some examples from practice.

- A business office executive of a civil construction company states that the importance of the value of quality is increasing and hence more quality measures are required. Next to this he argues that a better governance on risks and opportunities is desired.
- A project manager of a device manufacturer confirms that more attention should be given to risks (e.g. increasing competition) and opportunities (e.g. extending needs of current clients).
- A project process manager of a civil construction company states that reporting happens primarily on financial basis and afterwards. According to him more attention is required planning, quality and risks. Furthermore reporting should be more future based; what are the risks and opportunities to be expected?

4.2.4 Insufficient planning and resource allocation

An overall planning across all projects in the portfolio that provides an overview of the requested resources in time is missing. In this way bottlenecks can be observed more quickly and this leads to a better understanding of control aspects.

A resource planning on weekly basis and a monthly progress meeting at strategic level are needed. This is shown by a few examples from practice.

- A program manager of the same tire manufacturer also considers resource and capacity planning as a bottleneck. A higher certainty is required on weekly level to see if things work out as planned or not with the available capacity of people, means and resources. Currently bottlenecks are discussed monthly. Adequate planning with systems should ensure that important control information gets available, which should lead to a better understanding and transparency of control aspects.
- According to a senior project manager of a brewery it is meaningless to allocate resources in a highly detailed quantifiable way. Practice shows it is more useful to plan resources in a general way, track important matters and make some changes if necessary. This requires a clear focus on executive level and all people involved should know exactly what to do. In this way bottlenecks become visible naturally. Next to this the goals should be fully clear and transparent. Employees should look beyond business units or departments to the corporate and companywide wide interests. It is necessary to monitor progress and discuss projects periodically, monthly in the board to check whether they are on-track or not. If this is the case just move on. If it is not the case one should ask 'why not and what can we do about it?'
- A project manager of a tire manufacturer considers the planning method as a process related bottleneck. He wishes planning across all projects and finding an optimal balance of resources. Determining when and which resources are requested at a specific moment in time is a challenge. Another challenge is to integrate a planning of a subcontractor into the overall planning which requires a different mindset with regard to how one should plan a project. In such a case the delivery date is the starting point and from this point a project manager goes backwards in time and is focused on milestones for each stage. In this way bottlenecks with regards to resources and means at a specific moment in time become visible swiftly.

4.2.5 Lack of uniformity in project approach

In a lot of companies an uniform project approach is missing. It is unclear what is to be expected of project managers. Therefore project are vaguely defined and this leads to a lack of understanding of projects. Uniformity in operating procedures that is applied through the entire organization leads to a higher transparency. Some examples from practice are given below.

- A business office executive of a civil construction company states that an uniform project-based approach in his organization is lacking. All individuals use their own procedures and methods.
- A project manager of a device manufacturer confirms that the relevance of all people working according the same methods is increasing.
- A project manager of a brewery states that before the arrival of the new project format everyone was doing projects on its own way. Due to the introduction of the new format an organization wide project approach is in use and hence uniformity in the methods exists.
- A project manager of a tire manufacturer states that project-based working can be improved and should be fully transparent in such a way everyone knows what needs to be done, what is to be expected, and on what things one can count on.
- A senior project manager of a brewery argues that project-based working is essential. When project are not executed in the right way this leads to poor projects definitions and a decrease in effectiveness. The new business wide format aims at increasing transparency of projects. Project-based working should be *deeply rooted* in the collective organizational memory in such a way it happens automatically. This is something completely different than *starting to work* in a project-based way since in this case it is not firmly embedded in the organization yet.

- A program manager of a tire manufacturer explains that measurability and accountability of project processes are very important since in this way successes can be controlled, celebrated and verified whether things are on-track.

4.2.6 Lack of focus in human resource management

A clear focus is missing in human resource management regarding employees and project-based working. Subareas that can be distinguished are recruitment of personnel, a suitability assessment with respect to project managers, improving project management competences of employees, and the awareness of the existence of different levels of project management. Each of them are discussed in more detail below.

4.2.6.1 Recruitment of personnel

More attention is needed for recruitment of personnel with project management skills on a higher level of abstraction and who are only involved in project control.

- According to a business office executive of a civil construction company it is hard to find qualitative and quantitative well-educated personnel. Furthermore the importance of skills management, i.e. matching the right people with specific projects, is underestimated.
- A project manager of a tire manufacturer argues recruitment should concentrate on people who have project management skills that are required for complex projects.
- A project process manager of a civil construction company states that there is a lack of personnel with knowledge about methods and project management on a higher abstraction level having a helicopter view.

4.2.6.2 Lack of suitability assessment project managers

It is questionable whether all people that are currently project leader have the right competences to become a project manager that is only involved in controlling and not in implementing projects. Some project leaders may be better suitable in a specialist role when they are not able to adapt to a 'new generation project manager'.

- A project manager of a brewery doubts if all project leaders have the right qualities and skills for the project management field. Some people may fit better in the organization when they are not completely involved in project management tasks. Perhaps a different positioning in the company may be desirable for some individuals.
- A program manager of a tire manufacturer states people with the right competences should be placed in the right position concerning their role in projects. Individuals that are currently project leader may better perform as a specialist. It is also possible that individuals are fully working as a project leader.

4.2.6.3 Lack of attention for improving skills

Employees need a solid basis when they start their job in project management. There is a lack of attention in knowledge exchange and sharing experiences among project managers. Often there is some evaluation of projects, but these evaluation outcomes are hardly used in future projects.

- A business office executive of a civil construction company states that a transfer of knowledge and expertise can be improved with regard to process-based working.
- A project manager of a brewery explains that need a solid basis, e.g. by means of a training or workshop, when they start their job as project manager. Next to this more attention is required for knowledge exchange and sharing experiences among project managers. One could think of a project audit, meaning a periodic meeting in which a past project and its underlying process steps are evaluated by means of a checklist with the purpose to gain awareness about procedures and to improve each other. During such a monthly cross-functional meeting project managers should 'battle' with one another in a constructive way.

- A project manager of a tire manufacturer states that evaluation should be improved. Project are evaluated on their results, but it is questionable whether these findings are used in some way. A periodic evaluation is missing and this should happen more frequent. Next to this more attention is required for workshops on project-based working without compromising on time, budget, and priority.

4.2.6.4 Awareness of existence of different project management levels

Professionalizing project management requests a higher level of abstraction. This leads to separating execution and control of projects. Awareness is required that projects differ in size, complexity, and relations. Large projects demand more project management skills, i.e. alignment, stakeholder acceptance, and software skills, than smaller projects.

- A project process manager of a civil construction company states that awareness is required that differences in project size and complexity need other (higher level) project management skills.
- A project manager of a tire manufacturer states that small projects, i.e. purely content-related, and large projects, i.e. a high level of competences required, high complexity, many relationships), ask for different project management skills. In large projects more alignment, stakeholder acceptance and soft skills are required.
- A project manager of a device manufacturer argues that to progress to a higher level of project management it is required to uncouple implementation and control of projects. Currently there is a transition from a direct model, i.e. implementation and executing of projects, towards an indirect model, i.e. only project management and control. In this way project governance is more proactive instead of reactive.

4.2.7 Underestimation of the necessity of a good project preparation

Many projects fail because people did not think carefully about the purpose and results. Risks and opportunities should be mapped. One should take the time for a solid project preparation since opportunities can be found in this stage. This is illustrated with a few examples from practice.

- A business office executive of a civil construction company states that a good project preparation is essential. Opportunities can be found in the project preparation stage. In this stage most gains can be achieved, also in a financial way. A project plan and scenarios should be available. During project execution only risks can occur that need to be controlled.
- A senior project manager of a brewery states that a good start makes the difference. Many projects fail because people did not think carefully about the objective and results, and no clear agreements have been made with the sponsor. This results in opportunities for interpretation and to make things up concerning project delivery. This senior project manager advises to stay focused and to control your own decision making. It is essential to stay involved with the sponsor and frequently check if expectations are still in line.
- A project manager of a device manufacturer states that defining the scope and responsibilities during the start of the project is required to prevent ambiguity and disorder. A project owner is required to ensure accountability and responsiveness. One should create energy to minimize the resistance of the change that is about to happen at the client.

4.2.8 Summary of bottlenecks in professionalizing the project organization

In the previous sections all bottlenecks and their sub-problems in professionalizing the project organization concerning project portfolio management have been extensively discussed. Since a lot of bottlenecks came by it is hard to preserve the overview. Therefore these bottlenecks are graphically represented in Figure 18.

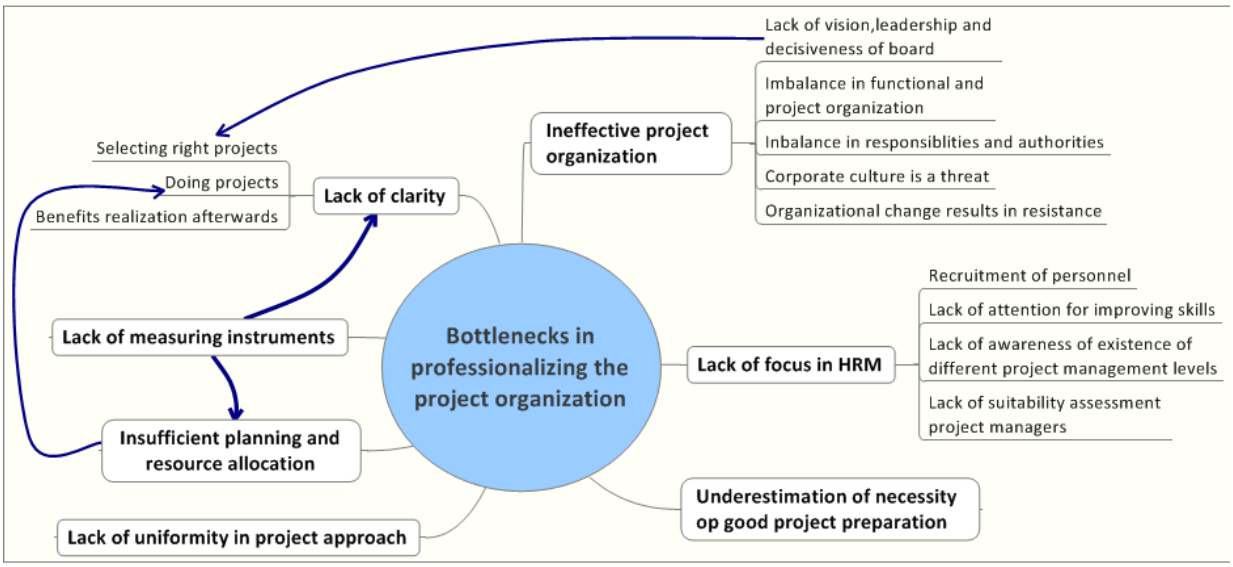


Figure 18: Mindmap of bottlenecks in professionalizing the project organization

4.3 Bottlenecks related to human, process and system factors

Below the survey results about bottlenecks in formalizing the project organization are discussed. A distinction is made between bottlenecks related to human, process and system factors.

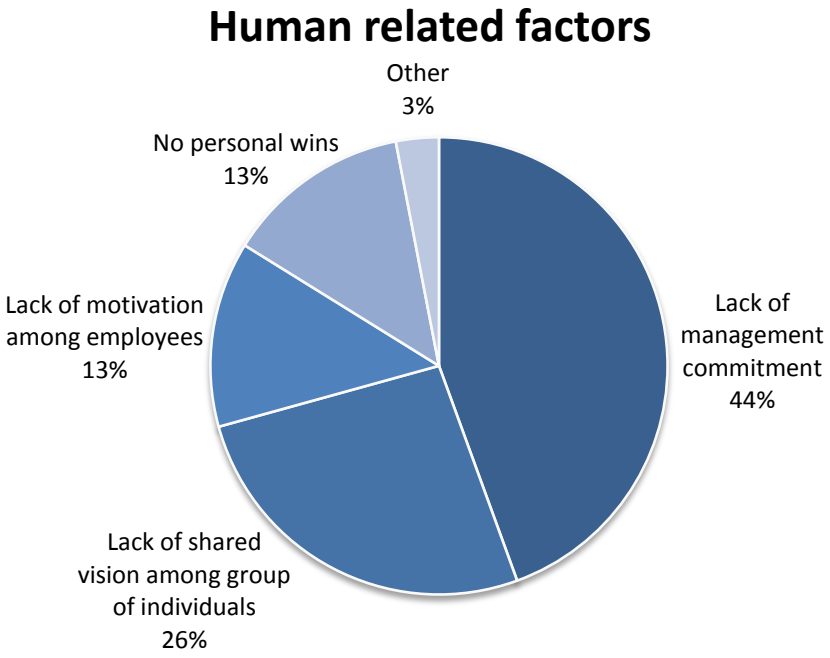


Figure 19: Bottlenecks related to human factors

Figure 19 shows that the main bottlenecks related to humans are a lack of management commitment and a lack of a shared vision among a group of individuals with respectively 44% and 26%. A small part of 3% chose 'other' and mentioned availability of people, lack of good project managers, and technical and content-related focus of people as human related bottlenecks.

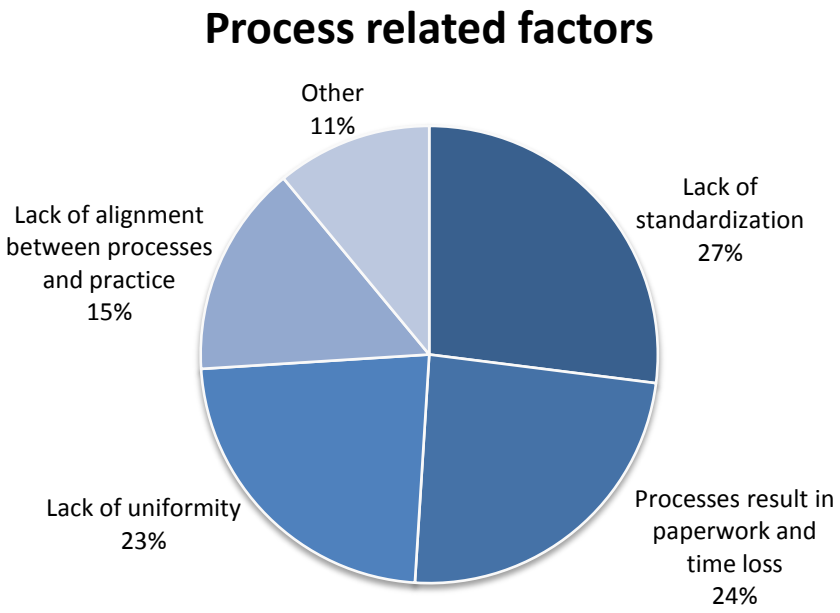


Figure 20: Bottlenecks related to process factors

Figure 20 shows that the main bottlenecks related to processes are a lack of standardization, processes that result in paperwork and time loss, and a lack of uniformity with respectively 27%, 24% and 23%. A small percentage of 11% chose 'other' and mentioned a lack of motivation at the sponsor organization, a surplus of decision making steps, lack of management support and control, unfamiliarity with project situation, lack of acceptance and control of processes, rigid application of the rules, learning curve and changes in occupation as process related bottlenecks.

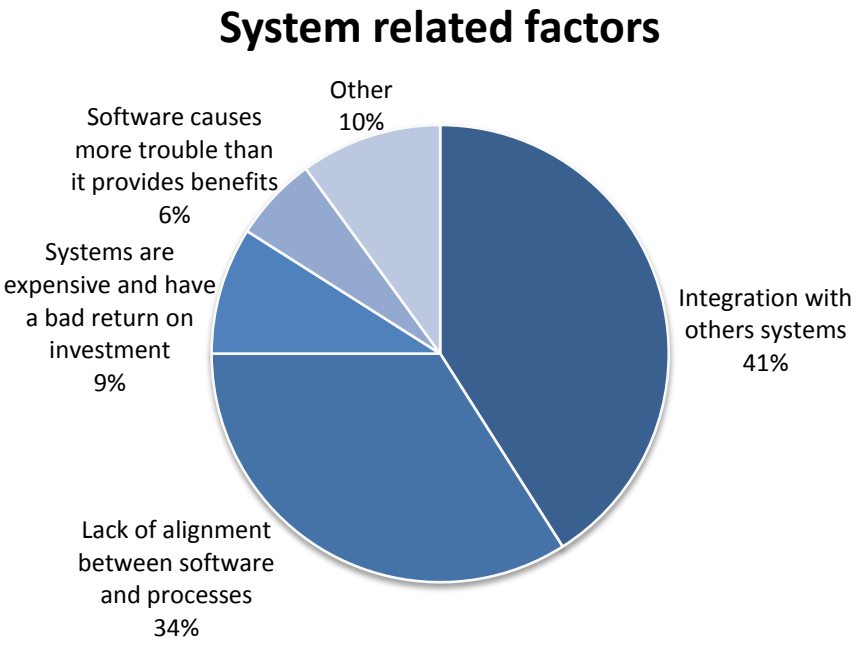


Figure 21: Bottlenecks related to system factors

Figure 21 shows that the main bottleneck related to systems is the integration with others systems, and a lack of alignment between software and processes with respectively 41% and 34%. A small part of 10% chose 'other' and mentioned amateurism at sponsor, IT planning, 'preferred vendor'-policy of IT department, complexity of systems, lack of development capacity, lack of added value, too much effort required to keep the tool up-to-date (i.e. the goal is controlling processes and not controlling the tool) as system related bottlenecks.

5. Conclusions

The research objective in this study was determining the maturity of project, program, and portfolio management processes in large Dutch businesses and the main bottlenecks in further professionalizing the project organization.

A suitable way to measure how well organizations are doing is to measure process maturity, where maturity refers to a state where the organization is in a perfect condition to achieve its objectives [Andersen and Jessen, 2003]. Maturity can be measured by using a maturity model which aids in defining, understanding, and measuring an organization's processes and their effectiveness. In this study 11 maturity models are tested on their suitability using 5 selection criteria which are based on the research objective and Fortes' desires. The 11 maturity models that were found are listed below:

- The Capability Maturity Model (CMM) or its improved version the Capability Maturity Model Integrated (CMMI) of Carnegie Mellon University's Software Engineering Institute (SEI)
- The European Foundation of Quality Management (EFQM) Excellence model or its Dutch equivalence Instituut voor Nederlandse Kwaliteit (INK)-model
- Berenschot's Project Excellence Model (PEM)
- Kerzner's Project Management Maturity Model (K-PMMM)
- PMI's Organizational Project Management Maturity Model (OPM3)
- OGC's the PRINCE2 Maturity Model (P2MM)
- OGC's Portfolio, Programme and Project Management Maturity Model (P3M3)
- The MINCE2 Foundation's Maturity Increments IN Controlled Environments Model (MINCE)
- PM Solutions' Project Management Maturity Model (PMS-PMMM)
- PM Solutions' Project Portfolio Management Maturity Model (PMS-PPMMM)
- University of California's or Berkeley's Project Management Process Maturity $(PM)^2$ model

The 5 criteria for selecting the best suitable maturity model in this study are listed below:

1. The maturity model should be a best practice model;
2. The model should be able to assess maturity on project management, program management, and also portfolio management level;
3. The model should be method-independent, i.e. not depend on a single standardized approach for measuring maturity in organizations;
4. The model should be suitable to use in large Dutch organizations
5. The model should be compliant with PRINCE2, i.e. de facto project management standard in Dutch organizations.

