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# Creating a unified project management methodology for BI and PM projects

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## Management Summary

For a bullet-listed management summary see the [appendix](#).

Ordina VisionWorks is a company that consists of multiple merged companies together. Project managers from these companies all have their own ways of managing projects. The projects that they manage are somewhat similar. They are all BI or CPM projects. Within the company there is a need for a unified way of managing projects. The assignment leading up to this research and also the topic of the research is therefore: 'creating a project management methodology' and how to create such a methodology.

### Exploratory research questions

In order to do this research first exploratory research questions were developed. The questions that were asked in this research were questions about what the *current* situation regarding project management is, how project management should be done in the *future*, and how a methodology can be designed and *implemented* to facilitate the management of future projects. On the basis of these questions a scenario for doing the research and thus creating a project management methodology was drawn up.

### Scenario for the research

The scenario used to do this research was first to *take apart* the different project *management methodologies* that are used by project managers of different business units of Ordina VisionWorks. This was done by defining management components. Management components are defined as specific management areas used to manage projects. Such areas are for example risk management, team management and communication. Current project management practices are then listed per management component. These practices are later used as 'ingredients for the new methodology' Next the thoughts behind the different methodologies and when no methodology was used, the project management practices, were identified. *These are later combined* to form the framework for the new methodology. Aside from the methodology used, different types of projects also have an influence on the way projects are managed. These influences of projects on project management were researched. Finally other inputs for a new methodology such as corporate strategy, project management culture and the systems development methodologies used are identified and listed.

When all the ingredients for a project management methodology were present, a new methodology was created, by framing the project management components in a framework of the thoughts behind project management in general, the policies about project management and the high level project management processes that could be identified. The components were put back together in this framework and were then expanded upon to form a detailed description of how projects are managed.

### Structure of the new methodology

The new methodology that is developed consists of a model, project management processes and project management components. *The model* is meant to resemble a bookcase. The bookcase is a synonym for the underlying thoughts of project management. The bookcase is used to frame books, or in this case the project management components. *The processes* that were defined for the methodology –resembled by the shelves of the bookcase – are used to provide an insight in project management and the structure of the methodology. *The components* are the specific ways of dealing with the different parts of project management. For every component corresponding management templates are defined. These templates are document which are used by project managers to manage projects. Such documents are for instance a PID, a project planning or an exception report. *The project dimensions* that influence the management as well as tips and tricks from project managers are defined for every component. For an oversight and summary of the methodology see: [The Quickstart](#).

The new methodology might be somewhat extensive but it is by no means finished. The methodology is modular in its structure because of the components that are defined. The methodology can be *updated and improved* upon modularly as well. This can for multiple reasons best be done by project managers.

### Problems solved?

The problems that were defined at the beginning of this research are partly solved. *Administrative issues* that project managers had are not solved by the new methodology. They can however be worked around or be taken as a given for the management of projects. *Efficiency* improvements are mainly to be expected at the start of projects, because project managers do not need to think about how they are going to handle a project. *Communication issues* are partly solved. Because of the common language a project management methodology provides, unison amongst project managers can be achieved. Communication with clients in projects is addressed by this research, as a part of the methodology.



## **Preface**

Now for the story leading up to the writing of this document. In a time long ago, in a country far away, there lived a prince. 1505 and Italy to be exact and the prince really was a prince, not someone dreamed up by some government to make projects run more smoothly, but Machiavelli. Just as in current days principalities – which we now call organizations – were conquered, they fought back and still they were overcome. This research in fact is part of trying to deal with the government of different conquered principalities. It is a part of a unifying movement within Ordina VisionWorks to govern the operations of acquired companies and to merge these companies into one larger smoothly running company. Back then they would have called that a kingdom. Machiavelli knew a lot about conquering principalities. Here's his advice on how to deal with the formerly independent ones.

Concerning the Way to Govern Cities or Principalities Which Lived Under Their Own Laws Before They Were Annexed

**W**HENEVER those states which have been acquired as stated have been accustomed to live under their own laws and in freedom, there are three courses for those who wish to hold them: the first is to ruin them, the next is to reside there in person, the third is to permit them to live under their own laws, drawing a tribute, and establishing within it an oligarchy which will keep it friendly to you. Because such a government, being created by the prince, knows that it cannot stand without his friendship and interest, and does its utmost to support him; and therefore he who would keep a city accustomed to freedom will hold it more easily by the means of its own citizens than in any other way.

Herein lays a paradox. On one hand to merge companies successful and to reap the benefits from having merged the companies, they have to be unified and work as one. On the other hand however, companies that were formerly independent are managed with more ease when they are left free and undisturbed in going about their business the best way they know how. The solution to the paradox is in the paradox itself. If one can't unite companies and if one can only let them perform their work the best way they know how, the only thing to do is introducing better ways of knowing how to operate. A fortunate coincidence would be if those ways were the ways of the companies they are merged with.

This is the philosophy behind this research. The project management methodology that is introduced in this research is a means of introducing project managers from all the former companies to the best project management practices to be found in all the different companies. Thus a start is made with changing the project managers' best way they know how into a unified (and necessarily better) way of knowing how.

# Inhaal oefening

We zijn genoeg vernederd en bespot  
Door halfgeleerden met hun boekenwijsheid  
En met hun regelrechte lijn naar God,  
Terwijl ze *ons* verwezen naar de ijstijd.

Wij zijn genoeg voor achterlijk versleten.  
Kom, vriend, de revolutie start vandaag.  
We zijn met attributen ruim bemeten.  
Dood Galilei met een motorzaag.

Trakteer Voltaire op elektroshocks,  
Erasmus op een overdosis speed.  
Maak Bacon, Nietzsche, Swift weer orthodox

Met laser, centrifuge, turboprop,  
En wat de Heer betreft: kruisig hem niet,  
Maar plak een gele sticker op zijn kop.

- Gerrit Komrij





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# Chapter 1: Introduction



# 1 Introduction

## 1.1 An overview

In the next chapter, chapter 2, an introduction to *the problem* that this research is meant to solve will be made. The current situation regarding the problem area at the company – Ordina VisionWorks – will be described. The goals that this research intends to reach are then described and explained. Finally the formal problem statement will be stated and exploratory questions are drawn up to analyze the problem in greater detail.