Based on these selection criteria the Portfolio, Programme and Project Management Maturity Model (P3M3) was chosen as most suitable maturity model to adopt in this study.

5.1 Project, program, and portfolio management maturity

In this section the main findings of the web survey regarding the P3M3 maturity assessment about project, program, and portfolio management that is conducted among 48 participants that are employed in large Dutch organization are discussed. This resulted in the following findings:

1. Using the P3M3 maturity model the overall corporate maturity can be estimated on 2,3 and the project, program, and portfolio maturity levels estimation are respectively 2.6, 2.2 and 2.1. This means the maturity is in between level 2: Repeated process and level 3: Defined process. In a repeated process standard approaches exist in some areas, e.g. projects, but there is no consistency of approach used in the organization. In a defined process a consistent set of standards is being used by all projects, for example, across the organizations with clear process ownership.
2. Management control and financial management are relatively well evolved process areas. Benefits management, stakeholder management, and resource management are relatively less evolved process areas.
3. Project management is a relatively well evolved process level. Program management and portfolio management are relatively less evolved process levels.
4. Organizations have a tendency to overrate their maturity. This especially holds at project level and at corporate level.
5. Large organizations are more mature than small organizations.
6. Large project organizations are more mature than small project organizations.
7. Organizations consisting of autonomous parts (e.g. divisions or SBUs) have a lower maturity than organizations that do not consist of such separate structures.
8. Maturity differs for distinct lines of business; particular sectors are more evolved than others.
9. Specialist knowledge about project related activities results in a lower maturity level estimation.
10. A high-level overview of project related activities results in a lower maturity level estimation.

5.2 Bottlenecks in professionalizing the project organization

In this section main findings from both the survey and interviews regarding bottlenecks in further professionalizing the project organization with regard to project, program, and portfolio management are discussed. The findings are listed below:

1. An ineffective project organization
2. Lack of clarity in selecting, doing, and benefits realization of projects
3. Lack of measuring instruments
4. Insufficient planning and resource allocation
5. Lack of uniformity in project approach
6. Lack of focus in human resource management
7. Underestimation of the necessity of a good project preparation

The bottlenecks with regard to professionalizing the project organization that are found in the survey are classified in the categories human, process, and system related factors:

Bottlenecks related to human factors:

1. Lack of management commitment (44%)
2. Lack of a shared vision among a group of individuals (26%)

Bottlenecks related to processes:

1. lack of standardization (27%)
2. Processes result in paperwork and time loss (24%)
3. lack of uniformity (23%)

Bottlenecks related to systems:

1. integration with other systems (41%)
2. lack of alignment between software and processes (34%)

6. Recommendations

This section describes the recommendations that are based on the findings of the maturity assessment survey and the findings of the interview on challenges in further professionalizing the project organization, which are listed below:

Recommendations based on findings of the maturity assessment survey:

1. The average maturity of project, program, and portfolio management processes in large Dutch organizations is 2,3. This means the maturity can be situated near level 2 – repeated process. Therefore organizations should concentrate on progressing to level 3 – defined process, i.e. using a consistent set of standards by all projects across the organizations with clear process ownership.
2. The average maturity of program and portfolio management processes is lower than the maturity of project management processes. Therefore organizations should focus on improving program and portfolio management processes.
3. Benefits management, stakeholder management, and resource management are relatively immature process areas. Therefore organizations should focus on improving these process areas.

Recommendations based on interviews findings on challenges in further professionalizing the project organization:

1. Organizations need to be sure the right projects are done, i.e. the project portfolio should be aligned with the corporate strategy. Projects should be contributing to the strategic objectives of the organization and not just having a positive business case.
2. Once the right projects are chosen, organizations should ensure themselves projects are carried out in the right way. Means that can be of any help in doing project right are the use of an uniform project approach that is adopted in the entire organization, standardization, training employees.
3. Organizations should maintain a clear and comprehensive overview of the project portfolio at any time. Measures are needed that go beyond conventional data such as time and costs. One could think of measures on opportunities and risks, quality, resource allocation, and benefits realization.
4. Organizations should realize that further professionalizing the project organization is a change process, which is a non-trivial approach. One should be aware that the majority of change initiatives do not lead to the intended outcomes. Classic pitfalls should be avoided in managing change and organizations should be open to alternative views to increase chances for achieving results that give satisfaction.

7. Limitations

In this section the limitations of this study are described. Additionally some directions for future research are discussed.

Both the survey and the interview in this study is conducted among a relative small number of participants that were employed in large Dutch organizations, i.e. 48 survey respondents and 8 interviewees from 5 distinct companies. Therefore it would be interesting to conduct a large scale study and see if the results still match. In this case it would be interesting to do a quantitative research using the survey, e.g. among 500 respondents. Additionally it would be interesting to do a qualitative study among a large number of interviewees in large Dutch organizations, e.g. 50 participants. In this way results are better suitable to generalize and for making reliable statements about it. Furthermore it would be interesting to conduct this research among a different group than large Dutch organizations and compare results. Examples can be small and medium enterprises (SMEs) in the Netherlands, or large organizations in other countries.

The survey resulted, among others, in ten propositions. Since this study is exploratory research no solid statements can be done. The objective of exploratory research is to gather preliminary information that will help define problems and suggest hypotheses. Therefore these ten propositions need to be tested on their validity in future research.

Finally one should be careful to judge the P3M3 maturity assessment results. This is subscribed to the Office of Government Commerce, the creator of P3M3, who states “The P3M3 may be subject to some degree of optimism-bias. Although the P3M3 self-assessment is a reasonable indicator of process capability and overall organizational maturity of project, program, and portfolio processes, it is less reliable than a detailed facilitated assessment carried out by a accredited consultant [OGC, 2008c].” Next to this a slightly adapted version of the P3M3 self-assessment is used in this research to make is suitable for conducting the web survey. Due to these reasons the purpose of this study is just to give an indication of maturity.

References

The references used in this report are split up in two parts. The first part consists of books, articles, proceedings, and conference slides. The second part contains links to websites.

Books, articles, proceedings, and conference slides

Andersen, E.S. and Jessen, S.A. (2003). Project maturity in organizations, International Journal of Project Management, Vol. 21, 457-461.

APM Group (2007). Measure your organisation's maturity with the APM Group's P3M3 maturity assessment, The APM Group Limited, High Wycombe, Buckinghamshire.

Artto, K. A. (2001a). Management of project-oriented organization – conceptual analysis, In: Artto, K. A., Martinsuo, M. and Aalto, T. (eds.), *Project portfolio management: Strategic management through projects*, Project Management Association Finland, Helsinki, 5-22.

Artto, K.A. (2001b). Sheets: Project portfolio management – The link between projects and business management, The Finish National 'Project Day 2001' Conference, November 15, Project Management Association Finland, Dipoli, Espoo.

Bates, W.S. (1998). Improving project management: better project management begins with a project management office, Industrial Engineering, Vol. 30(10), 42.

Beckhard, R. (1969). *Organization development: Strategies and models*, Addison-Wesley, Reading, MA.

Beer, M. and Nohria, N. (2000). Cracking the code of change, Harvard Business Review, Vol. 78(3), 133-141.

Block, T.R. and Frame, J.D. (1998). *The project office – a key to managing projects effectively*, Crisp Publications.

Bourne, L. and Tuffley, A. (2007). Conference sheets: Comparing maturity models: CMMI, OPM3 and P3M3, 4th Annual Project Management Australia Conference.

Brunsson, N. and Olsen, J.P. (1993). *The reforming organization*, Routledge, London.

Clegg, C. and Walsh, S. (2004). Change management: Time for a change! European Journal of Work and Organizational Psychology, Vol. 13(2), 217-239.

Cooke-Davies, T.J., Schlichter F.J. and Bredillet C. (2001). Beyond the PMBOK Guide. PMI Annual Seminars and Symposium, Nashville, TS.

Cooper, R.G., Edgett, S.J. and Kleinschmidt, E.J. (2000). New problems, new solutions: Making portfolio management more effective, Research and Technology Management, Vol. 30(2), 18-33.

Cooper, R., Edgett, S. and Kleinschmidt, E. (2001). Portfolio management for new product development: Results of an industry practices study, Research and Technology Management, Vol. 31(4), 361-380.

Crawford, J.K. (2006). The Project Management Maturity Model, Information systems management, Vol. 23(4), 50-58.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed method approaches*, Sage Publications, Thousand Oaks, CA.

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

Denzin, N.K. (1978). *The research act: A theoretical introduction to sociological methods*, 2nd ed., McGraw-Hill, New York, NY.

Dinsmore, P.C. (1999). *Wining in business with enterprise project management*, AMACOM, New York.

Elonen, S. and Artto, K.A. (2003). Problems in managing internal development projects in multi-project environments, International Journal of Project Management, Vol. 21, 395-402.

Engwall, M. and Jerbrant, A. (2003). The resource allocation syndrome: The prime challenge of multi-project management, International Journal of Project Management, Vol. 21, 403-409.

Fayol, H. (1949). *General and industrial management (Original title: Administration Industrielle et Generale*, 1916), Pitman, London.

Fleming, Q.W. and Koppelman, J.M. (1998). Project teams: the role of the project office. Cost Engineering, Vol. 40(8), 33-36.

Grant, K.P. and Pennypacker, J.S. (2006). Project management maturity: An assessment of project management capabilities among and between selected industries, IEEE Transactions on Engineering management, Vol. 53(1), 59-68.

Grey, C. (2004). Reinventing business schools: The contribution of critical management studies, Academy of Management Learning and Education, Vol.3(2), 178-186.

Hedeman, B. (2007). Seminar slides: Applied project- and program management, Insights International, May 15, 2007, Baarn.

Herbsleb, J., Zubrow, D., Goldenson, D., Hayes, W. and Paulk, M. (1997). Software quality and the capability maturity model, Communications of the ACM, Vol. 40(6), 30-40.

Hicks, J. and Nair, P. (2007). Back to the future of organizational change, in writing.

Hoek, J. van den (2008). Seminar slides: Project Management at Fortis ASR – a growth process, Fortis ASR, May 13, 2008, Baarn.

Ibbs, C.W. and Kwak, Y.H. (2000). Assessing project management maturity, Project Management Journal, Vol. 31(1), 32-43.

Ibbs, C.W. and Kwak, Y.H. (2002). Project Management Process Maturity $(PM)^2$ model, Journal of Management in Engineering, Vol. 18(3), 150-155.

Johnson, R.B. and Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come, Educational Researcher, Vol. 33(7), 14-26.

Kendall, G.I. and Rollins, S.C. (2003). *Advanced project portfolio management and the PMO: Multiplying ROI at Warp speed*, J. Ross Publishing, 69-76.

Kersten, B. and Verniers, H. (2004). Managing IT as portfolio (Dutch title: IT beheren als portfolio), Informatie, November, 64-69.

Kerzner, H. (2001). *Strategic planning for project management using a Project Management Maturity Model*, John Wiley & Sons, New York.

Knutson, J. (1998). The project office: an evolutionary implementation plan, Project Management Network, September, 14-16.

Kotler, P., Adam, S., Brown, L. and Armstrong, G. (2006). *Principles of marketing*, 3rd ed., Prentice Hall, French Forest, NSW.

KPMG (2007). Programmamanagement leidt tot betere resultaten, KPMG Information Risk Management, Amsterdam.

Krause, J. (2006). Organizing for successful change management: A McKinsey Global Survey, The McKinsey Quarterly, June 2006.

Levine, H.A. (2005). *Project portfolio management : a practical guide to selecting projects, managing portfolios, and maximizing benefits*, Jossey-Bass, San Francisco.

Lewin, K. (1951). *Field theory in social science*, Harper & Row, New York.

Lubberding, J., Lievers, B., and Verburg, D. (2006). *De bestaansvoorwaarden*, 5th ed., Noordhoff Uitgevers.

Lycett, M., Rassau, A. and Danson, J. (2004). Programme management: a critical review, International Journal of Project Management, Vol. 22(4), 289-299.

Markowitz, H.M. (1952). Portfolio selection, Journal of Finance, Vol. 7(1), 77-91.

Meisner, R. (2007). *MINCE: A Framework for Organizational Maturity: How fast can your organization adapt to the ever changing environments?*, Van Haren Publishing, Zeewolde.

Nieto-Rodriguez, A. and Evrard, D. (2004). Boosting business performance through programme and project management: A first global survey on the current state of project management maturity in organizations across the world, PricewaterhouseCoopers, Sint-Stevens-Woluwe, Belgium.

Nijenhuis, S.W. (2008a). Seminar slides: Best practices towards an effective project management office, Fortes Solutions, May 8, 2008, Baarn.

Nijenhuis, S.W. (2008b). Seminar slides: Best practices for the implementation of portfolio management, Fortes Solutions, October 9, 2008, Baarn.

Office of Government Commerce (OGC) (2002). Managing successful projects with PRINCE2, The Stationary Office, Norwich, St Crispins.

Office of Government Commerce (OGC) (2008a). The P3M3 v2.0 brochure, OGC, London

Office of Government Commerce (OGC) (2008b). The Portfolio, Program and Project Management Maturity Model: P3M3 Public Consultation Draft v2.0, OGC, London.

Office of Government Commerce (OGC) (2008c). The P3M3 v2.0 self assessment: Instructions and questionnaire, OGC, London.

Office of Government Commerce (OGC) (2008d). Common glossary of terms and definitions, OGC, London.

Palmer, I. and Dunford, R. (2002). Who says change can be managed? Positions, perspectives and problematic, Strategic Change, Vol. 11, 243-251.

Palmer, I. and Dunford, R. (2008). Organizational change and the importance of embedded assumptions, British Journal of Management, Vol. 19, 20-32.

Paulk, M.C., Curtis, B., Chrissis, M.B., and Weber, C.V. (1993). The capability maturity model for software, Software Engineering Institute, Carnegie Mellon University.

Pellegrinelli, S. (1997). Programme management: organising project-based change, International Journal of Project Management, Vol. 15(3), 141-149.

Pennypacker, J.S. and Grant, K.P. (2003). Project management maturity: An industry benchmark, Project Management Journal, vol. 34(1), 4-11.

Project Management Institute (PMI) (2000). *Guide to the Project Management Body of Knowledge (PMBOK®)*, Newtown Square, PA.

Rajegopal, S., McGuin, P. and Waller, J. (2007). *Project portfolio management: Leading the corporate vision*, Palgrave Macmillan, Hampshire.

Reyck, B. de, Grushka-Cockayne, Y., Lockett, M., Calderini, S.R., Moura, M. and Sloper, A. (2005). The impact of project portfolio management on information technology projects, International Journal of Project Management, Vol. 23, 524-537.

Rintala, K., Poskela, J., Artto, K.A. and Korpi-Filppula, M. (2004). Information system development for project portfolio management, In: Hosni, Y.N. and Khalil, T.M. (eds.), *Management of technology, Internet economy, opportunities and challenges for developed and developing regions of the world*, 266-267.

Schutt, R.K. (2006). *Investigating the social world: The process of practice of research*, 5th ed., Pine Forge Press, Thousand Oaks, CA.

Skulmoski, G. (2001). Project maturity and competence interface. Cost Engineering, Vol. 43(6), 11-18.

Staw, B.M. and Ross, J. (1987). Knowing when to pull the plug, Harvard Business Review, Vol. 65(2), 68-74.

Strauss, A.L. and Corbin, J.M. (1998). *Basics of qualitative research: techniques and procedures for developing grounded theory*, 2nd ed., Sage Publications, London.

Sturdy, A. and Grey, C. (2003). Beneath and beyond organizational change management: exploring alternatives, Organization, Vol. 10(4), 651-662.

Tashakkori, A. and Teddlie (2003). *Handbook of mixed methods in social and behavioral research*, Sage Publications, Thousand Oaks, CA.

Ten Have, S., Ten Have, W.D., De Jong, H., Schaafsma, E.E. and Verhagen L.J. (2005). *The management models book: sixty ideas made accessible (Dutch title: Het management modellenboek: zestig ideeën toegankelijk gemaakt)*, Elsevier Bedrijfsinformatie BV,The Hague.

Thiry, M. (2006). Managing portfolios of projects. In: Turner, J.R. (ed.) (2006). *Gower handbook of project management*, Gower Publishing, Aldershot, UK.

Tsoukas, H. and Chia, R. (2002). On organizational becoming: rethinking organizational change, Organization Science, Vol. 13(5), 567-582.

Vrije Universiteit Amsterdam, Business and IT Trends Institute & Bisnez Management (2007). Projectmanagementenquête 2006/2007: Handvatten voor succesvolle projecten, Vrije Universiteit, Amsterdam.

Ward L. (2000). Project management term – a working glossary, 2nd ed., ESI International.

Watt, J.H. (1998). Internet-based surveys, Upgrade: The Magazine for the Software and Information Industry Association.

Webster (1988). *The new lexicon Webster's dictionary of the English language*, Lexicon Publications, NY.

Weick, K.E. and Quinn, R.E. (1999). Organizational change and development, Annual Review of Psychology, Vol. 50, 361-386.

Westerveld, E. (2003). The Project Excellence Model: linking success criteria and critical success factors, International Journal of Project Management, Vol. 21, 411-418.

Websites

AllPM (2008). allPM.com: The project manager's home page, http://www.allpm.com (retrieved: November 20, 2008).

APMG UK (2008). P3M3 Version 2 Launches at Best Practice Showcase, http://www.apmgroup.co.uk/home/News/P3M3Launch.asp (retrieved: July 23, 2008).

Atos Origin (2008). Dutch Ministry of Defense chooses Atos Origin as SAP implementation partner for the SPEER program (retrieved: July 3, 2008). www.atosorigin.com/en-us/Newsroom/en-s/Press_Releases/2006/2006_05_11_01.htm.

Deloitte Fast 50 (2008). Deloitte Fast 50 ranking 2007, www.fast50.nl (retrieved: June 2, 2008).

Deloitte Fast 500 (2008). Deloitte EMEA Technology Fast 500 ranking 2007 www.fast500europe.com (retrieved: June 2, 2008).

European Foundation for Quality Management (2008). EFQM: Introducing Excellence http://www.efqm.org/uploads/introducing_english.pdf (retrieved: May 13, 2008).

FEM Business (2008). FEM 500 largest companies in the Netherlands, http://www.fembusiness.nl/bedrijven.html (retrieved: December 6, 2008).

Fortes Solutions (2008). http://www.fortesglobal.com (retrieved: June 2, 2008).

Gantthead (2008). Gantthead.com: The online community for IT project managers, http://www.gantthead.com (retrieved: November 20, 2008).

IJPM (2008). The International Journal of Project Management, www.elsevier.com/locate/issn/02637863 (retrieved: November 20, 2008).

IPMA-NL (2008). The International Project Management Association – Netherlands: Platform Project management, http://www.ipma-nl.nl (retrieved: November 20, 2008).