In chapter 3 first the structure of the research will be explained. This research was done in the form of a project. Why and how this is done is described in the beginning of chapter 3. Then an introduction to the problem area, creating a project management methodology, will be provided. Chapter 3 provides a theoretical *scenario for solving the problem*. This scenario is coupled to the exploratory questions drawn up in chapter 2.

The first outcomes of the research are described in chapter 4. *How project management is currently done* at VisionWorks is described. This is done by first describing all the methodologies that are used amongst the project managers. Then the elements of these methodologies that are used in practice are described in more detail. The chapter ends with a table that provides an overview of all the elements.

Although chapter 5 also describes important outcomes of the research, it is more theoretical in its nature. *The project's dimensions*, such as scope, technology, culture etc, that can influence the management of a project are described and analyzed. A model is made for how dimensions influence projects. This is one of the building blocks for the new project management methodology. Chapter 5 ends with more of those *building blocks*, such as the management's strategies and current project management culture.

In chapter 6 *the new unified project management methodology* that is designed on the basis of the preceding research is described. This chapter is written in such a way that it can be taken out of this research and with little modification can be used as a manual. In its current form however it is an integral part of the research.

*The implementation* of the methodology is described in chapter 7. Guidelines and suggestions for how this methodology can be implemented are provided. The chapter ends with a theoretical validation of the research and a theoretical validation of the new methodology.

## 1.2 Guides for the reader:

This research paper is intended for different groups of readers. Because of the document's volume for every paragraph *the intended audience* is listed. Paragraphs that are of general interest are listed with a  Paragraphs that are academic in nature are listed with a  Paragraphs that are of importance to the project managers of Ordina VisionWorks are listed with a  This guide is merely a help for when one wants to speed read the research and get a quick overview of the results. Please note that some context may be lost when one does not read everything.

Another guide to the reader are the *scenario pictures*. The scenario as depicted in [figure 2](#) is used to let the reader know what part of the problem is being solved. The scenario will be displayed alongside the text, with red circles around the part of the picture that is dealt with by the corresponding text.

*Hyperlinks* are used in this document to link to external documentation that can also be found in the appendix. They are also used to link to figures and texts in the document itself. A hyperlink is underlined.

Finally next to every section or paragraph *keywords* will be displayed, summarizing the contents of the paragraph or section. Some keywords will be marked with red squares. These are the significant keywords. The unmarked keywords are an expansion of the marked ones, or are less significant.



# Chapter 2: Creating a Unified Project Management Methodology





## 2 Creating a unified project management methodology

### 2.1 Introduction

Ordina is an Information Technology consultancy company. The company has taken over dozens of IT-consultancy companies over the past ten years. Four of these former companies were mostly concerned with two specific areas in IT consultancy: Business Intelligence and Performance Management. Ordina VisionWorks (VW) is a subdivision of Ordina. It is formed out of these four companies. The former companies still exist in some shape or form in the new Ordina VW. They are currently divided into the units: finance, public, TTI – technical automation and Oasis (red, green, yellow and blue). They still serve mostly their own groups of customers and they still do mostly the same projects as they used to do. The way those groups within Ordina VW handle and manage their projects is also mostly the same as it was in the former companies. Within Ordina VW there are however several task forces at work to create one “VisionWorks” way of doing things. At the time of writing this document, there is already an almost finished document on how information systems design is and should be carried out by the consultants of Ordina VisionWorks. This movement of unifying work methods doesn’t only cover information systems design. The way projects are managed, by Ordina VW, is also a part of this movement and more specifically is the main subject of this document.

This research is aimed at seeing how a unified way of managing the projects that Ordina VisionWorks does for its customers can be conceived, if indeed one should be conceived. First a clearer picture of the current situation at the company is described. This includes a short history of how the company came to exist in its present form and how this affects the domain of this research, namely project management and how it affects the most important people in this domain: the project managers.

To get a better idea of the domain, or topical scope, project management and projects will be described briefly. Ordina VisionWorks does multiple types of projects for its customers. The aim of this research therefore is to include project typology in the defining of project management methods as well. Next a summation of the problems involved and of the goals of this research will be given. This will explore the “what, why and how” [14] of this research. Finally, this chapter will describe how these goals could be met. A scenario and then a framework for solving the main problems will then be described.

### 2.2 Exploration of the problem’s domain

As previously stated, Ordina VisionWorks is a grouping of four different companies. These companies used to work on more or less the same kind of projects. They were all IT-consultancy companies and they all used to work on Business Intelligence or Performance Management projects.

#### 2.2.1 BI and PM

Business Intelligence (BI) can be described in several ways. A scientific description of BI is: “[BI] is a strategic approach for systematically targeting, tracking, communicating and transforming relevant weak signs into actionable information on which strategic decision-making is based.” [29]

And from a more commercial point of view: “Business intelligence (BI) takes the volume of data your organization collects and stores, and turns it into meaningful information that people can use in their day-to-day activities. With information in accessible reports and analysis, you can make better and timelier business decisions. You have the means to understand the “Why” behind your business performance.” [Cognos.com, 2004]

Performance Management, from an IT-consultants view, operates in the same domain, only on a different level. Performance Management looks at the processes within a company and tries to increase the company’s performance by analyzing and improving its processes. There are multiple definitions of Performance Management, two of them are: “performance management refers to management control, by means of outsourcing, business process re-engineering and value chain management.” [36] And: “Performance Management is an integral business governance concept, which enforces the link between



Definition of BI

Definition of PM

making strategy and controlling strategy” [Ordina.nl, 2004] One of the most important tools in Performance Management is the “Balanced Scorecard” [21] This scorecard measures a company’s performance by looking at it from an internal, a customer, an innovative and a financial perspective. Over the last decade the emphasis of measuring performance has shifted towards measuring performance on the basis of critical success factors and prioritizing of strategic initiatives. These measures are displayed in so called “Strategy Maps” [22]

## 2.2.2 Mergers and acquisitions

Ordina VisionWorks is the result of mergers and acquisitions. The movement of trying to unify practices within and of the company must also be seen in this light.



Why mergers

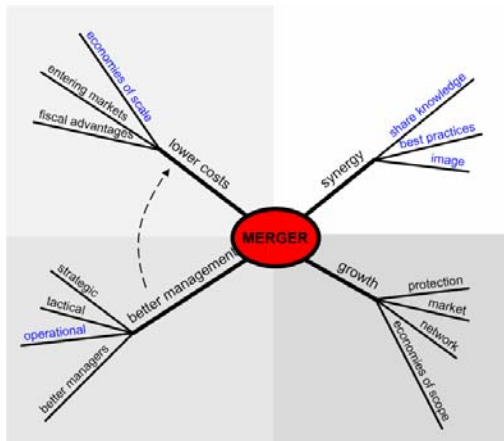


Figure 1: mind map of mergers

The goal of mergers and acquisitions is usually to gain some sort business advantage. [11] These advantages can be divided into several groups. The first group consists of management advantages. Usually the company taking over another company believes they can manage the company better and therefore make it more profitable. [9] Another reason for a company to take over another company is growth. By growing, a company can expand its commercial markets, gain access to a larger network [19] and defend itself from being taken over by another company. Mostly financial reasons for mergers and acquisitions are economies of scale, lower entrance barriers and administrative advantages [3]. The most important group of reasons, for this research at least, consists of synergetic reasons. This means gaining access to knowledge of the companies that are taken over, using

best or better practices from these companies and also gaining an improvement in image, mainly with the customers [11]

Some of these advantages should also be attained by Ordina VisionWorks. The management of Ordina will undoubtedly have had these advantages in mind when taking over or merging these companies. Through conversations and interviews with project managers and administrative staff it became clear that the personnel of Ordina VisionWorks also feels the need to make the most of their newly found advantages. Those are the advantages displayed in the white square (top-right) of the figure shown above. These synergetic advantages are the ones that will be addressed by this research.

## 2.2.3 Need for change

Customer contact

Within Ordina VisionWorks there is a need to have one specific way of doing things. Project managers discovered that in their communication with customers things went wrong. Their customers were often approached by different people of the company for the same things. They found this resulted in a bad image of the company with their customers.

Administrative issues

The administrative aspect of project management, more specifically the way customers are billed and the way these billings are done internally, was recently reviewed by the project bureau of Ordina. They are currently enforcing one way of billing the hours consultants make on projects. Within Ordina VisionWorks the same need to have an integral or at least more efficient administration is felt. This does not necessarily have to coincide with the way Ordina does it, as long as it happens in a unified fashion, so that it saves the project managers time and Ordina VisionWorks money.

An insight in pm

For the first time project managers also have an insight in what their former competition is doing. They can now openly communicate with project managers from the other formerly separate companies. They see their ways of working are different and because of this they are naturally curious as to whether other’s ways of doing things might be better.

Because everyone is part of the same company now, they should have the same company culture, or shared values and assumptions. [8][17] People generally tend to communicate better when they are talking about the same things, in the same way and see things in the same light. Because Ordina VisionWorks was only recently formed, a new culture is still emerging. An integral or unified way of managing projects might contribute to this and should take this into account, when determining how things can best be done. One of the reasons this new methodology might contribute to the forming of a new culture is because project managers today use their methodologies based on what they think is good and not based on what the company norms are. The use of current methodologies is based on the project manager's experience with what they came in touch with during their careers. For Ordina VisionWorks to set a norm, would be helping to guide project managers in managing their projects.

## 2.2.4 Topical scope

The domain of this research is project management. To get a clearer picture of what project management is, it might be best to first get an idea of what a project is. According to a project management tutorial by Jurison "A project is a temporary assemblage of resources to solve a one-of-a-kind problem." [20], or according to a Prince 2 project management manual, which is rather famous within Ordina, [34]: "A project is a temporary organization form, which is necessary to make a unique and predefined product, or to attain certain results on a predefined point in time, using predefined means"

### Defining projects

To get a better feel for what a project is, it might be useful to consider some famous projects. Construction of a pyramid, or an airport in the sea, are projects. Building spreadsheets to convert old European currency into the Euro were projects as well. They were carried out in many European companies during the introduction of the Euro. Projects are very diverse. They do however have some characteristics in common. The tutorial goes on to describe some of the characteristics of projects:

- Projects have specific objectives.
- Projects must be completed within a specific time period. They have defined beginnings and ends.
- Projects must be completed within a given budget.
- Projects are carried out by teams.
- Projects are unique. All projects are essentially one-of-a-kind, nonrecurring undertakings.

Two examples of more or less common types of projects that Ordina VisionWorks does can be found in the [appendix](#).

### Defining project management

We now have an idea of what a project is. We also know what management is. Management is the allocation of resources towards reaching a specific goal. [8] Now for project management. The Prince 2 project management method defines the management aspects of a project as "organization, planning and control." [6] Kerzner defines project management as "the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives." [24] The purpose of project management [20] is to provide focus for using the resources to achieve a specific objective. In short, the fundamental objective of project management is to "get the job done," to reach the objectives within: *time, cost, and performance*.

The legitimacy of project management is often stated as the prevention of project failure. To get a complete picture, some reasons for why projects fail, and thereby areas of concern for project management, are also given here. The first and most important one: uncertainty as to whom actually is the contractor of the project and as to whom the stakeholders are. Other reasons include: bad planning of resources, results and milestones. [34]

A figure of a "mind map" of project management is displayed on the final page of this document. This figure was draw up by the author to give the author some idea of the topical scope. It could perhaps also serve the same purpose for the reader.

### 2.3 The research goals (What)

The goal of this research is threefold. This is because there is more than one stakeholder in this research. The stakeholder approach will be getting more attention later in this research. The relationship of the stakeholders and the measures of success of a project will prove to be an important one. [42] Therefore, when defining goals for this research, it is important that the stakeholders will be taken into account since they each have separate goals and so they will each have different measures for the success of this research.