OGC (2006a). Portfolio, Programme and Project Management Maturity Model (P3M3), www.ogc.gov.uk/documents/p3m3.pdf (retrieved: May 13, 2008).

OGC (2006b). PRINCE2 Maturity Model (P2MM), http://www.ogc.gov.uk/documents/PRINCE2_Maturity_Model_Version_1.pdf (retrieved: May 16, 2008).

PMForum (2008a). PMForum, http://www.pmforum.nl (retrieved: November 20, 2008).

PMForum (2008b). PMForum: Connecting the World of Project Management, http://www.pmforum.org (retrieved: November 20, 2008).

PMI (2008). An executive's guide to OPM3 – A guide to strategic success, business improvement and competitive advantage, http://opm3online.pmi.org (retrieved: May 13, 2008).

PMJ (2008). Project Management Journal, http://www.pmi.org/resources/pages/project-management-journal.aspx (retrieved: November 20, 2008).

PM Solutions (2008). Project Portfolio Management Process and Governance to improve your PPM Practices. pmsolutions.com/project-portfolio-management-ppm (retrieved: May 14, 2008).

ThesisTools (2008). ThesisTools, SurveySoftware: make and distribute the questionnaire for your thesis!, http://www.thesistools.com (retrieved: July 15, 2008).

Appendix A – Maturity models

Below a list of 11 maturity models is shown that are used in business practice to assess the level of process maturity in organizations.

The Capability Maturity Model

Probably the most well-known maturity model is the Capability Maturity Model (CMM) for software organizations. CMM has been developed by the Software Engineering Institute (SEI) of the Carnegie-Mellon University in the 1980s. The United States Air Force funded the study at SEI to investigate the problems in their software engineering projects. CMM v1.0 appeared in 1991 and CMM v1.1 is released in 1992. The Capability Maturity Model is designed to address the fundamental problems of managing the software process. Software projects did not fulfill their budget and time constraints and it was hard to measure productivity and quality of these processes due to their chaotic and ad-hoc nature. CMM for software supports organizations in controlling their processes of software development and maintenance and progress to a culture of software engineering and management excellence. The initial purpose is to define the current maturity level of the software organization and consequently identify a few critical issues that need to be addressed to progress to the next level. If the organization aggressively focuses on a limited set of activities the software process and quality improves which delivers long lasting gains to the organization as a whole. In this way the maturity of software organizations can be determined and compared with the level of other software organizations.

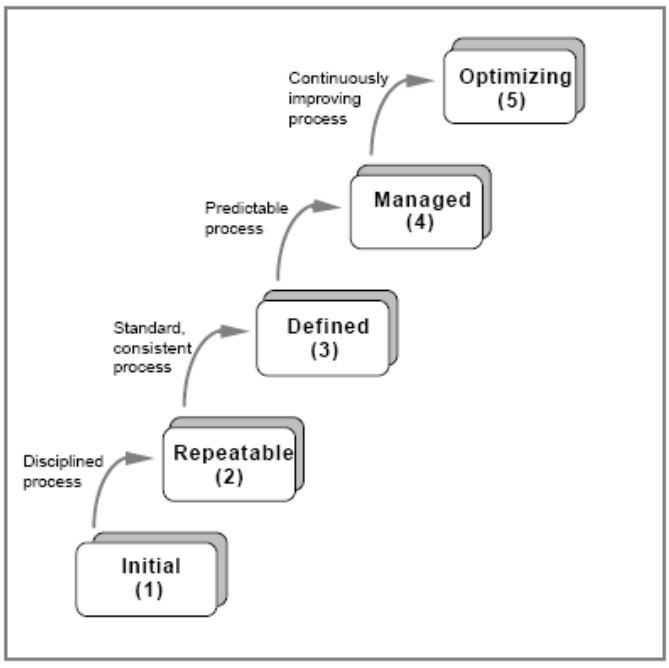


Figure 22: The five levels and key processes of the Capability Maturity Model (source: Paulk *et al.*, 1993)

Figure 22 represents the Capability Maturity Model in which fives levels can be distinguished: 1. Initial, 2. Repeatable, 3. Defined, 4. Managed and 5. Optimizing. Each organization starts at level 1 in which processes are chaotic and ad-hoc. In level 2 knowledge that has been acquired before is applied again during software development and in this way there is project management. In the third level key processes are standardized and used consistently. In level 4 the quality of the development process in measured and in by doing this the organization can take measures to improve quality. In level 5 software processes are continuously improved [Paulk *et al.*, 1993]. In the 2000s CMM evolved to the Capability Maturity Model Integration (CMMI) as a result of the appearance of capability maturity models in various disciplines.

The SEI therefore was given the task to integrate these different models. CMM initially was meant for the software projects processes the appliance has extended to project management in general. As a consequence the SEI capability maturity model turned out to be an attractive starting point for the development of project management maturity models [Grant and Pennypacker, 2006].

The EFQM Excellence Model / INK model

In 1988 the European Foundation for Quality Management (EFQM) has been established by 14 large European companies. Their missions was sustainable excellence in Europe and a vision of the world in which European organizations excel. In 1989 the EFQM Excellence Model (in the Netherlands also known as the "Instituut voor Nederlandse Kwaliteit" (INK)-model) has been developed which is shown in Figure 23.

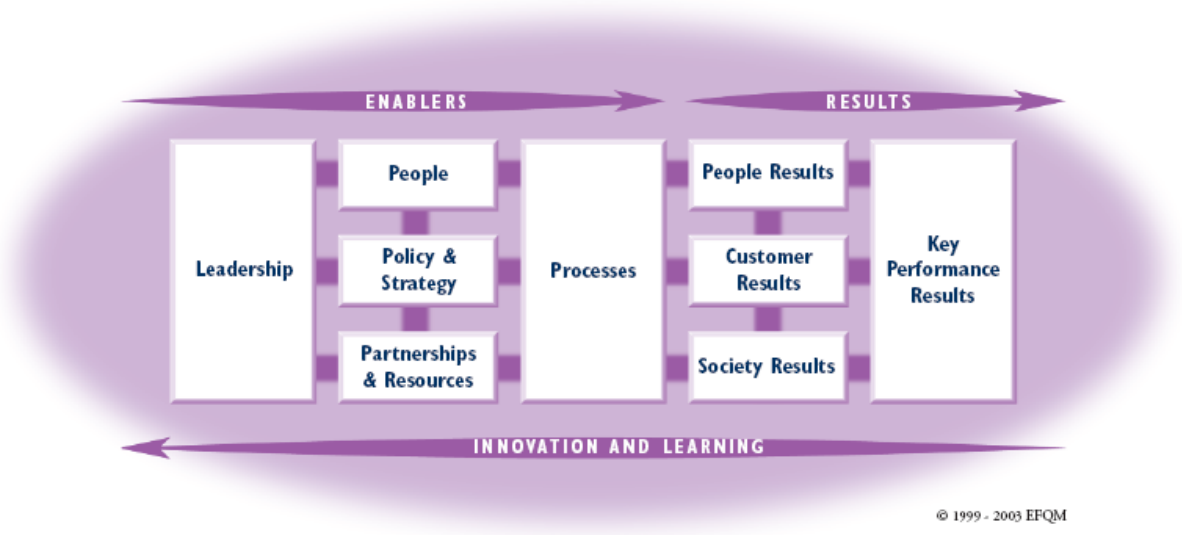


Figure 23: The EFQM Excellence Model (source: EFQM, 2008)

This model distinguishes five organizational enablers and four result areas. The organizational enablers are focus areas which managers should control in coordinating the organization. These enablers consist of leadership, people, policy and strategy, partnerships and resources, and processes. The organizational performance, both in a financial and a non-financial way, can be measured by means of employees, customers, suppliers and the society. The innovation and learning feedback loop is very important in the EFQM-model. For each of the organizational enablers key indicators can be defined which can be measured in the results. Consequently the information can be linked once again to the enablers to determine if the expectations have been met. Additionally this information can be used to determine new goals for the enablers. The EFQM-model is suitable for professionalizing the planning and control cycle. In this way it provides organizational transparency and helps managers in assessing and improving the quality of the organization. The model also provides a basis for self evaluation and benchmarking [Ten Have *et al.*, 2005, 64].

The Project Excellence Model

In 2003 Berenschot developed the Project Excellence Model (PEM) which is based on the EFQM/INK model. A fundamental difference exists between the traditional or functional organization on the one hand and the project organization on the other hand. Characteristics of the traditional organization are routine processes, continuity, efficiency, long term growth, stability, and fixed employees. This is contrasted by the characteristics of the project organization: unique processes, finiteness, effectiveness, planning in stages, flexibility, changing employees.

For this reason the EFQM/INK model is suitable for traditional organizations but not for project organizations. Berenschot adapted the EFQM/INK model to a model that is appropriate for project organizations: the Project Excellence Model (Figure 24).

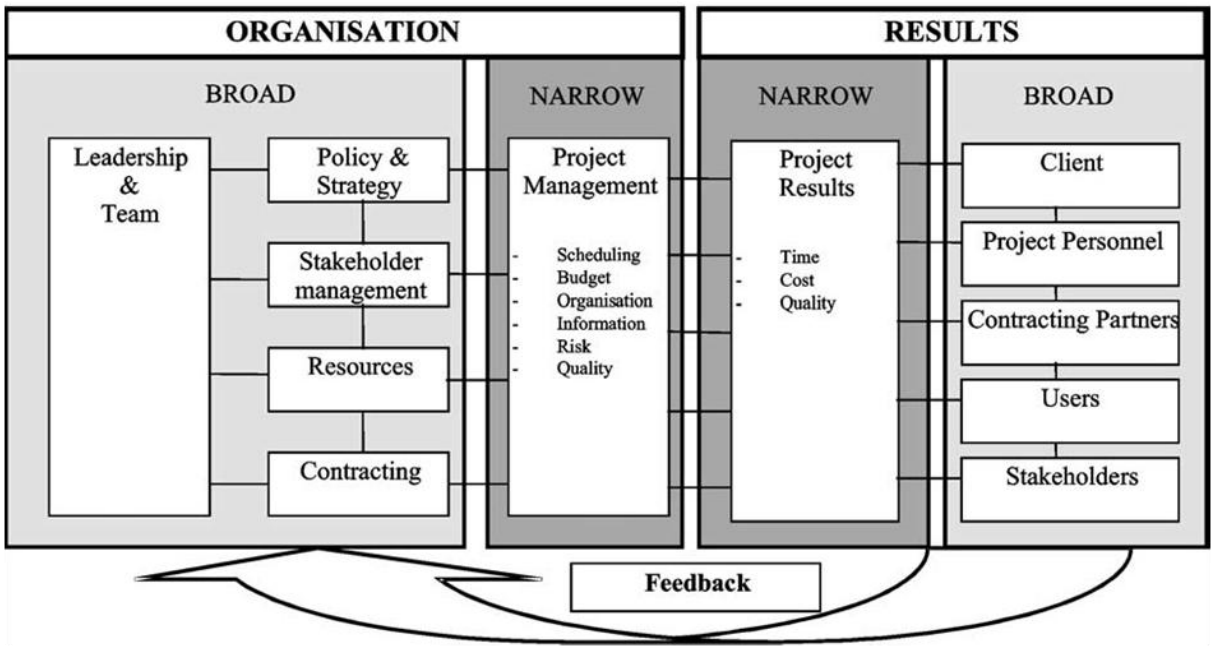


Figure 24: The Project Excellence Model (PEM) – source: Westerveld, 2003

PEM consists of twelve key areas that are divided over result and organizational areas. Result areas consist of project success criteria and organizational areas consist of critical success factors in the project organization. Two types of result areas exists: narrow and broad. The narrow result areas concern the 'classic' areas like time, costs and quality. These classic areas can be translated to measurement metrics in projects like staying within the budget and time constraints, fulfilling the planning, and delivering specified products. Next to this there are broad results that contain elements that can not be translated so easily in measurable terms. These result areas are related to the parties involved in a project and accomplishing these results can be measured in appreciation. These involved parties can be divided in five categories: appreciation by client, project personnel, contracting partners, users and stakeholders. The organization areas define the basis of the project organizations and are formulated as a cluster of success factors. The purpose is to provide a framework in which the critical success factors of each individual project can be determined. The critical success factors that can be distinguished are leadership and team, policy and strategy, stakeholders management, resources, contracting, and project management aspects. These aspects consist of traditional elements of solid project control: scheduling, budget, organization, information, risk and quality. Furthermore PEM describes five project management types to describe the project organization and providing support to the application of the model. During the project initiation goals are set for the specific project and the project organization is defined according these goals. PEM can be used during a project to assess the project organization. In this way modifications can be made during the project and feedback can be processed in this way. If a project is finished the learning experiences of this project can be taken along to future projects [Westerveld, 2003].

Kerzner's Project Management Maturity Model

In 2001 Kerzner's Project Management Maturity Model (K-PMMM) appeared which is displayed in Figure 25. With K-PMMM project management capabilities can be assessed against key knowledge areas of the PMBOK Guide.

Kerzner distinguishes five maturity levels, which are level 1: Common language, level 2: Common processes, level 3: Singular methodology, level 4: Benchmarking, and level 5: Continuous improvement.

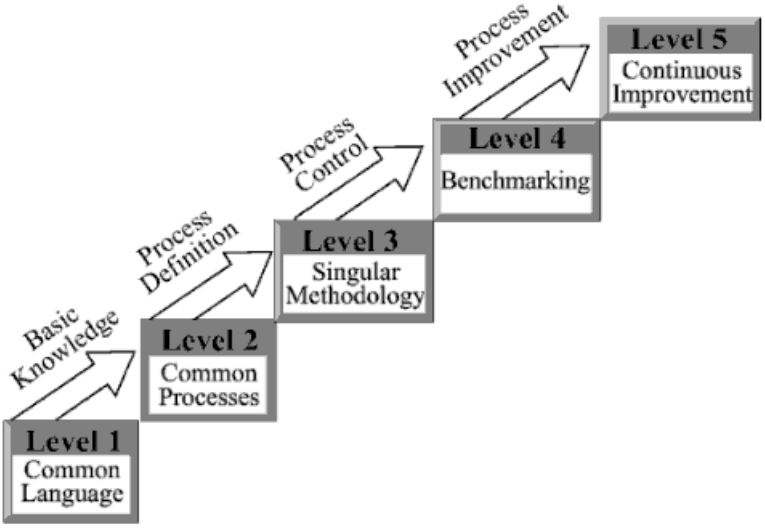


Figure 25: Kerzner's Project Management Maturity Model (K-PMMM) – source: [Kerzner, 2001, 42]

In level 1 the organization recognizes the importance of project management and the need for a basic language about project management and its terminology. In level 2 the organization recognizes that common project processes need to be defined in a way that good results in one project can be repeated in other projects. Additionally there is recognition of application and support of project management principles and their transferability to other methodologies that are used in the company. In level 3 the organization is aware of the synergetic effect of different methods when these are combined to a singular methodology, in which project manager has a central place. Next to this process control is more easily with a singular method than with multiple methods. In level 4 the company recognizes the need for process improvement for maintaining competitive advantage. Benchmarking must be done on continuous basis and therefore the company must determine whom and what to benchmark. In level 5 the organization assesses the information acquired from benchmarking and decides whether this information can extend the singular methodology that is in use or not [Kerzner, 2001, 42-43].

The Organizational Project Management Maturity Model

In 1998 the Project Management Institute (PMI) started with developing an organization wide project management maturity model. The purpose was to develop a worldwide standard that can be used in project organizations to align project, program and portfolio management with the strategic objectives of the organization. In 2003 this resulted in the first publication of the Organizational Project Management Maturity Model (OPM3). The model is based on the PMI standard a Guide to Project Management Body Of Knowledge (PMBOK). OPM3 has three interlocking elements: knowledge, assessment, improvement. The knowledge element provides an online database with knowledge about organizational project management, its maturity, relevant best practices, and how to use OPM3. The assessment element provides methods for evaluating best practices and capabilities. The improvement provides organizations assistance in increasing their project management maturity. The OPM3 distinguishes three levels of governance: project management, program management, and portfolio management. Furthermore OPM3 consists of four maturity levels which are described as process improvement stages: standardize, measure, control, and continuously improve. Figure 26 displays the OPM3 model [PMI, 2008].

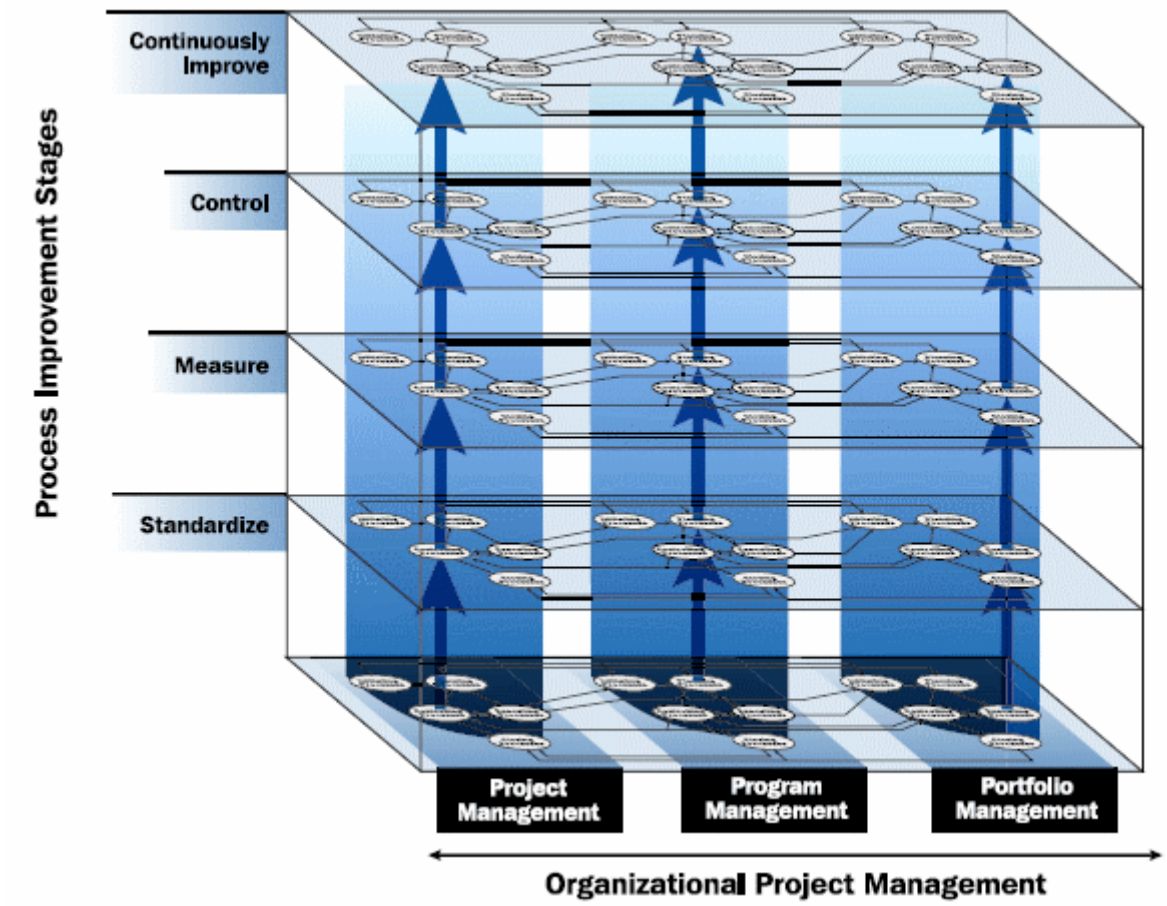


Figure 26: The Organizational Project Management Maturity Model (OPM3) – source: pmblog.acumen.nl

The PRINCE2 Maturity Model

In 2004 the Office of Government Commerce released the draft version of the PRINCE2 Maturity Model (P2MM) and in 2006 the first official version of P2MM appeared. P2MM is a project management maturity model specifically designed to measure the progress of PRINCE2 project processes in organizations. This means an organization should have adopted the PRINCE2 project management methodology in order to determine the maturity level of the PRINCE2 processes in the organization. PRINCE (**P**rojects **IN** **C**ontrolled **E**nvironments) is a structured method for effective project management that was established in 1989 by the Central Computer and Telecommunications Agency (CCTA). PRINCE was developed from PROMPTII, a project management method designed by Simpact Systems Ltd in 1975. CCTA adopted PROMPTII as the standard for all government information systems project in 1979. In 1989 PRINCE exceeded PROMPII as most used project management method in government projects. After that the CCTA became known as the Office for Government Commerce (OGC). OGC continued to develop the PRINCE method and launched PRINCE2 as its successor in 1996. PRINCE2 is based on practical experience of project managers, project teams and project scores and is currently the standard used by the UK government and is widely used in the private sector, both in the UK and internationally [OGC, 2002, 1]. P2MM consists of three maturity levels: 1: Initial, 2: Repeatable, and 3: Defined. These three levels correspond with the first three levels in P3M3. Furthermore 17 key process areas (KPA's) can be distinguished in the P2MM divided over the three different maturity levels (Figure 27). These key process areas contribute to achieving a successful PRINCE2 project outcome. These KPA's generally differ from the ones presented in the first three levels of P3M3.