The first stakeholders in this research are *the project managers*. They are the group within the contracting firm, Ordina VisionWorks, who are to benefit most from the research. Their goals are more or less a fulfillment of their needs, as described in the previous paragraphs. In short their goals are: (1) learning about project management practices of their colleagues from the formerly other companies, (2) having a project management approach that fits specific projects, (3) having some form of unity in managing projects, or doing it the same way their colleagues would in similar projects. Other stakeholders include the faculty staff of the faculty at which this research is conducted and the author of this research.

### 2.4 The research problem (why)

In this paragraph the problem statement of this research will be given. On one hand this will be done to focus the research and to keep the topic of this research in focus, as the research goes along. On the other hand it might also provide a useful insight for the stakeholders in this research. It is also meant to provide the stakeholders with a basis for judging the results of the research, as well as with the means for the stakeholders to judge the validity and legitimacy of this research. [32]

To get a clearer idea of what the problem is exactly and who is the owner of this problem, several structured conversations with personnel of Ordina VisionWorks were held. This includes staff, management and consultants. The main contractor of this project as it were, is the management of Ordina VisionWorks. After three structured conversations with separate business unit managers, it became clear that they are the drivers of the unifying movement that was described previously. The main subjects of this movement are in the case of unifying project management approaches, the project managers. They are the ones that have the problems because of which this movement was initiated.

Next, several interviews and conversations with project managers were held. The issues they came up with were structured in the context of the organization, as it is this day. Much of this has already been discussed and illustrated in the previous paragraphs. What follows here are their main problems, which the research will address.

- 1) Unstructured communication with customers gives Ordina a bad image.
- 2) Project managers don't know about their colleague's best practices.
- 3) Project managers don't know whether there are better practices for managing their projects.
- 4) The administrative organization supporting their projects is not clear.
- 5) Project managers operate from different mindsets and ideas. There is no Ordina VisionWorks culture or way of doing things.

These sub-problems lead to the following problem statement:

*Project managers at Ordina VisionWorks all manage their projects differently. This causes image, communication, efficiency and administrative issues. The research problem is how to create a unified project management methodology at Ordina VisionWorks in order to solve these issues.*

#### 2.4.1 Exploratory questions (how)

The problems will be explored by forming multiple exploratory questions. Answering these will in the end lead to solving the problems and attaining the goals of this research. Before posing the definitive research questions, first the thought process behind drawing up these questions is illustrated by the following text.

Brainstorming on the problem

The first issue is how to paint a picture of the current situation. Underlying this question is the question of what type of picture should be painted in the first place. One could examine all the different methods used by project managers in practice. One could also start by making an inventory of what project managers want to do in practice. In this case a choice has been made for a combination of these two types of pictures. The first question is: “What kind of project management methods are being used in practice?” And the second question will be: “Which of these methods would project managers want to use in practice?” The next question that arises is: “how can these methods best be described?” and “What are the characteristics of a project management method?” and “How is this method actually used in practice?” Or when there isn’t a specific method behind the project management: “What are the practices used in managing projects and what is the project manager’s underlying idea to using certain practices” To complete the whole picture, it might be necessary to involve different types of projects. If projects differ from one another, how to successfully complete them will also differ [37|20]. A question that could be asked here is: “Are different projects managed differently?” And if so: “How can we define and classify a project to say it’s different from another project?”

Current project management

Successful project management

With these questions, a new and important problem arises. When different types of projects are managed differently, there will undoubtedly be a good approach and a bad approach for managing these projects. [44|27] The question this problem invokes is “What would be a successful method for managing a specific project; is there a specific method that fits each specific type of project?”

Once we know what the picture we are painting should look like, we can start painting. How we paint this picture is described by the next question: “How can we define projects in such a way that we can find or design and then adapt the most successful management method to fit these specific types of projects?” What should be kept in mind here is that the method that will be used represents the idea of how to manage projects. The outlines of the picture as it were. The question: “What types of tools, management style, or other components related to a project management method, should a project manager use to fit specific projects?” is what the actual result is in practice, or the coloring of the picture in this metaphor.

Future project management

Implementation

Another important point in solving the manager’s problems is how this picture is presented to the organization. Only an analysis and a new design of a project management methodology will not be sufficient to solve the problems the managers have. “How is this model implemented?” and “how will the analysis of project management methods be communicated to the organization?” are equally important questions. Once a methodology is conceived it needs to be evaluated in order to see whether it actually solves the research problem and meets its requirements. The analogy here is determining whether the right picture is painted or if not another picture should have been painted.

Summarizing these questions, the following research questions were drawn up:



- *What kind of project management methods are **currently** used in practice?*
  - *How are methodologies actually used in practice?*
  - *What are the project managers’ underlying ideas to using certain practices?*
  - *How can these methodologies be evaluated or compared?*
- *What would be a successful methodology for managing **future** projects?*
  - *How can types of projects be defined?*
  - *Are there specific methods that fit a specific type of project?*
  - *What types of tools, management style, or other components related to a project management method, should a project manager use to fit specific projects?*
- *How is this new methodology **implemented**?*
  - *How does the methodology encompass the Ordina VisionWorks culture?*
  - *Does the methodology incorporate the strategy of the management of OVW?*
  - *Will this new methodology work in the practice of day to day management?*
  - *How can the methodology effectively be communicated to the organization?*
  - *Does the methodology solve the problems and does it meet its requirements?*

## 2.4.2 The requirements

The requirements for this research follow directly from the research goals and the problem statement. The requirements that are drawn up here are the requirements for a new project management methodology, since creating such a methodology is one of the main goals this research tries to achieve. The main requirement for this research is the creation of such a methodology, or at least that trying to create such a methodology is done in an academic manner. Requirements for creating a project management model were drawn up by professor Stuckenbruck in 1987 for the Project Management Body Of Knowledge [49] Some of his requirements could also be used for designing a project management methodology at Ordina VisionWorks. These requirements applicable to this research are:

1. Break up the body of knowledge into logical and understandable categories or divisions
2. Take into account the complexities of project management and the integrating nature of the project manager's job and of his or her supporting team
3. Provide a breakdown of the project management body of knowledge that can readily be utilized for storage and retrieval of all elements of project management, i.e. functions, processes, activities, tools and techniques
4. Be sufficiently simple and understandable to be useful (i.e. saleable) to present and potential project management practitioners
5. Be consistent with the course content of project management educational programs (or in this case project management literature)

These requirements can be used in defining requirements for the methodology created by this research. The requirements that were drawn up for this particular project management methodology are:

1. *The project managers must be able to work with the new methodology*
  - The methodology has to be simple
  - The methodology has to provide little administrative overhead
    - *The methodology must be transparent*
2. *The methodology must be applicable to every project*
  - The methodology has to be scalable to every project
3. *Project managers have to want to work with the new methodology*
  - The pm's must be involved in creating this methodology
  - Project managers have to be able to see the added value
  - The methodology has to be implemented
4. *Besides guidelines, the methodology must provide tools to work with*
  - The methodology must contain good templates
  - These templates must have a logical structure
5. *The methodology must be better than current project management practices*
6. *The methodology must be compatible with the current administration and templates*
7. *The methodology must have the support of the management*

## 2.5 The research design

In this paragraph the type of research the problem and goals presented are explored in more detail. This will be done by using Cooper and Schindler's framework [7]. This will also form an introduction to the next few paragraphs, which will explain in detail how the main problem will be researched and by what scenario it can be solved.

- Research design:
- Exploratory
  - Descriptive
  - Cross sectional
  - Case studies
  - Primary sources

The first perspective is exploratory versus formal research. This research is exploratory. This means that it is not clear as of yet what models will be used and which variables these models yield. Building a theoretical perspective is one of the means by which the problem will be researched and solved. Or as Maso states it, the research isn't about the distribution of occurrences, but of the nature of them [32]

The second perspective is explanatory, versus descriptive versus testing. This research will be descriptive in describing the way projects are managed by the project managers and it will be descriptive in describing the different types of projects. It will be explanatory in trying to relate projects and methods and it will be exploratory in trying to define success and fail factors of projects and of methods, when comparing them, to each other and internally.

This research is cross sectional. This means that the research will be done at one period in time. It will also describe the situation, as it exists today.

The research will be done in the form of mostly case studies. Projects and methods are studied on a case-by-case basis. There will most probably not be enough coherent data on projects in the past to collect enough data and call this a statistical study. Nevertheless, this research will try to analyze historical data about projects and try to find a pattern in it.

Very little can be said about the research environment as of yet. The variables in this research have yet to be determined. They will be determined on one hand by logical insights and analysis of past research. On the other hand, the research itself might prove to find new variables as well. Ragin's Fluid Frames describe this as fixating the occurrences as the research goes along, instead of framing the research beforehand. [40]

The respondents of this research are the project managers. Other units to be researched are finical and historical data about projects done in the past by the separate companies that now form Ordina VisionWorks. Project managers can be influenced; historical data cannot be influenced. It is in the best interest of the project managers to respond accurately, although some positive biases towards their own performance can be expected.

The research will primarily be using primary information sources. This means data gathering by the researcher. As stated above, the data will come from analysis of historical data and from interviews with project managers. Information about the modelling of the data will come from literature mostly. These are secondary sources.





# Chapter 3: A Scenario for Creating a Unified Methodology



## 3 A scenario for creating a unified methodology

### 3.1 Introduction

In the next paragraphs the way the main problems, as posed previously, are solved, is explained. Firstly there will be a brief explanation about the form this research is shaped in and why it is shaped and presented in this specific form.

Then the scenario for solving the problems will be outlined. Here a model for handling the problem will be proposed, as well a division of the solution into parts, more or less taken directly from the research questions. This model will be explored and explained in more detail in the following paragraphs.

### 3.2 Managing the research

This research will be done and presented in the form of a project.

The subject of the research is project management and in more detail project management methods. The method used throughout Ordina is the Prince 2 method. To give the researcher a better idea of what it means to manage projects and what it means to manage projects using a project management method, it was proposed by my mentor at Ordina VisionWorks to use the Prince 2 method, to do this research. The outlines of this method are described in a manual, also used throughout Ordina: 'De Kleine Prince 2' [34]. The manual states that Prince 2 can be used for any kind of project. Therefore it could also be used to structure this research. The question is: can this research be viewed as a project? There are many projects done, which sole purpose is research. And there even is research on how to do a research project [26]. Structuring this research in the form of a project might therefore prove to be not so difficult.

This project, or research is structured with *Prince 2*. As the Prince 2 manual states, it is not necessary to have all the elements of the method present in the execution of a project. For this project several components are also left out. Reasons for not using components are mainly time restrictions. Prince 2 requires a lot of so called management products. These products serve the purpose of planning, reviewing and control. There is simply not enough time to review all these products, so the products that are in this project are mainly useful for planning and control purposes. A choice between what specific management products are delivered has not yet been made. Each phase includes different products, therefore a choice will be made during each phase. The phasing Prince 2 uses will be followed in more detail. Mainly because this phasing is the heart of the Prince 2 methodology [www.prince2.com], and also because it provides structure and an overview of the state of the results at and how they are coming along. Several reviews will be held to keep all the stakeholders up to date. These reviews were already part of the research, and will therefore be easy to incorporate in this new structure.

This has several implications on how the research is done and what the products of this research are.

The process of the project will consist of the following steps: a project mandate, start, initiation, control of a phase, scheduled product delivery, end and planning.

Using Prince 2 means almost automatically having a "steering group" Their responsibilities include: approval of a phase, tuition and control and the receiving of products. A steering group was more or less formed before the project got underway. It consists of a mentor from the company, two teachers from the university and the researcher.

The project will be divided into four phases. These are: start, analysis, development and end. The starting phase of this project is already underway. As can be seen in the next paragraph, this research has an analytical component and a design component. The project will be phased accordingly with these components. The ending phase includes the ending and closing process. If ending and closing does not happen in a previous phase, this means presentation and review of the research.

The management products involve planning products, such as Gantt charts, Work Breakdown Structures etc. Normally things as risk, timelines, means, and deliverables would be mentioned in this document.