By means of the key process areas that are structured hierarchically organizations can define the progress in capability they wish to make by setting clear goals of PRINCE2 process areas to improve [OGC, 2006b].

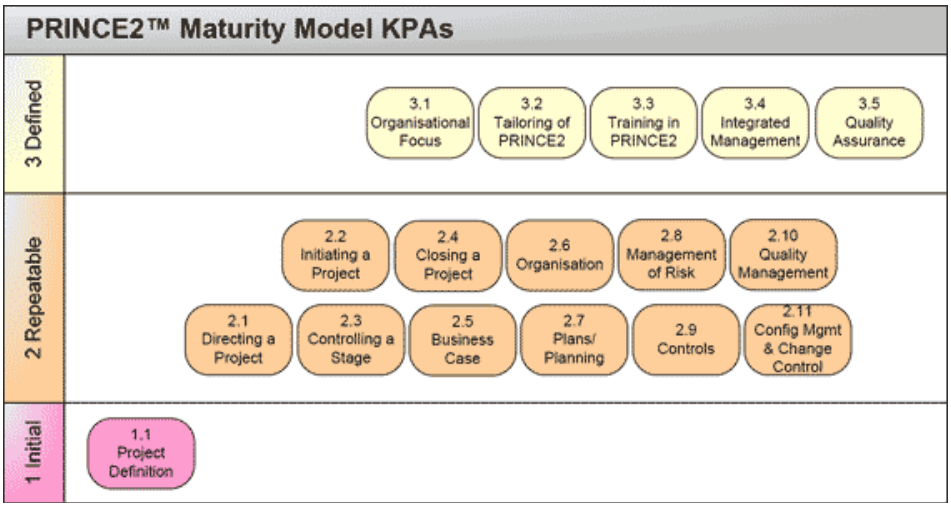


Figure 27: KPA's of PRINCE2 Maturity Model (P2MM) – source: www.brookes.ac.uk

The Portfolio, Programme and Project Management Maturity Model

In 2006 the initial version of the Portfolio, Programme and Project Management Maturity Model (P3M3) was released by the Office of Government Commerce (OGC). The OGC is a department in the UK government which supports organizations in the public sector to improve their efficiency, gain a higher value from procurement and improve the way the public sector manages programmes and projects. OGC also has developed the well known best practices Projects IN Controlled Environments (PRINCE2), Management of Risk (M_o_R), Information Technology Infrastructure Library (ITIL) and Managing Strategic Programmes (MSP). P3M3 consists of five maturity levels: 1. Initial, 2. Repeatable, 3. Defined, 4. Managed, 5. Optimizing. At level 1: Initial organizations recognize projects and run them differently to the ongoing business. In the case of level 2: Repeatable is met the organization uses its own processes and procedures to a minimum specified standard. At level 3: Defined the organization has centrally controlled project processes and individual projects can flex within these processes. At level 4: Managed the organization uses its own specific metrics to measure its project performance and quality management is applied to ensure a high level of project deliverables. In the case of level 5: Optimising the organization runs continuous process improvement with pro-active problem and technology management. These maturity levels are derived from the CMMI model of the Software Engineering Institute. Additionally there are three process levels to measure the maturity level: the project level, programme level, and portfolio level. Therefore the maturity level can be measured on each of the three process levels. Furthermore 32 key process areas (KPA's) can be distinguished in the P3M3 divided over the five different maturity levels (Figure 28). These key process areas contribute to achieving a successful project outcome. By means of the key process areas that are structured hierarchically organizations can define the progress in capability they wish to make by setting clear goals of process areas to improve [OGC, 2006a]. In the second and updated version of P3M3 the 32 KPA's have been replaced by 7 process perspectives which are Management Control, Benefits Management, Financial Management, Stakeholder Management, Risk Management, Organizational governance, and Resource Management. Additionally there have been small changes in the five maturity levels which are now known as 1. Awareness of process, 2. Repeatable process, 3. Defined process, 4. Managed process, 5. Optimized process. The second version of the P3M3 model is discussed in more detail in section 3.4.3 [OGC, 2008a; OGC, 2008b].

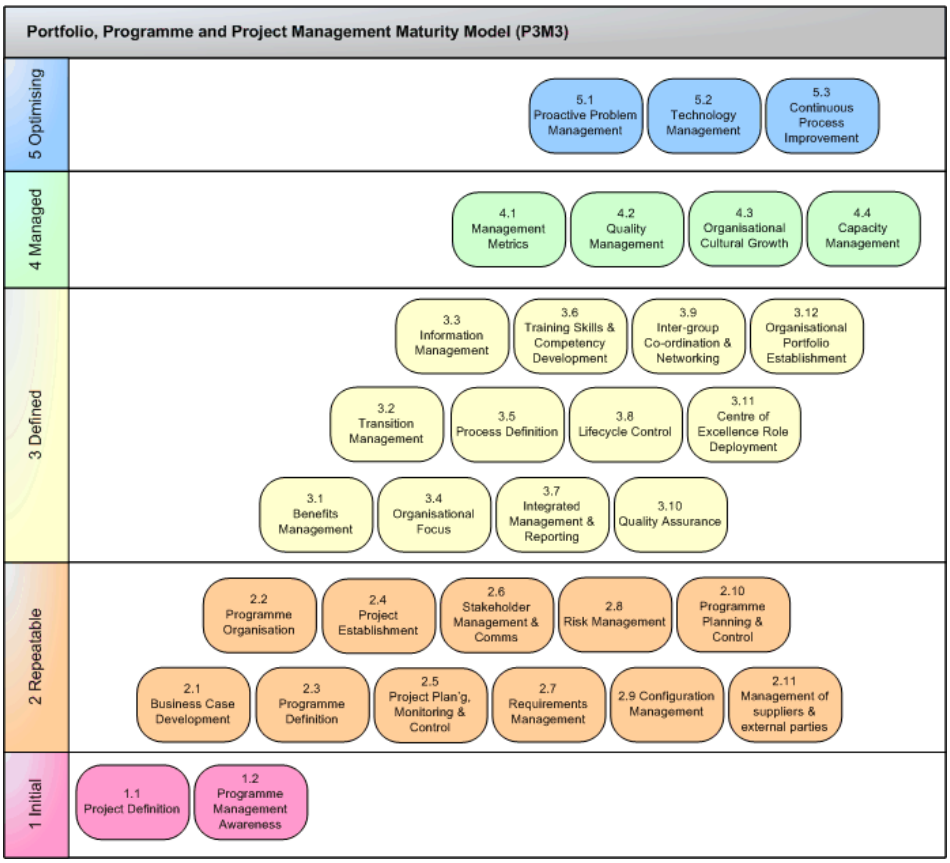


Figure 28: KPA's of Portfolio, Programme and Project Management Maturity Model (P3M3) – source: pmblog.acumen.nl

Relationship between P2MM and P3M3

Figure 29 shows in what way the PRINCE2 Maturity Model (P2MM) and the Project, Programme and Portfolio Management Maturity Model (P3M3) are related. Basically P3M3 is an extension of P2MM. Since P2MM is focused specifically on the PRINCE2 project management method and therefore this model is only applicable to organizations that use the PRINCE2 method. In order to overcome this problem the Project Management Maturity Model (P1M3) is developed which is an abstraction of P2MM. P1M3 is, unlike P2MM, method independent and can be applied in any organization and is not only restricted to organizations where PRINCE2 is used as is the case with P2MM. The Project and Programme Management Maturity Model (P2M3) is an extension of P1M3 and both supports project and programme management, whereas P1M3 is restricted to project management. The Portfolio, Programme and Project Management Maturity Model (P3M3) is an extension of the P2M3 model in the way it adds portfolio management to the model. P1M3, P2M3, and P3M3 are method independent and can be used in any organization, but PRINCE2 is heavily supported since all models are developed by OGC (Figure 29). Additionally there exists a hierarchy and interrelationship between the various levels of maturity assessment. Because of this hierarchy a portfolio management maturity assessment (P3M3) necessarily includes a program and project maturity assessment (P2M3). A program management maturity assessment (P2M3) requires a project management maturity assessment, and so on. As a result the determined maturity level for P3M3 can not be higher than the maturity for P2M3, the maturity level of P2M3 can not be higher than the maturity level of P1M3, etc [APM Group, 2007]. In the second and updated version of P3M3 the models are independent and therefore this is no longer applicable as is confirmed by Rod Sowden who states that "the P3M3 contains three models that enable independent assessment. There are no interdependencies between the models, so an organization may be better at program management than it is at project management, for example [OGC, 2008a]."

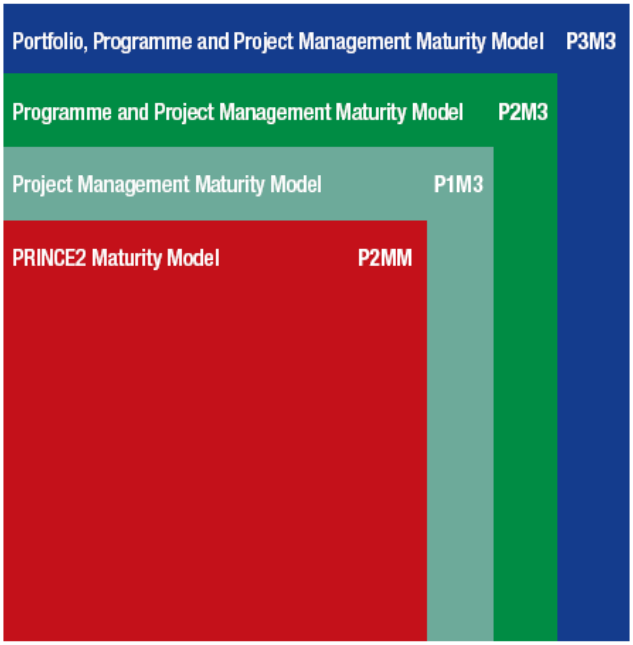


Figure 29: Classification of OGC's maturity models P2MM, P1M3, P2M3 and P3M3 – source: www.apmgroup.co.uk

The Maturity Increments IN Controlled Environments Model

In 2007 the MINCE2 Foundation developed the **M**aturity Increments **IN** **C**ontrolled **E**nvironments Model (MINCE). MINCE is a framework for organizational maturity and uses six castle towers as metaphor for its model. The six castle towers are different viewpoints on the organization (Figure 30).

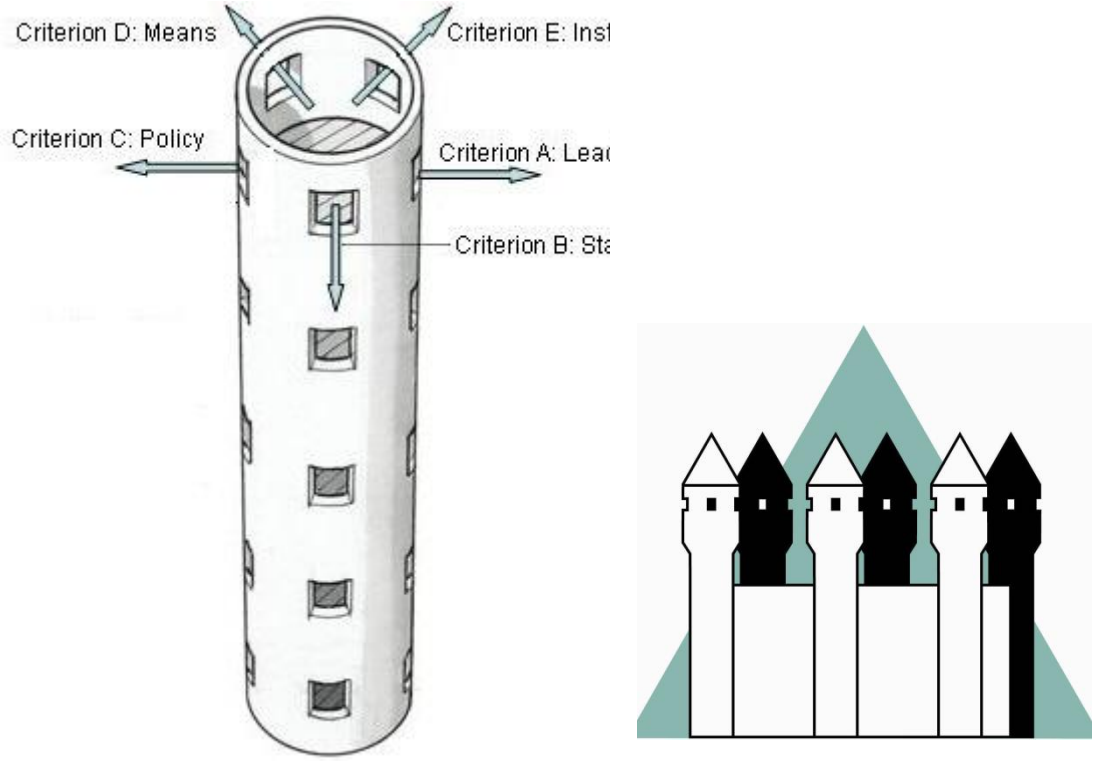


Figure 30: Towers in the Maturity IN Controlled Environments (MINCE) model – source: www.mince2.org

The following towers can be distinguished: Tower I: People, Tower II: Methods and techniques, Tower III: Customer, Tower IV: Realization, Tower V: Knowledge, Tower VI: Supporting services. Each of the six castles consists of five criteria which are represented by the loopholes with spears or windows. Each of these criteria offers a different perspective on the specific viewpoint on the organization. The following five criteria can be distinguished: Criterion A: Leadership, Criterion B: Staff, Criterion C: Policy, Criterion D: Means, and Criterion E: Instructions. Additionally each tower consists of five maturity levels represented by the different castle floors. The maturity levels that can be distinguished are Activities, Processes, Systems, Supply Chain, and Quality. These maturity levels are derived from the EFQM Excellence Model. The MINCE model can be used to determine the project maturity level an organization is in, report in a standardized way regarding the findings, and indicate what can be done to increase the maturity. Project maturity can be considered as an indication for the effectiveness and the efficiency in which an organization responds to environmental changes. Organizations with a low project maturity will require more time for a response than organizations with a high project maturity. As a consequence the response rate affects the competitiveness of the organization. Therefore organizations with a high project maturity are more competitive than organizations with a low project maturity [Meisner, 2007].

PM Solutions' Project Management Maturity Model

PM Solutions developed the Project Management Maturity Model (PMS-PMMM). PMS-PMMM consists of five maturity levels that have been defined by SEI in the CMM models. These maturity levels are level 1: Initial process, level 2: Structured process and standards, level 3: Organizational standards and institutionalized process, level 4: Managed process, and level 5: Optimizing process. Additionally the model consists of nine knowledge areas that are derived from the PMI's PMBOK Guide that has identified key areas of project management. The knowledge areas are respectively project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management, and project procurement management (Figure 31). PMS-PMMM is specifically designed to describe the organization's project management effectiveness, or project management maturity [Crawford, 2006].

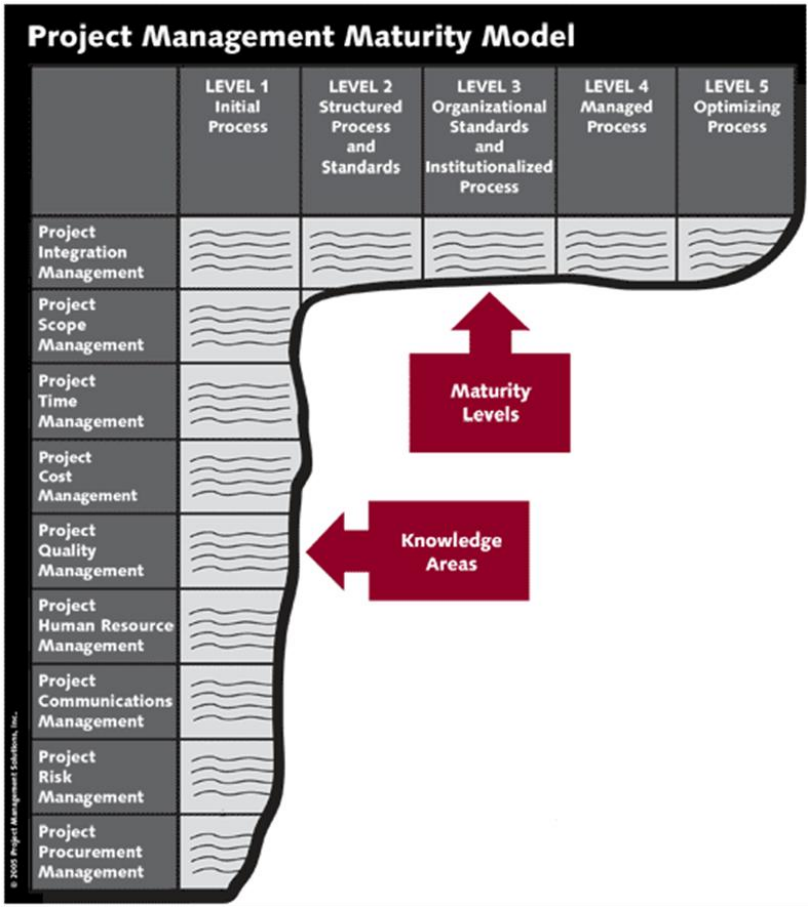


Figure 31: PM Solutions' Project Management Maturity Model (PMS-PMMM) – adapted from: http://pmsolutions.com

The Project Portfolio Management Maturity Model

PM Solutions also developed the Project Portfolio Management Maturity Model (PMS-PPMMM) which is displayed in Figure 32. The model describes the five maturity levels which are also incorporated in SEI's the CMM models. These levels are level 1: Initial process, level 2: Structured process and standards, level 3: Organizational standards and institutionalized process, level 4: Managed process, and level 5: Optimizing process. Additionally PMS-PPMMM differentiates six project portfolio maturity components. These components are portfolio governance, project opportunity assessment initiation, project prioritization and selection, portfolio and project communications management, portfolio performance management, and portfolio resource management. The model is specifically developed to determine the maturity of portfolio management processes [PM Solutions, 2008].