Because of the Prince 2 method, these things will now be analyzed with separate models and will be presented in separate documents as management products. It also involves reports at the ending of a phase,

Research in the shape of a project

Methodology used: Prince 2

Elements used:  
- Phases  
- Templates  
- Steering group  
- Deliverables

in which the progress and quality of the project is described. A means of implementing the results of the research is also included in the reporting. During the project a website will be available to the stakeholders of the project. Here all the relevant information about the project can be viewed. A final means for implementation will also be written.

This project has several deliverables. The most important ones are the models on which the comparisons of projects and project methodologies will be made. The ultimate deliverable will be the new unique way of managing projects at Ordina VisionWorks. Other deliverables have a more descriptive nature. These are the descriptions of the way projects are currently managed, and a description of what projects are currently done. A full list of deliverables will be presented in a separate document; also a management product. The last Prince 2 component is Reviews. This project will be periodically reviewed by the whole steering group. In the meantime it will be reviewed by other stakeholders. These include the project managers and the teachers at the university. The goal of these reviews is to keep every one up to date about the progress and status of the project. It will also provide times for corrective measures, changes in the project and an o.k. if the phase is successfully completed.

Not specifically implied in the Prince 2 methodology, but never the less good for communicative purposes is the naming of this project. As of now, the project and the research will be known as:

## “Creating a unified project management methodology”

### 3.3 Scenario for solving the research problem

To be able to answer the questions posed in the previous chapter, multiple things need to be researched. First off, project management methodologies will be investigated. To get a clear notion of how projects are managed in practice and how this relates to the underlying methodologies, the methodologies as well as the management practices will have to be compared to each other. Secondly, to find a fit between project management and projects, the different types of projects will have to be researched.

Shenhar ea argue that the current approach to project management started with PERT, in the 50's and 60's. [43|45] The Program Evaluation and Review Technique divides projects into a networks of smaller, more manageable, parts. It then helps in calculating the time needed to complete these parts and thus the whole project. They go on to argue that current project management requires a lot more functions than only planning and scheduling of tasks. Modern project management consists of risk management, stakeholder management, matrix management [48], controlling, directing, teambuilding etc. How all these functions are performed and grouped is the domain of project management methodologies.

Beginning of project mgt

Why methodologies are developed

Project management methodologies are developed for different reasons [1]. Some methodologies are developed “in house” by companies as a response to a need for structured work or ways of controlling the times and budgets of projects. Examples of such methodologies are Prompt by the Central Computing and Telecommunications Agency and Chestra developed by Siemens. Other project management methodologies are developed commercially, mostly by consultancy firms or as in the case of the Prince 2 methodology by the government of the United Kingdom. The last group of methodologies stems from research into project management and is mostly created by knowledge institutions, like for instance the IDEAL method of the SEI.

Comparing methodologies

In trying to compare project management practices there has been done some extensive research by multiple authors. Shenhar proposes to divide projects into two main categories: the scope of the project and the type of the project. Based on this, research on how to successfully manage these categories of projects was done. To do this, categories of project management types were identified, along with scope level variables [43]. In other research management variables, or factors were proposed. [44] These were categorized into 5 groups [10], initiation and pre-contract, planning and control, project design, technological infrastructure and managerial environment.

Other research by Allan, has described many different project management methodologies. The descriptions of these methodologies are uncategorized, but after some reading, they do seem to have some things in common. At least the summation of all these methodologies provides an insight in how project management can be structured, and is structured in most cases [1]. Based on partly these project management methods, Brock ea propose a method for managing projects. They propose a categorization

based on the “Balanced Score Card” by Kaplan ea. Their research divides project management into two main categories, namely the internal perspective and the customer perspective, or strategic linking with the project organization. Their internal perspective identifies nine knowledge areas, of which five are: scope, cost, time, quality and human resources as factors. [5]

Wideman did extensive research on project management models [49]. These are not methodologies. They are a graphical way of describing project management as it is observed in practice. A few things seem to appear in all models listed in the research. Project management phases are present in most models. Management elements such as risk management, planning, control, resource management etc are listed, in some models to a greater extent than in other models. The building blocks, or the basis of project management, are described in most models as control of time, cost, scope and quality.



#### Taking apart methodologies

One of the most common reasons for developing a project management methodology is the need for structured work. Most methodologies saw the light of existence because of this very reason. [DSDM.org, Prince2.com] This need is also one of the reasons why this particular research is being done: there is a need for structured work and a one way of doing things within the company. As became clear when studying project management research, project management methodologies are structured in different ways. Methodologies roughly seem to have the following parts in common:

- *Underlying thoughts of a methodology*  
Every methodology has underlying thoughts. This can be the methodology’s reason for existence, for example when it is created as a response to unstructured work. It can also be a central idea the methodology uses to structure the work. For the Prince 2 methodology this is a focus on product delivery and for Chestra this is a pragmatic approach with a focus on the business.
- *Processes described by the methodology*  
Most, if not every project management methodology identifies processes. Examples of these processes are initiation, control, development, execution, ending etc. A process usually has a clear beginning and ending and specific activities related to them. Such processes are identified to give a project manager manageable objects. Most methodologies have similar processes or at least processes that overlap. These will not be described in detail here, important are the processes identified by the project managers of Ordina VisionWorks. These processes are described later.
- *Phases in undertaking a project*  
Apart from processes there are usually phases in every project. Especially B.I. and P.M. projects have clearly determined phases. These phases are usually determined by the methodology used to design information systems. One of these methods which was used widely at Ordina VisionWorks, until recently, is the DSDM [www.dsdm.org] method. This method divides a project into an analytical phase, a prototyping or testing phase and an implementation phase. The methodology states that these phases are cyclic. They can be repeated within a project.
- *Practices and tools or models described by the methodology.*  
Methodologies are usually designed to structure practices. The practices concern the more classic tasks such as planning, scheduling, product configuration, as described by a PERT analysis, but also practices such as risk management, change management, team management etc. Some methodologies prescribe specific ways of executing such tasks; other methodologies merely give advice as to how this should be done.