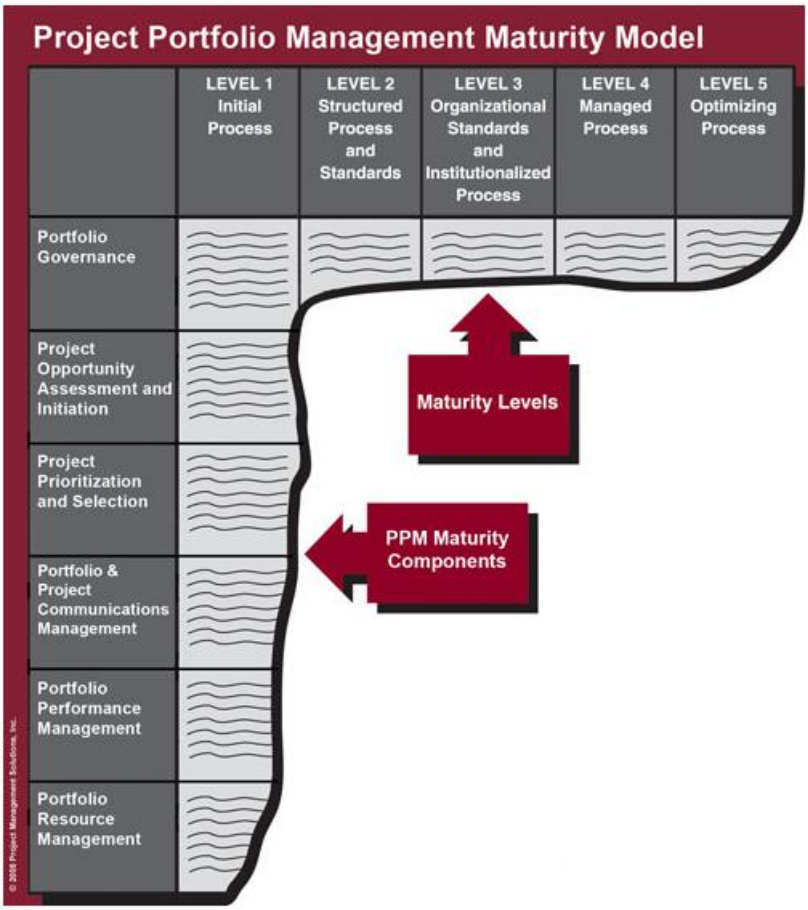


Figure 32: PM Solutions' Project Portfolio Management Maturity Model (PMS-PPMMM) adapted from: http://pmsolutions.com

The Project Management Process Maturity Model

In 1997 Ibbs and Kwak of the University of California at Berkeley developed the initial version of the Project Management Process Maturity $(PM)^2$ model. In 2002 a more comprehensive version appeared of the $(PM)^2$ model which is also known as the Berkeley Project Management Process Maturity Model. The $(PM)^2$ model breaks project management processes and practices into nine project management knowledge areas and five project management processes by adopting PMI's PMBOK Guide. The project processes are initiating, planning, executing, controlling, and closing. The knowledge areas are project integration management, project time management, project scope management, project cost management, project quality management, project communication management, project human resources management, project risk management, and project procurement management. Figure 33 represents the $(PM)^2$ model which consists of five maturity levels: level 1: Ad-hoc, level 2: Planned, level 3: Managed at project level, level 4: Managed at corporate level, and level 5: Continuous learning. In level 1 there is a basic project management process, but there are no formal plans or procedures to execute projects. Organizations at this stage are functionally isolated and are unfamiliar with the project management concept or the project-oriented organizational structure. In level 2 informal and incomplete procedures are used to manage a project and planning and management of projects depend on individuals. Organizations at this stage are more team-oriented than in level 1. In level 3 project management processes are becoming partly formal and demonstrate a basic project planning and control system. Organizations in this stage focus on systematic and structured project planning and control. In level 4 project management processes are formal and information and processes are documented.

Organizations at this stage use multiple project planning and control. In level 5 project management processes are continuously improved. Organizations at this stage are involved in the continuous improvement of project management processes and practices [Ibbs and Kwak, 2002].

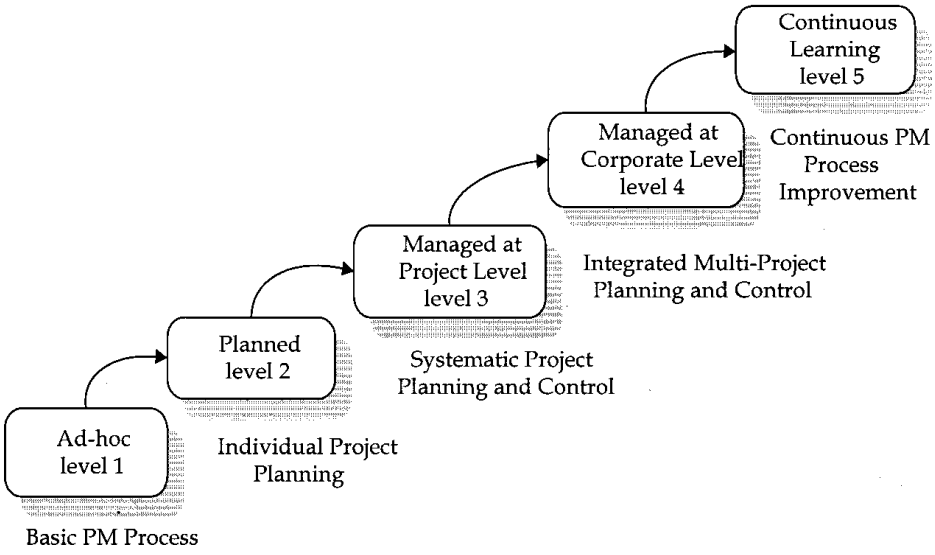


Figure 33: The Project Management Process Maturity $(PM)^2$ model – source: [Ibbs and Kwak, 2002]

Since some maturity models are derivations of others it may be interesting to map these relations. Figure 34 shows how the maturity models are related with one another.

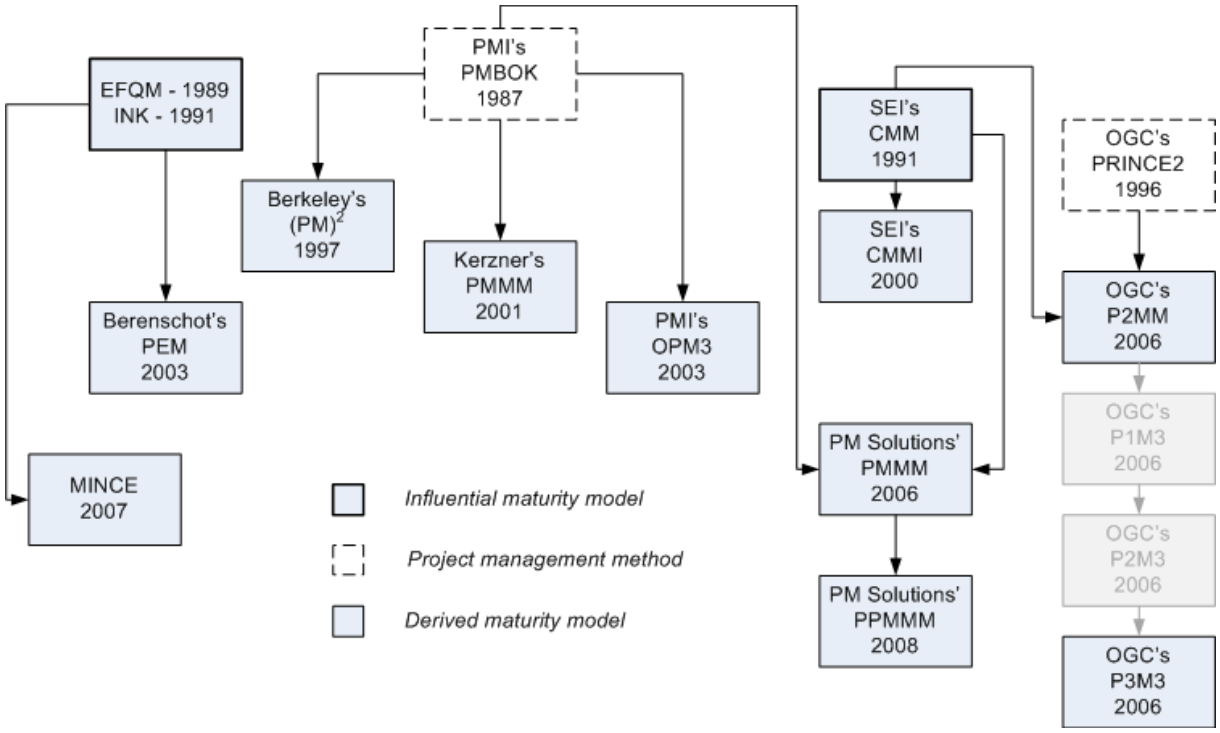


Figure 34: Relations between the distinct maturity models

Appendix B – Maturity survey English

Below the English / international version of de maturity assessment survey is presented. This online web survey can be found at http://www.thesistools.com/?qid=57922&ln=eng. During the creation of the survey the webpage software functionality provided by ThesisTools is used (e.g. design, appearance, survey results).

Project management maturity assessment survey

The University of Twente explores the process capability maturity in large organizations. The purpose of this study is to determine the maturity level of project organizations on both project management, program management, and portfolio management level by using a best practice maturity model. Seven key process areas (i.e. management control, benefits management, financial management, stakeholder management, risk management, organizational governance, and resource management) are investigated on their process maturity. Next to this the main bottlenecks in formalizing the project organization are identified.

By means of your participation in this survey we expect to get an impression of the maturity in project organizations and the challenges they are dealing with. You can fill out the survey on the working unit level (e.g. department, division, corporate) that is applicable to your specific situation in the organization. Select the answer that best describes your project organization (e.g. in the case there is no or hardly any program and/or portfolio management in your organization).

The survey consists of 36 questions and takes about 20 minutes to complete. Results will be processed anonymously.

Participation reward
Participants receive an indication of their process capability maturity based on their survey results and an overview of the main results of this survey.

Start survey!

- new page -

1.	In what country do you work?
	Netherlands

2.	In what line of business do you work?
	○ Construction and civil engineering ○ Chemistry and pharmacy ○ Communication and marketing ○ Consultancy and IT ○ Energy ○ Finance and insurances ○ Health care and social services ○ Industry and trade ○ Logistics and transport ○ Education and research ○ Governance and defense ○ Public and non-profit ○ Human resource management ○ Food and nutrition ○ Other

3.	Does your organization consist of multiple strategic business units (SBUs)?
	○ Yes ○ No

4.	How many employees does your organization count?
	○ 0 - 50 ○ 50 - 200 ○ 200 - 500 ○ 500 - 1.000 ○ 1.000 - 5.000 ○ 5.000 - 10.000 ○ More than 10.000

5.	How many employees are working on project activities on regular basis?
	○ 0 - 20 ○ 20 - 50 ○ 50 - 200 ○ 200 - 500 ○ More than 500

6.	What is your job?
	○ Project member ○ Project manager ○ Program manager ○ Portfolio manager ○ Department manager ○ Executive manager ○ Other

Next...

- new page -

In the questions below the concepts management control, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Management control covers the internal controls of the initiative and how its direction of travel is maintained throughout its life cycle, with appropriate break points to enable it to be stopped or redirected by a controlling body if necessary.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

7.	Our management control at project management level is best described by:
	○ Project management terminology is used by some within the organization but not consistently and may not be understood by all stakeholders. Projects are conducted and managed dependent on individual project managers' preferences. ○ The concepts of project management will have been grasped by some within the organization, and indeed there may be local experts, such as experienced project managers working on key projects. ○ There is a consistent approach to project management controls across the organization, based on standard processes and methods. The project life cycle not only focuses on initiation and development activities, but equally on delivery, review, verification, implementation and handover. ○ Project management is of sufficient strategic importance for it to be integrated with business and strategic planning functions. There is an emphasis on quantitative management and performance measurement. ○ Project management controls are being optimized to ensure that they are effective and efficient from the organizational perspective. They are regularly evaluated to ensure that they remain aligned to the business imperatives, strategies and plans.

8.	Our management control at program management level is best described by:
	○ Program management terminology may be used but not consistently. The general approach is focused on projects rather than at the program level. ○ Some general understanding exists of the concepts of program management and its control mechanisms but adoption is localized. ○ There is a centrally defined and documented approach to a program management life cycle and controls, and it is applied in all programs by capable staff who support program teams. ○ Program management is seen as a key tool for the delivery of strategic objectives. Within the program environment the focus is on improvement of delivery through measurement and analysis of performance. ○ Management controls ensure that the program approach delivers the strategic aims and objectives of the organization. Acceptance of program management as the optimal approach to strategic delivery is organization-wide.

9.	Our management control at portfolio management level is best described by:
	○ The organization recognizes the portfolio but has little or nothing in terms of documented processes or standards for managing the portfolio. ○ There are some pockets of portfolio discipline within individual departments, but this is based on key individuals rather than as part of a comprehensive and consistent organization-wide approach. ○ Portfolio management processes are centrally defined, documented and understood, as are roles and responsibilities for governance and delivery. ○ Portfolio management processes exist and are proven. Portfolio management has established metrics against which success can be measured. ○ Portfolio management has well-defined controls and behaviors that enable it to deliver the strategic objectives of the organization through a variety of processes and tools.

Next...

- new page -

In the questions below the concepts benefits management, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Benefits management is the process that ensures that the desired business change outcomes have been clearly defined are measurable and are ultimately delivered through a structured approach and with full organizational ownership.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

10.	Our benefits management at project management level is best described by:
	○ There may be recognition that the concept of benefits can be differentiated from project outputs. ○ Benefits are recognized as an element within business cases. There may be some documentation on who is responsible for particular benefits and their realization, but this is unlikely to be followed through or consistent. ○ There is a centrally managed framework for defining and tracking the delivery of benefits from project outputs. ○ Benefits management is embedded within the project management approach and there is a focus on delivery of business performance from project outputs. ○ Benefits realization management is embedded within the organizational approach to change and is assessed as part of the development of organizational strategy. Business performance metrics are linked to, and underpin, the recognition of benefits realization.

11.	Our benefits management at program management level is best described by:
	○ There is recognition of the concepts of benefits that can be differentiated from project outputs. Benefits are being developed at a project level with minimal program control. ○ Benefits are being recognized as a key element and differentiating factor for programs. The focus is likely to be at the project level but there is initial evidence of benefit tracking at a program level in some cases. ○ There is a centrally managed and consistent framework, with processes that are used for defining and tracking the delivery of benefits arising from program outcomes. ○ Benefits management is embedded within the program management approach and underpins the justification for, and management implementation of, each program. Program performance metrics are collected and analyzed. ○ Benefits management is embedded within the organizational approach to change and is assessed as part of the development of organizational strategies.

12.	Our benefits management at portfolio management level is best described by:

- ○ Recognition that initiatives may exist within the organizational and divisional portfolio to enable the achievement of benefits for the organization. However, there isn't a defined benefits realization process.
- ○ Development of the investment cycle with increasing awareness of the importance of identifying benefits and subsequently tracking whether they have been achieved. However, the realization of benefits is still likely to be patchy, inconsistent and unmonitored.
- ○ There is a centrally managed framework used for defining and tracking the delivery of portfolio-level benefits across the business operations.
- ○ The benefits realization and management process is well established, measurable and is integrated into how the organization manages itself.
- ○ Benefits realization is integral to the development of business strategy decision making.

Next...

- new page -

In the questions below the concepts financial management, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Financial management ensures that the likely costs of the initiative are captured and evaluated within a formal business case and that costs are categorized and managed over the investment life cycle. Finance is an essential resource that should be a key focus for initiating and controlling initiatives.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

13.	Our financial management at project management level is best described by:

- ○ There are little or no financial controls at project level. There is a lack of accountability and monitoring of project expenditure.
- ○ Business cases are produced in various forms and the better and more formal cases will present the rationale on which to obtain organizational commitment to the project.
- ○ The organization has established standards for the preparation of business cases and processes for their management throughout the project life cycle. Project managers monitor costs and expenditure in accordance with organizational guidelines and procedures.
- ○ The organization is able to prioritize investment opportunities effectively in relation to the availability of funds and other resources. Business cases are evaluated and investment decisions ratified by the business. Project budgets are managed effectively and project performance against cost is monitored and compared. Cost models are used to demonstrate the efficacy of projects.
- ○ Project financial controls are fully integrated with those of the organization. Cost estimation techniques are continually reviewed in terms of actual versus estimate comparisons to improve estimation throughout the organization.

14.	Our financial management at program management level is best described by:
	○ Minimal or no financial controls, and those that exist are principally related to projects or individual programs. ○ Financial approvals and cost projections for programs may not be in evidence. There may be a focus on project finance but the overall cost of the program is not fully accounted for. ○ Centrally managed and standardized approach to financial management, with cost assessments tracked throughout the program life cycle. ○ Program life cycles are being flexed effectively to manage availability of funds. There is effective decision making, with consideration of financial evidence. ○ Financial control is evident throughout the program life cycle and a balanced view of financial risk taking underpins program governance.

15.	Our financial management at portfolio management level is best described by:
	○ Portfolio oversight of the financial aspects of initiatives may be recognized but there is little or no organizational investment control. ○ There are some good business cases being produced and some, usually departmental, structures to oversee investment decisions. However, business cases are often appraised independently of each other and real organizational priorities have not been established. ○ There are established standards for the investment management process and the preparation of business cases. ○ The organization has effective and robust financial control of its investment decisions and the approval and monitoring of initiatives. There is proactive, evidence based management of the portfolio. ○ Financial control of the portfolio is an integral part of the organization's financial control regime.

Next...

- new page -

In the questions below the concepts risk management, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Risk management views the way in which the organization manages threats to, and opportunities presented by, the initiative. It maintains a balance of focus on threats and opportunities, with appropriate management actions to reduce or eliminate the likelihood of any identified risk occurring, and to minimize its impact if it does occur. It will look at a variety of risk types that affect the initiative, both internal and external, and will focus on tracking the triggers that create risks.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

16.	Our risk management at project management level is best described by:
	○ There may be some evidence of risk management being deployed occasionally, but with minimal beneficial effect. ○ Risk management is recognized and used in some projects, but there are inconsistencies in approach, commitment and deployment. ○ Project risk management is based on a centrally defined process that is cognizant of the organization's policy for the management of risks. ○ Risk management is working effectively, is embedded, and the value of risk management can be demonstrated from the organizational perspective. Decision making includes risk analysis. ○ Risk management is embedded in the organizational culture and underpins all decision making with respect to project.

17.	Our risk management at program management level is best described by:
	○ There is minimal evidence of risk management being used to any beneficial effect. There may be evidence of a risk being documented but little evidence of active management. ○ Risk management is partially recognized and used on some programs, but there are inconsistent approaches within and between programs, which result in different levels of commitment and effectiveness. ○ Risk management has a clearly defined and centrally managed process that is followed consistently by all programs. The framework is based on industry standards and is supported by a consistent system used by all programs. ○ Risk management works effectively, with active management and mitigation of risks evident through embedded behavior. There is evidence of opportunity management and management of risk aggregation. ○ Risk management is embedded in the culture of the organization and underpins all decision making within the program. There is evidence of continual improvement and integration with strategic direction.

18.	Our risk management at portfolio management level is best described by:
	○ There may be a growing recognition that risks need to be managed and that, at least for key business initiatives (e.g. cost saving or major site developments), they can threaten success. ○ There is generally a top-down approach to risk identification, focusing on major organizational initiatives, but some initiatives are increasingly carrying out bottom-up risk identification. However, these approaches are inconsistent, not particularly interrelated and often do not address the actual management of risks. ○ Portfolio risks are identified and quantified, and mitigation plans are developed and funded. Risk management across the portfolio is based on a common, centrally managed process. ○ The organization's appetite for risk, and the balance of risk and benefit across the portfolio, are continually reviewed and managed. Senior managers own and oversee risk management across the portfolio. ○ The process of portfolio risk management is continually improved, based on the analysis of evidence from within the organization and comparison with other organizations.

Next...

- new page -

In the questions below the concepts stakeholder management, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Stakeholder management includes communications planning, the effective identification and use of different communications channels, and techniques to enable objectives to be achieved. Stakeholders can be found at different levels, both within and outside the organization. Stakeholder management should be seen as an ongoing process across all initiatives and one that is inherently linked to the initiative's life cycle and governance controls.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

19.	Our approach to stakeholder management at project management level is best described by:
	○ Stakeholder management and communication is rarely used by projects as an element of the delivery toolkit. ○ Some projects will be communicating effectively, but this is linked more to personal initiative of program and/or project managers than a structured approach being deployed by the organization. ○ There is a centrally managed and consistent approach to stakeholder management and communications, used by all projects. ○ Sophisticated techniques are used to analyze and engage the stakeholder environment effectively, and quantitative information is used to underpin the assessment of effectiveness. ○ Communications is being optimized from extensive knowledge of the stakeholder environment, to enable the projects to achieve their objectives.

20.	Our approach to stakeholder management at program management level is best described by:
	○ Stakeholder management and communication is rarely used by programs as an element of the delivery toolkit. ○ Some programs will be communicating effectively, but this is linked more to personal initiative of program managers than a structured approach being deployed by the organization. ○ There is a centrally managed and consistent approach to stakeholder management and communications, used by all programs. ○ Sophisticated techniques are used to analyze and engage the stakeholder environment effectively, and quantitative information is used to underpin the assessment of effectiveness. ○ Communications is being optimized from extensive knowledge of the stakeholder environment, to enable the programs to achieve their objectives.

21.	Our approach to stakeholder management at portfolio management level is best described by:
	○ Stakeholder management and communication is rarely used by portfolios as an element of the delivery toolkit. ○ Some portfolios will be communicating effectively, but this is linked more to personal initiative of portfolio managers than a structured approach deployed by the organization. ○ There is a centrally managed and consistent approach to stakeholder management and communications, used by all portfolios. ○ Sophisticated techniques are used to analyze and engage the stakeholder environment effectively, and quantitative information is used to underpin the assessment of effectiveness. ○ Communications is being optimized from extensive knowledge of the stakeholder environment, to enable the portfolios to achieve their objectives.

Next...

- new page -

In the questions below the concepts organizational governance, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Organizational governance looks at how the delivery of initiatives is aligned to the strategic direction of the organization. It considers how start-up and closure controls are applied to initiatives and how alignment is maintained during an initiative's life cycle. This perspective looks at how external factors that impact on initiatives are controlled and used to maximize the final result.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Programme management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

22.	We deliver organizational governance at project management level by:
	○ Informal governance of projects exists but has undefined links to broader organizational controls. Roles are likely to be notional. ○ Project management from an organizational perspective is beginning to take shape but with ad hoc controls and no clear strategic control. ○ Strategic governance controls are applied consistently, with decision-making structures in place to enable and control the delivery of projects and alignment with business needs. ○ Decision-making processes associated with project performance are adopted and integrated into broader organizational performance management, reporting and governance arrangements. ○ The governance arrangements for projects are a core aspect of organizational control, with demonstrable reporting lines to Executive Board level and with clear ownership and control responsibilities embedded within the organization.

23.	We deliver organizational governance at program management level by:
	○ Some informal governance of programs may exist but with undefined links to projects and/or broader organizational controls. Roles will not be formally defined. ○ Program management is beginning to take shape but with ad hoc controls, and there is no clear strategic control. Roles and responsibilities will be inconsistent, as will reporting lines. ○ Centrally defined organizational controls are applied consistently to programs, with decision making structures in place and linked to organizational governance. ○ There are clearly aligned decision-making processes that adopt and integrate with broader organizational governance and are transparent to those involved. Program management responsibilities are embedded within broader role descriptions. ○ Program management is embedded at Executive Board level, with clear ownership and control responsibilities embedded within individual directors' terms of reference.

24.	We deliver organizational governance at portfolio management by:

- ○ The organization has some inconsistent and informal attempts to align individual initiatives to organizational objectives, and there is an ad hoc, inconsistent and ineffective oversight of initiatives.
- ○ There are some attempts to recognize the portfolio of initiatives, but there is still little overall leadership and direction for the process. Initiatives may be initiated and run without full regard to the organizational goals, priorities and targets.
- ○ The principles of portfolio management are widely understood, practiced to a consistent standard, and underpin the governance framework.
- ○ All initiatives are integrated into an achievable and governed portfolio, which is aligned to strategic objectives and priorities. The portfolio contains relevant information on initiatives (e.g. performance measures, quality attributes and asset management data) to support Executive Board decisions.
- ○ The portfolio is managed to ensure that it remains aligned to support the organization's strategic objectives. The portfolio management process is optimized to ensure that it is sufficiently dynamic and agile to cater for changes in business direction and priorities.

Next...

- new page -

In the questions below the concepts resource management, project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Resource management covers management of all types of resources required for delivery. These include human resources, buildings, equipment, supplies, information, tools and supporting teams. A key element of resource management is the process for acquiring resources and how supply chains are utilized to maximize effective use of resources. There will be evidence of capacity planning and prioritization to enable effective resource management.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

25.	Our resource management at project management level is best described by:

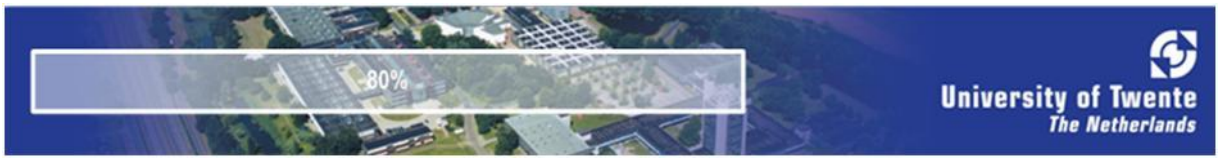
- ○ There is little recognition within the organization of the need to manage resources effectively to enable successful delivery of projects.
- ○ Resources are being deployed across the organization but there is little evidence of a consistent approach to resource acquisition, planning or management in support of projects.
- ○ The organization has a centrally defined and adopted set of procedures and management processes for managing resources.
- ○ Resource management for projects is considered at a strategic level within the organization. There is evidence of resource capacity management, through capacity planning, in order to meet project delivery needs.
- ○ Resources are deployed optimally. There is clear evidence of load balancing and the effective use of both internal and external resources in accordance with a resource strategy.

26.	Our resource management at program management level is best described by:
	○ Focus is on project resources being deployed with minimal focus on program management resource requirements and little attempt to develop a program approach. ○ Resources are being deployed across the organization but there is little evidence of a consistent approach to resource acquisition, planning or management in support of programs. ○ Centrally managed and consistent resource management processes are in place across all programs. ○ There is measurement of resource utilization and proactive management to raise and broaden capability. There is evidence of innovative use of resource options to optimize delivery achievement. ○ Resources are deployed optimally. There is clear evidence of balancing internal and external expertise, with knowledge being embedded into the business by virtue of learning from previous deployments.

27.	Our resource management at portfolio management level is best described by:
	○ Portfolio resource requirements are recognized but not systematically managed. Resource allocation is ad hoc, with little, if any, profiling of resources to meet the resource requirements of specific initiatives. ○ The organization has started to develop portfolio resource management processes and improve the identification and allocation of resources to specific initiatives. However, this is likely to be reliant on key individuals and does not assess the impact of resource allocation against the strategic objectives and priorities. ○ The portfolio resource management process is centrally defined within the organization. Initiative resource needs are evaluated, enabling the organization to target and increase the development of resources to meet strategic objectives and priorities. ○ The organization has established effective capacity and capability strategies and processes for obtaining, allocating and adjusting resource levels (including people, funding, estate and tools) in line with medium and long-term investment plans. ○ Portfolio management drives the planning, development and allocation of initiatives to optimize the effective use of resources in achieving the strategic objectives and priorities.

Next...

- new page -



In the questions below the concepts project management, program management, and portfolio management are used frequently. Although there is some overlap these concepts are defined below.

Project management is an unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters as specified in the business case.

Program management is the coordinated organization, direction and implementation of a dossier of projects and activities that together achieve outcomes and realize benefits that are of strategic importance.

Portfolio management is the coordinated collection of strategic processes and decisions which enable the most effective balance of organizational change and business as usual / operations.

28.	Does the organization at project management level:
	○ Recognize projects and run them differently from ongoing business. (Projects may be running informally with no standard processes or tracking system). ○ Ensure that each project is run with its own processes and procedures to a minimum specified standard. (There may be limited consistency or coordination between projects). ○ Have its own centrally controlled project processes with individual projects being able to flex within these processes to suit the particular project. ○ Obtain and retain specific measurements on its project management performance and run a quality management organization to better predict and control future performance. ○ Undertake continuous process improvement with proactive problem and technology management for projects in order to improve its ability to depict performance over time and optimize processes.

29.	Does the organization at program management level:
	○ Recognize programs and run them differently from projects. (Programs may be running informally with no standard processes or tracking system). ○ Ensure that each program is run with its own processes and procedures to a minimum specified standard. (There may be limited consistency or coordination between programs). ○ Have its own centrally controlled program processes with individual programs being able to flex within these processes to suit the particular program. ○ Obtain and retain specific management metrics on its program management performance and run a quality management organization to better predict and control future performance. ○ Undertake continuous process improvement with proactive problem and technology management for programs in order to improve its ability to depict performance over time and optimize processes.

30.	Does the organization at portfolio management level:
	○ Have an Executive Board that recognizes programs and projects and maintains an informal list of investments in programs and projects, without perhaps a formal tracking mechanism and documented process. ○ Ensure that each program and/or project in its portfolio is run with its own processes and procedures to a minimum specified standard. (There may be limited consistency or coordination). ○ Have its own portfolio management process and centrally controlled program and project processes with individual programs and projects being able to flex within these processes to suit particular programs and/or projects. ○ Obtain and retain specific management metrics on its whole portfolio of programs and projects as a means of predicting future performance. The organization assesses its capacity to manage programs and projects and prioritize them accordingly. ○ Undertake continuous process improvement with proactive problem and technology management for the portfolio in order to improve its ability to depict performance over time and optimize processes.

31.	Our organization can be best characterized as having:

- ○ Processes are not usually documented; there are no, or only a few, process descriptions. Successful initiatives are often based on key individuals' competencies rather than organization-wide knowledge and capability and the organization is unable to repeat past successes consistently. Processes are undeveloped or incomplete.
- ○ The organization is able to demonstrate that basic management practices have been established and that processes are developing. There are key individuals who have had suitable training and the organization is capable of repeating earlier successes in the future. Initiatives are performed and managed according to their documented plans. The organization may still have inadequate measures of success.
- ○ Management and technical processes are documented, standardized and integrated to some extent with other business processes. There is likely responsibility for maintaining consistency and delivering process improvements across the organization. There is likely to be an established training program to develop the skills and knowledge of individuals.
- ○ The organization demonstrates mature behavior through defined processes that are quantitatively managed – i.e. controlled using metrics and quantitative techniques. Using metrics, management can effectively control processes and identify ways to adjust and adapt them to particular initiatives without loss of quality.
- ○ The organization is focused on optimization of its quantitatively managed processes to take into account changing business needs and external factors. Continuous process improvement is being enabled by quantitative feedback from its embedded processes. There exists a strong alignment of organizational objectives with business plans.

Next...

- new page -

Formalizing the project organization can be described as "improving processes in a structured way." Bottlenecks can be classified in the categories **humans**, **processes**, and **systems**. Identify for all three categories the difficulties your organization is dealing with in improving the project organization.

32.	What do you consider as the main bottlenecks (max. 2) concerning **people** in formalizing the project organization?

- ☐ Lack of management commitment
- ☐ Hard to get a shared vision among group of individuals
- ☐ Lack of motivation among employees
- ☐ No personal wins
- ☐ Other, namely: [ ]

33.	What do you consider as the main bottlenecks (max. 2) concerning **processes** in formalizing the project organization?
	☐ No alignment between processes and practice ☐ Processes result in paperwork and time loss ☐ No standardization ☐ Lack of uniformity ☐ Other, namely:

34.	What do you consider as the main bottlenecks (max. 2) concerning **systems** in formalizing the project organization?
	☐ Software causes more trouble than it provides support ☐ Bad alignment between software and processes ☐ Integration with other systems ☐ Systems are expensive and have a bad return on investment (ROI) ☐ Other, namely:

35.	With your results we can give an indication of the maturity of your project organization. Do you wish to receive an indication of this maturity level by e-mail?
	○ No ○ Yes, my e-mail address is:

36.	Do you wish to receive an overview of the main results of this survey by e-mail?
	○ No ○ Yes, my e-mail address is:

Please forward the survey link http://www.thesistools.com/?qid=57922&ln=eng to your circle of acquaintances (e.g. colleagues, friends, relatives) to whom this research is of interest. This will help to increase the reliability of this study. Thanks in advance!

Submit results!

- new page -

This is the end of the survey. Thanks for your participation!

René ter Haar
MSc student Industrial Engineering and Management
Department of Information Systems and Change Management
University of Twente
Enschede, The Netherlands

Appendix C – Maturity survey Dutch

Below the Dutch version of de maturity assessment survey is presented, which is a direct translation of the English / international version. This online web survey can be found at http://www.thesistools.com/?qid=58010&ln=ned. During the creation of the survey the webpage software functionality provided by ThesisTools is used (e.g. design, appearance, survey results).

Onderzoek naar volwassenheid van projectmanagement processen

De Universiteit Twente onderzoekt de volwassenheid van processen in grote organisaties. Het doel van dit onderzoek is het volwassenheidsniveau te bepalen van projectorganisaties op zowel project-, programma-, als portfoliomanagement op basis van een best practice volwassenheidsmodel. Zeven sleutelprocessen (managementsturing, benefitsmanagement, financieel management, stakeholdermanagement, risicomanagement, corporate governance en resourcemanagement) worden onderzocht op procesvolwassenheid. Daarnaast worden de belangrijkste knelpunten bij het formaliseren van de projectorganisatie in kaart gebracht.

Met behulp van uw medewerking aan deze enquête hopen wij een indruk te krijgen van de volwassenheid van projectorganisaties en de uitdagingen waar ze mee te maken hebben. U kunt de enquête invullen op het werkonderdeel (bijv. afdeling, divisie, organisatie) dat van toepassing is op uw specifieke situatie in de organisatie. Kies daarbij het antwoord dat het beste uw projectorganisatie omschrijft (bijv. indien er in uw organisatie niet of nauwelijks sprake is van programma- en/of portfoliomanagement).

De enquête bestaat uit 36 vragen en het duurt ongeveer 20 minuten om deze in te vullen. Resultaten worden anoniem verwerkt.

Deelnemersbeloning
Deelnemers ontvangen indien gewenst een indicatie van hun volwassenheidsniveau op basis van de enquêteresultaten en een overzicht van de belangrijkste resultaten van dit onderzoek.

Start enquête!

- new page -

1.	In welk land bent u werkzaam?
	Nederland

2.	In welke sector bent u werkzaam?
	○ Bouwnijverheid en civiele techniek ○ Chemie en farmacie ○ Communicatie en marketing ○ Consultancy en ICT ○ Energie ○ Financieel en verzekeringen ○ Gezondheidszorg en maatschappelijke dienstverlening ○ Industrie en handel ○ Logistiek en transport ○ Onderwijs en onderzoek ○ Openbaar bestuur en defensie ○ Overheid en non-profit ○ Personeel en organisatie ○ Voeding en levensmiddelen ○ Anders

3.	Bestaat uw organisatie uit meerdere divisies of strategische business units (SBUs)?
	○ Ja ○ Nee

4.	Hoeveel werknemers telt uw organisatie?
	○ 0 - 50 ○ 50 - 200 ○ 200 - 500 ○ 500 - 1.000 ○ 1.000 - 5.000 ○ 5.000 - 10.000 ○ Meer dan 10.000

5.	Hoeveel werknemers zijn regelmatig bezig met projectgerelateerde activiteiten?
	○ 0 - 20 ○ 20 - 50 ○ 50 - 200 ○ 200 - 500 ○ Meer dan 500

6.	Wat is uw functie?
	○ Projectlid ○ Projectmanager ○ Programmamanager ○ Portfoliomanager ○ Afdelingsmanager ○ Directiemanager ○ Anders

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen managementsturing, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Managementsturing heeft betrekking op interne stuurmiddelen die het management gebruikt om initiatieven te handhaven of te wijzigen.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

7.	Onze managementsturing op projectmanagementniveau wordt het beste omschreven als:
	○ Projectmanagement concepten worden door een enkeling in de organisatie gebruikt. Echter, dit gebeurt niet consistent en wordt mogelijk niet begrepen door alle stakeholders. Projecten worden uitgevoerd en gemanaged op basis van individuele voorkeuren van projectmanagers. ○ Projectmanagement concepten worden door een enkeling in de organisatie gebruikt. Het is mogelijk dat er lokale experts zijn, zoals ervaren projectmanagers die sleutelprojecten uitvoeren. ○ Er is een consistente benadering van projectmanagement sturingsmiddelen in de organisatie die gebaseerd is op standaardprocessen en -methoden. De levenscyclus van projecten is niet alleen gericht op initiatie en ontwikkelingsactiviteiten, maar ook op aanlevering, bespreking, verificatie, implementatie en oplevering. ○ Projectmanagement is van voldoende strategische waarde om te worden geïntegreerd met business en strategische planningfuncties. De nadruk ligt op kwantitatief management en het meten van prestaties. ○ Projectmanagement sturingsmiddelen zijn geoptimaliseerd om ervoor te zorgen dat ze effectief en efficiënt zijn vanuit organisatorisch perspectief. Deze worden regelmatig geëvalueerd om ervoor te zorgen dat de afstemming blijft met bedrijfstaken, strategieën en plannen.