#### Comparing projects

In trying to compare projects, a lot of research has been done in the past as well. As stated above, Shenhar ea have categorized projects by type: the level of technology involved and scope: the size of the project as to assembly of multiple products, creating a system of products and creating an array of projects – a programme [47] Projects can be categorized in many other ways. There is a lot of research as to categorize projects into success factors, such as management support, project leadership, defined objectives, budgets and many more. [20][37][4] Projects can also be categorized as to their risk factors. McFarlan proposes three categories: project size, project structure and experience with technology. [33] Slack ea categorize projects with their performance objectives triangle: cost, quality and time. [45] An interesting and more commercial way of looking at projects is provided by Kishore ea. They discuss the FORT-framework. This framework

classifies projects to the impact they have on a customer. The framework measures “Strategic impact of the outsourced ITS portfolio” to “The extent of substitution by (x)SP’s”, or the uniqueness of a service provider’s service. [25] Beside these categorizations there are of course more possibilities of categorizing projects.



This research's Scenario

Comparing methodologies

Based on these different ways of looking at project management methodologies and of classifying projects, a scenario, or analytical framework for trying to compare them all and to ultimately make a sensible new methodology or way of managing projects, is proposed. To explain the theoretical model, used by this scenario more clearly, an analogy with a bookcase will be made.

To compare project management methodologies, first the central thought behind a methodology must be identified. This will be done on one hand by identifying the methodologies used in practice and on the other hand by asking project managers as to their thoughts on how they see projects should be managed. These central thoughts are comparable to the external or customer view from Brock ea, and will in this model form the casing around the books. This casing is one of the things that should provide unity in the project manager’s culture, or ways and assumptions of doing things. It might therefore also prove an important tool for communicating the new methodology to the project managers.

The shelves of the bookcases will be formed by the project processes. Every bookcase, or methodology, will have a different number of shelves, or processes. Some processes identified in other research are: initiation, planning, control, execution and closing. It is at this point not clear how many shelves our bookcase will have, but based on also Allan’s work, it will be possible to categorize these processes into a definite number. When this turns out to be difficult, another categorization can be proposed, for instance the division of project management methodologies in the phasing they use for managing projects. Even a combination of the two might work. Different processes are needed in each phase. Which of these categorizations will be used later on is yet to be seen.

The books in the bookcase will be formed by the different components of the methodologies. These are the tools or models project managers work with, or the methods they use to complete the processes or phases of a project. Some examples of these tools are: planning methods such as Gantt charts, Process Breakdown Structures, MoSCoW diagrams and other methods such as team building methods, risk management methods, change methods etc.

Comparing projects

The books in most bookcases are *categorized*, or at least arranged by subject, or author, or maybe just by the color of the book cover. The methods used in management, or the books, will be arranged in the case here, by different type of project. Types of projects will have to be identified, to be able to compare them to each other. Then the methods used successfully in each of these types of projects will be categorized. Our books will thus be arranged by what methods are successfully used in projects.

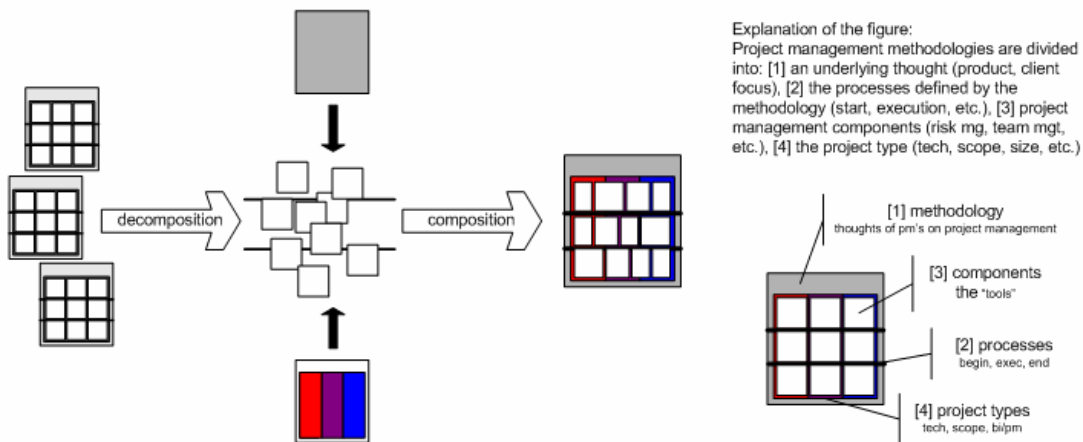


Figure 2: the scenario for how to create a project management methodology

What will ultimately be done is the decomposition of project management methodologies, based on the underlying thought of the methodology, based on the processes described in the methodology and based on components used by the methodology, or practices used in real life. Then a new methodology, or a unique

way of doing things will be composed, based on the thoughts of managers on doing things and based on the types of projects done by Ordina VisionWorks. This methodology will contain the best components and practices used by the project managers.

What is left then is an *indexing of the bookcase*. A methodology with many components, but not a document on how to use them is useless. To also be able to communicate the new methodology to the organization, and to make it useful for the people who will have to use the methodology, it is important that a document will be made which indexes the components and project types. This document should accompany the new methodology.

### 3.3.1 Context of this research

Parties involved

As stated in the previous chapter, there is a specific context in which this research takes place. There is a Project Buro, which uses the Prince 2 project methodology, to monitor and control the projects done by Ordina VisionWorks. There is also a task force at work to create a methodology for the design of their business intelligence and performance management information systems. This research falls right in between these two groups. A project manager has to report to the Project Buro, on the “top” side of things, and on the “bottom” side of things a project manager has a project team, which ultimately makes a product, using a specific method. The next picture makes this clearer.

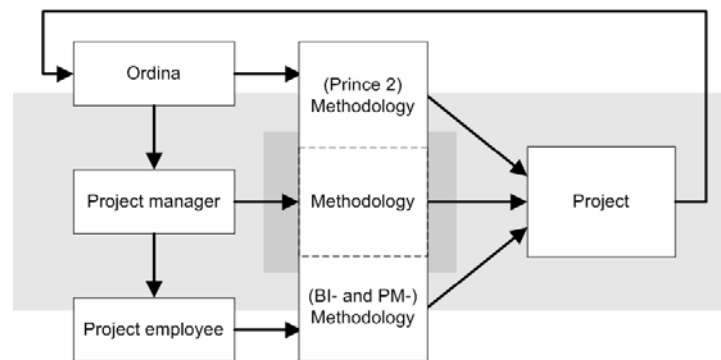


Figure 3: the research context; three layers of project management and their respective methodologies

What is intended to show here, are the three levels and the three methodologies concerned with the execution of a project. The domain of this research stretches to what the project managers do and focuses on their ways of doing things, as displayed by the gray areas.