8.	Onze managementsturing op programmamanagementniveau wordt het beste omschreven als:
	○ Programmamanagement terminologie wordt gebruikt, maar niet op een consistente manier. De algemene benadering richt zich op projecten in plaats van op programma's. ○ Er bestaat een algemeen begrip van de concepten van programmamanagement en zijn sturingsmechanismen, maar de toepassing ervan is beperkt tot delen van de organisatie. ○ Er is een centraal gedefinieerde en gedocumenteerde aanpak voor de levenscyclus van programmamanagement en haar sturingsmiddelen. Dit wordt toegepast in alle programma's met behulp van een bekwame managementstaf die programmateams ondersteunt. ○ Programmamanagement wordt gezien als een essentieel middel voor het bereiken van strategische doelen. Binnen programma's ligt de focus op het verbeteren van resultaten met behulp van middel van metingen en analyses. ○ Managementsturing zorgt ervoor de programmabenadering bijdraagt aan de strategische doelen van de organisatie. Acceptatie van programmamanagement als de optimale benadering van strategische bijdrage geldt organisatiebreed.

9.	Onze managementsturing op portfoliomanagementniveau wordt het beste omschreven als:
	○ De organisatie herkent de portfolio, maar er is niet of nauwelijks sprake van gedocumenteerde processen of standaarden voor het managen van de portfolio. ○ Er bestaan enkele portfolioverrichtingen binnen afzonderlijke afdelingen, maar dit is het gevolg van initiatieven van sleutelfiguren in plaats van een uitgebreide en consistente organisatiebrede benadering. ○ Portfoliomanagement processen zijn centraal gedefinieerd, gedocumenteerd en duidelijk net als de rollen en verantwoordelijkheden voor beheersing en sturing. ○ Portfoliomanagement processen bestaan en zijn getest. Portfoliomanagement kent geaccepteerde methoden waarmee de mate van succes van resultaten kunnen worden gemeten. ○ Portfoliomanagement heeft duidelijke sturingsmiddelen en gedragingen die het mogelijk maken om de strategische doelen van de organisatie te bereiken middels een verscheidenheid aan processen en gereedschappen.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen benefits-, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Benefitsmanagement bepaalt hoe goed de organisatie prestatieverbeteringen als gevolg van een investering definieert, meet en realiseert.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

10.	Benefitsmanagement op projectmanagementniveau in onze organisatie wordt het beste omschreven als:
	○ Het verschil tussen de concepten benefits en projectresultaten wordt erkend. ○ Benefits worden erkend als een onderdeel van business cases. Er bestaat enige documentatie over wie verantwoordelijk is voor specifieke benefits en de realisatie ervan, maar het is onwaarschijnlijk dat dit wordt nagevolgd of consistent gebeurt. ○ Er bestaat een centraal gemanaged raamwerk voor het definiëren en meten van de realisatie van benefits van projectresultaten. ○ Benefitsmanagement is geïntegreerd in de projectmanagementaanpak en de focus ligt op de realisatie van business performance als gevolg van projectresultaten. ○ Benefitsrealisatiemanagement is geïntegreerd in de organisatieaanpak voor verandering en wordt beoordeeld als onderdeel van de ontwikkeling van de organisatiestrategie. Business performance methoden zijn verbonden met en vormen de basis voor de erkenning van benefitsrealisatie.

11.	Benefitsmanagement op programmamanagementniveau in onze organisatie wordt het beste omschreven als:
	○ Het verschil tussen de concepten benefits en projectresultaten wordt erkend. Benefits worden ontwikkeld op projectniveau met een minimale programmasturing. ○ Benefits worden erkend als sleutelonderdeel en onderscheidende factor voor programma's. De focus van het meten van benefits ligt op projectniveau, maar er wordt een begin gemaakt op met het meten van benefits op programmaniveau. ○ Er is een centraal gemanaged en consistent raamwerk met processen die worden gebruikt voor het definiëren en meten van benefitsrealisatie als gevolg van programmaresultaten. ○ Benefitsmanagement is geïntegreerd in de programmamanagement aanpak en vormt de basis voor de rechtvaardiging voor en managementimplementatie van elk programma. Programma performance methoden worden verzameld en geanalyseerd. ○ Benefitsmanagement is geïntegreerd in de organisatieaanpak voor verandering en wordt beoordeeld als onderdeel van de ontwikkeling van de organisatiestrategie.

12.	Benefitsmanagement op portfoliomanagementniveau in onze organisatie wordt het beste omschreven als:

- ○ Erkenning dat initatieven bestaan in de organisatorische en divisionele portfolio om ervoor te zorgen dat organisatorische benefits worden gerealiseerd. Echter, er is geen gedefinieerd benefitsrealisatieproces.
- ○ Ontwikkeling van de investeringscyclus met toenemend bewustzijn van het belang van identificeren van benefits en vervolgens meten of ze zijn gerealiseerd. Echter, de realisatie van benefits is waarschijnlijk nog steeds onregelmatig, inconsistent en zonder toezicht.
- ○ Er bestaat een centraal gemanaged raamwerk dat gebruikt wordt voor het definiëren en meten van de realisatie van benefits op portfolioniveau tussen de business operaties.
- ○ Het benefitsrealisatie- en managementproces is goed ontwikkeld, meetbaar en geïntegreerd in hoe de organisatie zichzelf leiding geeft.
- ○ Benefitsmanagement is een integraal onderdeel van de ontwikkeling van besluitvorming omtrent de bedrijfsstrategie.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen financieel-, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Financieel management zorgt ervoor dat de verwachte kosten van initiatieven worden vastgelegd en geëvalueerd in een formele business case en dat de kosten worden gecategoriseerd en gemanaged over de investeringslevenscyclus. Financiën zijn essentiële resources die een aandachtspunt moeten zijn voor het initiëren en beheersen van initiatieven.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

13.	Ons financieel management op projectmanagementniveau wordt het beste omschreven als:

- ○ Er zijn weinig of geen financiële stuurmiddelen op projectniveau. Er is een gebrek aan verantwoordelijkheid en toezicht van projectkosten.
- ○ Business cases worden op verschillende manieren opgesteld en de betere en meer formele cases vormen een drijfveer die leidt tot organisatorische commitment bij het project.
- ○ De organisatie heeft erkende standaarden voor het opstellen van business cases en processen voor het management ervan gedurende de project levenscyclus. Projectmanagers houden toezicht op de kosten en uitgaven volgens organisatorische richtlijnen en procedures.
- ○ De organisatie is in staat om op een effectieve manier prioriteiten te stellen bij investeringsmogelijkheden gegeven de beschikbaarheid van budgetten en andere resources. Business cases en investeringsbeslissingen worden getoetst door de organisatie. Projectbudgetten worden effectief gemanaged. Projectperformance en kosten worden gemeten en vergeleken. Kostenmodellen worden gebruikt om de projectefficientië te bepalen.
- ○ Financiële stuurmiddelen van projecten zijn volledig geïntegreerd met die van de organisatie. Kostenramingstechnieken worden voortdurend opnieuw getoetst in termen van feitelijke en geschatte bedragen om schattingen in de organisatie te verbeteren.

14.	Ons financieel management op programmamanagementniveau wordt het beste omschreven als:
	○ Er zijn geen of minimale financiële stuurmiddelen en de middelen die er zijn, zijn voornamelijk gerelateerd aan projecten of individuele programma's. ○ Financiële goedkeuring en kostenprojecties van programma's zijn er nauwelijks. De focus ligt op projectfinanciën, maar de totale kosten van het programma worden niet volledig verantwoord. ○ Centraal gemanagede en gestandaardiseerde benadering voor financieel management, met kostenevaluaties die worden bijgehouden gedurende de levenscyclus van het programma. ○ Programma levenscycli worden effectief aangepast om de beschikbaarheid van budgetten te managen. Er is een effectieve besluitvorming met inachtneming van financiële cijfers. ○ Financiële beheersing is onmiskenbaar gedurende de programma levenscyclus en een evenwichtig overzicht van financiële risico's vormt de basis voor programma governance.

15.	Ons financieel management op portfoliomanagementniveau wordt het beste omschreven als:
	○ Portfolio overzicht van de financiële aspecten van initiatieven worden mogelijk erkend, maar is er weinig of geen organisatorische sturing op investeringen. ○ Er worden enkele goede business cases opgesteld en er bestaan enkele structuren, meestal op afdelingsniveau, om investeringsbeslissingen te kunnen overzien. Echter, business cases worden vaak onafhankelijk van elkaar beoordeeld en echte organisatorische prioriteiten zijn niet vastgelegd. ○ Er zijn gedefinieerde standaarden voor het investeringsmanagementproces en het opstellen van business cases. ○ De organisatie heeft effectieve en robuuste financiële sturingsmiddelen bij investeringsbeslissingen en de goedkeuring en beheersing van initiatieven. Er bestaat een proactief portfoliomanagement dat gericht is op feiten en cijfers. ○ Financiële sturing van de portfolio is een integraal onderdeel van het financiële sturingsbeleid van de organisatie.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen risico-, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Risicomanagement bekijkt hoe de organisatie omgaat met dreigende gevaren en mogelijkheden. Er wordt een balans gezocht tussen bedreigingen en mogelijkheden om met de juiste managementacties de kans op en gevolgen van het optreden van geïdentificeerde risico's te minimaliseren of uit te sluiten. Er wordt gekeken naar verschillende soorten risicotypes die invloed hebben op het initiatief, zowel intern als extern, waarbij de focus ligt op het opsporen van oorzaken van risico's.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

16.	Ons risicomanagement op projectmanagementniveau wordt het beste omschreven als:
	○ In sommige gevallen wordt risicomanagement in beperkte mate ingezet, maar in deze gevallen is er sprake van een minimaal voordelig effect. ○ Risicomanagement wordt erkend en gebruikte in enkele projecten, maar er bestaat een inconsistente aanpak, toewijding en inzet. ○ Risicomanagement bij projecten is gebaseerd op een centraal gedefinieerd proces volgens het beleid van de organisatie met betrekking tot risicomanagement. ○ Risicomanagement werkt effectief, is geïntegreerd en de waarde van risicomanagement kan worden aangetoond vanuit organisatorisch perspectief. Risicoanalyse maakt deel uit van de besluitvorming. ○ Risicomanagement is geïntegreerd in de cultuur van de organisatie en vormt de basis voor alle besluitvorming met betrekking tot projecten.

17.	Ons risicomanagement op programmamanagementniveau wordt het beste omschreven als:
	○ Er is een miniem bewijs dat risicomanagement wordt gebruikt en een voordeling effect heeft. Het is mogelijk dat risico's in kaart worden gebracht, maar er is een minimaal bewijs van actief management. ○ Risicomanagement wordt gedeeltelijk erkend en gebruikt in sommige programma's, maar er is sprake van een inconsistente aanpak in en tussen programma's hetgeen resulteert in verschillende niveaus van toewijding en effectiviteit. ○ Risicomanagement heeft een helder gedefinieerd en centraal gemanaged proces dat op een consistente manier wordt toegepast in alle programma's. Het raamwerk is gebaseerd op industriestandaarden en wordt ondersteund door een consistent systeem dat wordt gebruikt door alle programma's. ○ Risicomanagement werkt op een effectieve manier en er is sprake van een actief management en vermindering van risico's door middel van geïntegreerd gedrag. Er bestaat opportunity management en management van risicoaggregatie. ○ Risicomanagement is geïntegreerd in de cultuur van de organisatie en vormt de basis voor alle besluitvorming in het programma. Er is sprake van voortdurende verbetering en integratie met strategische sturing.

18.	Ons risicomanagement op portfoliomanagementniveau wordt het beste omschreven als:
	○ In toenemende mate wordt erkend dat risico's gemanaged moeten worden en dat, tenminste voor essentiële organisatie-initiatieven (bijv. kostenbesparing of ontwikkeling van een belangrijk gebied), deze een gevaar kunnen vormen voor succes. ○ Er bestaat in het algemeen een topdown benadering bij het identificeren van risico's waarbij de focus ligt op organisatorische initiatieven, maar sommige initiatieven passen steeds meer een bottom-up benadering toe bij het identificeren van risico's. Echter, deze benaderingen zijn inconsistent, niet bepaald aan elkaar gerelateerd en richten zich vaak niet op het werkelijk managen van risico's. ○ Portfolio risico's worden geïdentificeerd en gekwantificeerd en verzachtende plannen worden ontwikkeld en gefinancierd. Risicomanagement van de portfolio is gebaseerd op een algemeen, centraal gemanaged proces. ○ De organisatorische honger naar risico en de balans tussen risico en benefit van de portfolio wordt voortdurend geevalueerd en gemanaged. Senior managers gaan over risicomanagement van de portfolio en houden toezicht. ○ Het proces van risicomanagement bij de portfolio wordt voortdurend verbeterd op basis van analyse van gegevens uit de organisatie en vergelijkingen met andere organisaties.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen stakeholder-, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Stakeholdermanagement bevat communicatieplanning, de effectieve identificatie en gebruik van verschillende communicatiekanalen en technieken die het mogelijk maken om doelen te bereiken. Stakeholders bestaan op verschillende niveaus, zowel binnen als buiten de organisatie. Stakeholdermanagement dient te worden gezien als een continue proces tussen alle initiatieven dat onlosmakelijk is verbonden met de levenscyclus en de governance sturingsmiddelen van het initiatief.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

19.	Onze aanpak van stakeholdermanagement op projectmanagementniveau wordt het beste omschreven als:
	○ Stakeholdermanagement en communicatie wordt zelden gebruikt bij projecten als een onderdeel van de gereedschapskoffer voor oplevering. ○ Bij sommige projecten wordt effectief gecommuniceerd, maar dit is meer het resultaat van persoonlijk initiatief van programma- en/of projectmanagers dan van een gestructureerde aanpak die is ontwikkeld door de organisatie. ○ Er is een centraal gemanagede en consistente benadering voor stakeholdermanagement en communicatie die bij alle projecten wordt gebruikt. ○ Verfijnde technieken worden gebruikt om de stakeholderomgeving op een effectieve manier te analyseren en kwantitatieve informatie wordt gebruikt als basis voor het beoordelen van de effectiviteit. ○ Communicatie wordt geoptimaliseerd op basis van uitgebreide kennis van de stakeholderomgeving om ervoor te zorgen dat doelstellingen van projecten worden bereikt.

20.	Onze aanpak van stakeholdermanagement op programmamanagementniveau wordt het beste omschreven als:
	○ Stakeholdermanagement en communicatie wordt zelden gebruikt bij programma's als een onderdeel van de gereedschapskoffer voor oplevering. ○ Bij sommige programma's wordt effectief gecommuniceerd, maar dit is meer het resultaat van persoonlijk initiatief van programmamanagers dan van een gestructureerde aanpak die is ontwikkeld door de organisatie. ○ Er is een centraal gemanagede en consistente benadering voor stakeholdermanagement en communicatie die bij alle programma's wordt gebruikt. ○ Verfijnde technieken worden gebruikt om de stakeholderomgeving op een effectieve manier te analyseren en kwantitatieve informatie wordt gebruikt als basis voor het beoordelen van de effectiviteit. ○ Communicatie wordt geoptimaliseerd op basis van uitgebreide kennis van de stakeholderomgeving om ervoor te zorgen dat doelstellingen van programma's worden bereikt.

21.	Onze aanpak van stakeholdermanagement op portfoliomanagementniveau wordt het beste omschreven als:

- ○ Stakeholdermanagement en communicatie wordt zelden gebruikt bij portfolio's als een onderdeel van de gereedschapskoffer voor oplevering.
- ○ Bij sommige portfolio's wordt effectief gecommuniceerd, maar dit is meer het resultaat van persoonlijk initiatief van portfoliomanagers dan van een gestructureerde aanpak die is ontwikkeld door de organisatie.
- ○ Er is een centraal gemanagede en consistente benadering voor stakeholdermanagement en communicatie die bij alle portfolio's wordt gebruikt.
- ○ Verfijnde technieken worden gebruikt om de stakeholderomgeving op een effectieve manier te analyseren en kwantitatieve informatie wordt gebruikt als basis voor het beoordelen van de effectiviteit.
- ○ Communicatie wordt geoptimaliseerd op basis van uitgebreide kennis van de stakeholderomgeving om ervoor te zorgen dat doelstellingen van portfolio's worden bereikt.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen corporate governance, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Corporate governance bekijkt hoe de oplevering van initiatieven is afgestemd met de strategie van de organisatie. Er wordt bekeken hoe opstart- en sluitingsmiddelen worden toegepast bij initiatieven en hoe de afstemming wordt behouden tijdens de levenscyclus van een initiatief. Dit perspectief bekijkt hoe externe factoren die invloed hebben op initiatieven worden beheerst en gebruikt om het eindresultaat te maximaliseren.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

22.	Onze aanpak van corporate governance op projectmanagementniveau wordt het beste omschreven als:

- ○ Governance van projecten bestaat op een informele manier, maar er zijn onduidelijke relaties met bredere organisatorische beheersingsmiddelen. Rollen zijn waarschijnlijk denkbeeldig.
- ○ Projectmanagement vanuit een organisatorisch perspectief begint een gedaante aan te nemen, maar met ad hoc beheersingsmiddelen en een onduidelijke strategische beheersing.
- ○ Strategische beheersingsmiddelen worden op een consistente manier toegepast waarbij besluitvorming structuren bestaan om de oplevering van projecten en de afstemming met de organisatiebehoeften mogelijk te maken en te beheersen.
- ○ Besluitvormingprocessen verbonden met project performance worden overgenomen en geïntegreerd in een algemener organisatorisch performance management, rapportage- en governanceregelingen.
- ○ De governanceregelingen voor projecten zijn een kernaspect van organisatorische beheersing, met aantoonbare rapportagelijnen naar bestuursniveau en met een duidelijk eigendoms- en beheersingsverantwoordelijkheden geïntegreerd in de organisatie.

23.	Onze aanpak van corporate governance op programmamanagementniveau wordt het beste omschreven als:

- ○ Enige informele governance van programma's bestaat, maar er zijn onduidelijke relaties met projecten en/of bredere organisatorische beheersingsmiddelen. Rollen zijn niet formeel gedefinieerd.
- ○ Programmamanagement begint vorm te krijgen, maar met ad hoc beheersingsmiddelen en een onduidelijke strategische beheersing. Rollen en verantwoordelijkheden zijn inconsistent, net als de rapportagelijnen.
- ○ Centraal gedefinieerde organisatorische beheersingsmiddelen worden consistent op programma's toegepast en er bestaan besluitvormingsstructuren die zijn verbonden met corporate governance.
- ○ Er zijn duidelijk afgestemde besluitvormingsprocessen die gebruik maken van algemene corporate governance en die helder zijn voor de betrokkenen. Programmamanagement verantwoordelijkheden zijn geïntegreerd in algemene rolbeschrijvingen.
- ○ Programmamanagement is geïntegreerd op bestuursniveau, er bestaan duidelijk eigendoms- en beheersingsverantwoordelijkheden geïntegreerd in opdracht van een individuele bestuurder.

24.	Onze aanpak van corporate governance op portfoliomanagementniveau wordt het beste omschreven als:

- ○ De organisatie kent enkele inconsistente en informele pogingen om individuele initiatieven af te stemmen met organisatie doelstellingen en er is een ad hoc, inconsistent en ineffectief overzicht van initiatieven.
- ○ Er zijn enkele pogingen gedaan voor erkenning van de portfolio met initiatieven, maar er is weinig overkoepelend leiderschap en sturing van het proces. Initiatieven worden mogelijk geïnitieerd en uitgevoerd zonder volledig rekening te houden met organisatorische doelstellingen en prioriteiten.
- ○ De beginselen van portfoliomanagement zijn voor bijna iedereen duidelijk, worden uitgevoerd volgens een consistente standaard en vormen de basis voor het governance raamwerk.
- ○ Alle initiatieven zijn geïntegreerd in een haalbare en beheersbare portfolio die is afgestemd op de strategische doelstellingen en prioriteiten. De portfolio bevat relevante informatie over initiatieven (bijv. performancematen, kwaliteitsattributen en asset management data) om ondersteuning te bieden bij directiebeslissingen.
- ○ De portfolio wordt gemanaged om ervoor te zorgen dat deze afgestemd blijft om ondersteuning te bieden bij strategische doelen. Het portfoliomanagementproces is geoptimaliseerd om ervoor te zorgen dat het dynamisch genoeg is om in te kunnen springen op wijzigingen in de bedrijfsstrategie en van prioriteiten.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen resource-, project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Resourcemanagement betreft management van alle soorten resources die nodig zijn voor oplevering. Dit zijn mensen, gebouwen, apparatuur, voorraden, informatie, gereedschappen en ondersteunende teams. Een essentieel onderdeel van resourcemanagement is het proces van het verkrijgen van resources en hoe supply chains worden gebruikt om effectief gebruik van resources te maximaliseren. Er is sprake van capaciteitsplanning en prioriteitenstelling om effectief resourcemanagement mogelijk te maken.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

25.	Ons resourcemanagement op projectmanagementniveau wordt het beste omschreven als:

- ○ Er is een beperkte erkenning in de organisatie voor de behoefte om resources effectief te managen en ervoor te zorgen dat projecten succesvol worden opgeleverd.
- ○ Resources worden ingezet in de organisatie, maar er bestaat nauwelijks een consistente aanpak voor resourceacquisitie, -planning of -management ter ondersteuning van projecten.
- ○ De organisatie heeft een centraal gedefinieerde en toegepaste verzameling procedures en managementprocessen voor het managen van resources.
- ○ Resourcemanagement bij projecten gebeurt op strategisch niveau in de organisatie. Er bestaat resourcecapaciteitsmanagement middels capaciteitsplanning om te voldoen aan projectoplevering vereisten.
- ○ Resources worden optimaal ingezet. Er wordt gebruik gemaakt van load balancing en het effectief gebruik van zowel interne als externe resources is in overeenstemming met de resourcestrategie.

26.	Ons resourcemanagement op programmamanagementniveau wordt het beste omschreven als:

- ○ De focus ligt op projectresources die worden ingezet met een minimale focus op programmamanagement resourcebenodigdheden en een beperkte inspanning om een programmabenadering te ontwikkelen.
- ○ Resources worden ingezet in de gehele organisatie, maar er bestaat geen consistente aanpak voor resourceacquisitie, -planning, of -management ter ondersteuning van programma's.
- ○ Er bestaan centraal gemanagede en consistente resourcemanagement processen bij alle programma's.
- ○ Er is een maat voor het gebruik van resources en proactief management om de mogelijkheden te vergroten en te verbreden. Er bestaat een innovatief gebruik van resourcemogelijkheden om de prestaties bij oplevering te optimaliseren.
- ○ Resources worden optimaal ingezet. Er is expertise met het vinden van de balans tussen interne en externe resources en de kennis wordt geïntegreerd in de organisatie op basis van eerdere ervaringen met het inzetten van resources.

27.	Ons resourcemanagement op portfoliomanagementniveau wordt het beste omschreven als:

- ○ Portfolio resource vereisten worden erkend, maar niet systematisch gemanaged. Het toewijzen van resources gebeurt ad hoc en met weinig of geen profilering van resources om te voldoen aan resourcevereisten van specifieke initiatieven.
- ○ De organisatie is begonnen met het opzetten van portfolio resourcemanagement processen en het verbeteren van de identificatie en toewijzing van resources aan specifieke initiatieven. Echter, dit hangt af van sleutelindividuen en de gevolgen van het toewijzen van resources worden niet vergeleken met de strategische doelstellingen en prioriteiten.
- ○ Het portfolio resourcemanagement proces is centraal gedefinieerd binnen de organisatie. Resource vereisten van initiatieven worden beoordeeld om het voor de organisatie mogelijk te maken om zich te richten op de ontwikkelingen van resources en zo te voldoen aan strategische doelstellingen en prioriteiten.
- ○ De organisatie heeft effectieve capaciteit- en mogelijkheidstrategieën en processen opgezet voor het verkrijgen, toewijzen en aanpassen van resourceniveaus (inclusief mensen, financiering, vastgoed en gereedschap) in overeenstemming met medium en lange termijn investeringsplannen.
- ○ Portfoliomanagement is de drijfveer voor planning, ontwikkeling en toewijzing van initiatieven om het effectief gebruik van resources te optimaliseren voor het bereiken van strategische doelstellingen en prioriteiten.

Verder...

- new page -

Bij de onderstaande vragen wordt veelvuldig gebruik gemaakt van de begrippen project-, programma- en portfoliomanagement. Hoewel wellicht ten overvloede worden hieronder de definities gegeven van deze begrippen.

Projectmanagement is een unieke verzameling van gecoördineerde activiteiten, met een vast begin- en eindpunt, uitgevoerd door een individu of team met als doel te voldoen aan specifieke doelstellingen binnen vastgestelde tijd-, kosten- en prestatieparameters die gespecificeerd zijn in de business case.

Programmamanagement is de gecoördineerde organisatie, sturing en implementatie van een verzameling projecten en activiteiten die gezamenlijk tot resultaten leiden die van strategisch belang zijn.

Portfoliomanagement is de gecoördineerde verzameling van strategische processen en besluiten die zorgt draagt voor een goede balans tussen organisatorische veranderingen en operationele processen.

28.	Onze aanpak op projectmanagementniveau wordt het beste omschreven als:

- ○ Projecten worden erkend en anders uitgevoerd dan de overige bedrijfsactiviteiten (Projecten kunnen informeel worden uitgevoerd zonder dat er sprake hoeft te zijn van standaardprocessen of een voortgangssysteem).
- ○ Elk project kent zijn eigen processen en procedures op basis van een minimaal gespecificeerde standaard. (Er kan een beperkte consistentie of coördinatie zijn tussen projecten).
- ○ Er zijn centraal gestuurde projectprocessen waarbij individuele projecten kunnen worden aangepast aan deze processen in overeenstemming met het specifieke project.
- ○ Er is sprake van het verwerven en handhaven van specifieke meetmethoden voor projectmanagementprestaties en het uitvoeren van een kwaliteitsmanagement organisatie om toekomstige prestaties beter te kunnen voorspellen en sturen.
- ○ Er is sprake van continue procesverbetering met een proactief probleem- en technologiemanagement voor projecten om de mogelijkheid te hebben om de prestaties weer te geven en de processen te optimaliseren.

29.	Onze aanpak op programmamanagementniveau wordt het beste omschreven als:

- ○ Programma's worden erkend en anders uitgevoerd dan projecten. (Programma's kunnen informeel worden uitgevoerd zonder dat er sprake hoeft te zijn van standaardprocessen of een voortgangssysteem).
- ○ Elk programma kent zijn eigen processen en procedures op basis van een minimaal gespecificeerde standaard. (Er kan een beperkte consistentie of coördinatie zijn tussen programma's).
- ○ Er zijn centraal gestuurde programmaprocessen waarbij individuele programma's kunnen worden aangepast aan deze processen in overeenstemming met het specifieke programma.
- ○ Er is sprake van het verwerven en handhaven van specifieke meetmethoden voor programmamanagementprestaties en het uitvoeren van een kwaliteitsmanagement organisatie om toekomstige prestaties beter te kunnen voorspellen en sturen.
- ○ Er is sprake van continue procesverbetering met een proactief probleem- en technologiemanagement voor programma's om de mogelijkheid te hebben om de prestaties weer te geven en de processen te optimaliseren.

30.	Onze aanpak op portfoliomanagementniveau wordt het beste omschreven als:

- ○ De directie erkend programma's en projecten en houdt een informele lijst van investeringen in programma's en projecten bij zonder een formeel voortgangsmechanisme en gedocumenteerd proces.
- ○ Zorgt ervoor dat elk programma en/of project in haar portfolio wordt uitgevoerd met zijn eigen processen en procedures volgens een minimaal gespecificeerde standaard. (Er is mogelijk een beperkte consistentie of coördinatie).
- ○ Kent zijn eigen portfoliomanagement proces en centraal gestuurde programma- en projectprocessen waarbij individuele programma's en projecten kunnen worden aangepast aan deze processen in overeenstemming met de specifieke programma's en/of projecten.
- ○ Er is sprake van het verwerven en handhaven van specifieke meetmethoden voor de gehele portfolio van programma's en projecten om toekomstige prestaties te kunnen voorspellen. De organisatie beoordeelt haar capaciteit om programma's en projecten te managen en de prioriteiten ervan te bepalen.
- ○ Er is sprake van continue procesverbetering met een proactief probleem- en technologiemanagement voor de portfolio om de mogelijkheid te hebben om de prestaties weer te geven en de processen te optimaliseren.

31.	Onze organisatie wordt het beste omschreven als:

- ○ Processen zijn meestal niet gedocumenteerd en er bestaan geen of nauwelijks procesbeschrijvingen. Succesvolle initiatieven zijn vaak gebaseerd op competenties van belangrijke individuen in plaats van organisatiebrede kennis en competenties. De organisatie is niet in staat om successen uit het verleden op een consistente manier te herhalen. Processen zijn onderontwikkeld of incompleet.
- ○ De organisatie kan aantonen dat eenvoudige managementactiviteiten zijn opgezet en dat processen zich ontwikkelen. Er zijn belangrijke individuen die de juiste training hebben gehad en de organisatie is in staat successen uit het verleden te herhalen in de toekomst. Initiatieven worden volgens gedocumenteerde plannen uitgevoerd en gemanaged. De organisatie heeft nog steeds inadequate methoden voor het meten van succes.
- ○ Management- en technische processen zijn in een bepaalde mate gedocumenteerd, gestandaardiseerd en geïntegreerd met andere bedrijfsprocessen. Er is verantwoordelijkheid voor het behoud van consistentie en het doorvoeren van procesverbeteringen in de organisatie. Er bestaat mogelijk een opgezet trainingsprogramma om de vaardigheden en kennis van individuen te verbeteren.
- ○ De organisatie is volwassen en heeft gedefinieerde processen die kwantitatief gemanaged en gestuurd worden door gebruik te maken van meetmethoden en kwantitatieve technieken. Met behulp van meetmethoden kan men managementprocessen op een effectieve manier sturen en bepalen hoe deze aangepast en gewijzigd moeten worden aan specifieke initiatieven zonder kwaliteitsverlies.
- ○ De organisatie is gefocust op optimalisatie van kwantitatief gemanagede processen zodat er rekening kan worden gehouden met veranderende businessbehoeften en externe factoren. Continue procesverbetering wordt mogelijk gemaakt door kwantitatieve terugkoppeling van geïntegreerde processen. Er is een duidelijke afstemming van organisatiedoelen met bedrijfsplannen.

Verder...

- new page -

Het formaliseren van de projectorganisatie kan worden omschreven als "het verbeteren van processen op een gestructureerde manier." Bottlenecks kunnen worden onderverdeeld in de categorieën **mensen**, **processen** en **systemen**. Geef voor elke categorie aan wat de knelpunten zijn bij het verbeteren van de projectorganisatie in uw bedrijf.

32.	Wat beschouwt u als de belangrijkste bottlenecks (maximaal 2) bij het formaliseren van de projectorganisatie betreft **mensen?**
	☐ Gebrek aan management commitment ☐ Lastig om mensen op één lijn te krijgen ☐ Gebrek aan motivatie medewerkers ☐ Geen persoonlijke wins ☐ Anders, namelijk:

33.	Wat beschouwt u als de belangrijkste bottlenecks (maximaal 2) bij het formaliseren van de projectorganisatie betreft **processen**?
	☐ Processen sluiten niet aan bij praktijk ☐ Processen zorgen voor rompslomp en tijdverlies ☐ Geen standaardisatie ☐ Gebrek aan uniformiteit ☐ Anders, namelijk:

34.	Wat beschouwt u als de belangrijkste bottlenecks (maximaal 2) bij het formaliseren van de projectorganisatie betreft **systemen**?
	☐ Software geeft meer last dan ondersteuning ☐ Geen goede aansluiting tussen software en processen ☐ Integratie met andere systemen ☐ Systemen zijn te duur en hebben slechte return on investment (ROI) ☐ Anders, namelijk:

35.	Aan de hand van de door u ingevulde antwoorden kunnen wij een indicatie geven van het volwassenheidsniveau van uw projectorganisatie. Wilt u een indicatie van dit volwassenheidsniveau ontvangen per e-mail?
	○ Nee ○ Ja, mijn e-mailadres is:

36.	Wilt u een overzicht van de belangrijkste resultaten van deze enquête ontvangen per e-mail?
	○ Nee ○ Ja, mijn e-mailadres is:

Graag zou ik u willen vragen de enquêtelink http://www.thesistools.com/?qid=58010&ln=ned door te sturen naar relaties in uw kennissenkring (bijv. familie, vrienden, collega's) op wie dit onderzoek betrekking heeft om zo de betrouwbaarheid van het onderzoek te verhogen. Alvast bedankt!

Versturen!

- new page -

Dit is het einde van de enquête. Bedankt voor uw deelname!

René ter Haar
MSc student Industrial Engineering and Management
Vakgroep Information Systems and Change Management
Universiteit Twente

Appendix D – Interview guide v1

Research Question: What are the main bottlenecks in formalizing, i.e. improving in a structured way, the project organization?

Scope: Questions can be answered on the process level (e.g. project, program and/or portfolio level) that is applicable to your specific situation.

1. How would you define your project organization?

   Probe: To what extent projects, programs and the project portfolio can be distinguished in your organization?

2. Do you think project managers receive sufficient support in doing their project tasks?

   Probe: YES - in what way?
   Probe: NO – what has to be improved?

3. Is historical knowledge – successes and failures – from past-projects used again in executing new projects?

   Probe: YES – can you describe in what way this is happening?

4. Does an organizational structure exist which coordinate and support project manager in their project activities?

   Probe: *YES –* *What coordination and support is exactly provided?*
   NO – *Do you think this is needed?*
   What support characteristics do you think are needed?

5. In what way do you think the effectiveness of project management can be increasingly improved?

6. What do you consider as the three main changes that are required to realize a dramatically improvement in project management practice in your organization?

7. What would you improve in the short term?

8. What would you improve in the long term?

9. What human factors may hinder formalization of the project organization?

10. What process factors may hinder formalization of the project organization?

11. What system and software factors may hinder formalization of the project organization?

Other optional topics:
- training and certification (for improving personal skills and competencies)
- consulting and mentoring
- development and use of standards
- support with project staffing
- administrative support to lower project burdens

- post-project evaluation
- policy and documentation for establishment of PMO

This is the end of the interview. Thanks for your participation.

Appendix E – Interview guide v2

Interview guide Company X

Mr./Mrs. E. Smith, function Y, interview date

1. Introduction (about 5 minutes)

- Background interviewer
  - René ter Haar (26), student at the University of Twente
  - MSc student Industrial Engineering and Management, track IT and Management
  - BSc Business and IT (completed)
- Research description
  - What is the maturity of project, program, and portfolio management processes in large organizations and what are the bottlenecks in formalizing the project organization?
- Interview goals
  - Coming to a description of points for improvement for the project organization at Company X.
    - Mapping portfolio management activities
    - Mapping portfolio management process control
    - Mapping (process related) bottlenecks in formalizing the project organization
    - Mapping points for improvement

2. Description portfolio management (about 30 minutes)

1. Could you describe your job activities at Company X?
2. Could you give a description of some distinct projects at Company X?
3. Could you describe the means (e.g. principles, methods, tools, etc.) that are used to support project (portfolio) management?
4. What important matters would you bring to my attention if I were starting as a new project management employee at Company X?
5. What would you define the concept portfolio management?
6. To what extent is portfolio management applied in Company X?
7. What would you define as a project organization?
8. How would you describe the project organization at Company X?

3. Description of improvements (about 20 minutes)

9. To what degree project managers receive (management) support in performing their project activities?

10. Do you think there are currently any bottlenecks in Company X's project management?
    - Yes – What would you define as being the bottlenecks?
    - No – Can you explain why the project management performance is excellent?

11. What do you consider as most important bottlenecks based on the following categories:
    a) Human?
    b) Processes?
    c) Systems and software?

Scenario: Suppose dramatic changes are required to improve Company X's project organization.

12. What do you consider as the top 3 priorities in drastically improving the functioning of the project management at Company X?

13. What would you improve on the short term?

14. What would you improve on the long term?

Other issues:
- knowledge exchange in the project organization
- procedures of employees and willingness to knowledge sharing with colleagues
- use of uniform procedures
- controlling operating procedures of project activities
- role of written descriptions of project processes and procedures
- controlling risks and opportunities
- use of a good project preparation
- economizing on the number of project members in the project team
- measurability and responsibilities of project related processes
- role of technology and software in project management

This is the end of the interview. Do you have any questions or comments?

Thanks for your cooperation!

4. Ending (about 5 minutes)

- Making appointments about successive steps
- Requesting for taking part in the survey about maturity of project, program, and portfolio processes which can be found at the URL: http://www.thesistools.com/?qid=58010&ln=ned