Integration of methodologies

The notion made here, is that a way of managing a project, can not be seen separately from the way the systems or products are designed and made, nor can it be seen separately from the way results are returned to the top level, the Ordina Project Buro. Finding out how the methodologies are integrated, is something that will hopefully become clearer when the way project managers manage their projects is analyzed. How these methodologies should be integrated or linked, is also something to be kept in mind when developing a new project management methodology.

Feedback

A new notion introduced here is the feedback line. This notion is already part of the Prince 2 method used by the Ordina Project Buro. Each project has to be evaluated. Whether this is actually done in great detail remains to be seen, but this research should also take into account that the way projects are managed can ultimately be changed by learning from projects in the past.

Some consultants think project managers should not be too concerned with “their” I.S.D. methods. The project Buro sees “their” methodology as a given factor a project manager should work with. Conversations with project managers revealed that the opinions of project managers on the importance of this linkage also differ somewhat. Some think this linkage contributes directly to the success of a project, others think it does not matter how consultants and project teams do their jobs, methodology wise. Therefore this linkage is offered as context and therefore it is not included in the problem statement.

### 3.4 The scenario applied to the exploratory questions

The next few paragraphs will be about how this research actually plans to fill in the analytical framework presented above. The filling in of the framework will be done by answering the research questions that followed when the main problem statement was presented. How the research questions fit in the scenario described in 3.3 will be outlined with a picture of the scenario, focused on the part that is addressed by the research questions.

Since this research works with fluid frames, only a basis for answering the main questions will be given. [40, see 2.5] What specific models are going to be used and how they are going to be filled in, is also part of this research. The next few paragraphs will present a way of working, a few models and a start as to how these models can be used to reach the goals of this research.

#### 3.4.1 Inventorying

The first research question was: *“What kind of project management methods are currently used in practice?”*

To find out what methods are used in practice, there are two options. The first option is to interview project managers and ask them about their methods, and how they fill in the processes or phases of the methods. In order to find the answer to the next research question: *“How are methodologies actually used in practice?”* they could be asked questions about the way they plan, organize, control, and manage things like risk, change, teams, costs etc. They should also be asked about what they think are the underlying thoughts of their methods and ways of doing things. As stated in the second sub question: *“What are the project manager’s underlying ideas to using certain practices?”*

The second option is to evaluate the data on past projects. There is some data available, of which unfortunately the quality is as of yet unknown. There will also be templates and plans used in previous projects. From this data and information ways of doing things can hopefully be distilled.

The main purpose is to have an inventory of all the methods and methodologies used. They will be described in their own way, more or less like Allan does this. [1]

To make a start to include the different types of projects, the same two ways of obtaining data can be used. First off managers can be asked about their projects and the ways they classify them. Secondly the quantitative historical data about the projects can be analyzed. This data is available in larger quantities, in Ordina VisionWork’s SAP database. What can be analyzed of this data, are the projects costs, running time, number of people involved and other maybe less quantifiable data as evaluation reports or management summary reports.

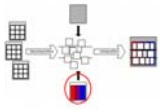
#### 3.4.2 Comparing

When projects and methods are inventoried, they can be compared to each other and the final sub question can be answered: *“How can these methodologies be evaluated or compared?”*

Projects can be compared to projects, methodologies can be compared to methodologies and perhaps even more important, projects can be compared to methodologies used on projects. This however will be done in a next step. To compare methodologies, they are decomposed. As described previously, there are a several components into which methodologies can be decomposed. These components are: underlying thoughts of a methodology, processes described by the methodology, phases in undertaking a project, and practices and tools or models used or described by the methodology. A methodology will have more characteristics, which can be used to decompose them. Here however, a choice is made for these four characteristics. This is based on a comparison between project management methodologies, as they are described in the literature about project management. These four items, or at least a couple of them, seem to appear in every piece written on project management methodologies. They appear in different forms, but do overlap. For instance, management practices are called management variables in some research [44] and models and tools are referred to as management products or techniques in other literature [28]. Phases and processes are often intertwined. Sometimes they are mentioned separately [34], and sometimes they are called processes and also seem to relate to phases, or the other way around. [5] Sometimes a distinction is made for phases and is filled in with specific processes. [31]

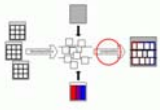


*The second research question stated: “What would be a successful methodology for managing future projects?”*



The first sub question was: “*How can types of projects be defined?*” In order to answer this question, projects will have to be compared to each other. As mentioned in the research questions and the analytical framework, this can be rather difficult. There are a lot of ways to classify projects. For several of these ways, [see 3.3](#) The method proposed here, is to start out with basically as many ways, or categories as there can be found to compare projects. These categories can be found in literature, but more importantly they can be extracted from the ways project managers see projects. Project managers have a feeling for what type of project they are doing. They will also have a classification for these project types, although maybe not explicitly. The way project managers manage a project differently from another project will be based on this, maybe latent, classification. Once projects have been categorized in all the categories, there are, again, two ways of going about making sense of them. The first way is to scratch categories that don’t mean much for comparative means. These can be categories on which projects always score the same, or double categories, low impact categories (where projects always score average), etc. This could lead to only a few categories. When it doesn’t however, perhaps categories can be grouped. They then can be analyzed by framing them in a multi-dimensional data model. [\[18\]](#) Projects can be mapped onto the dimensions, in such a way that it might also provide a visual framework.

### 3.4.3 Determining contingency



With the inventory of projects and project management methods, the way projects are managed can be compared to the different types of projects. Here the research questions to be answered here are: “*Are there specific methods that fit a specific type of project?*” This means the contingency factors based on which projects are in fact managed differently will have to be determined.

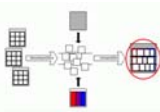
The literature, and especially Dvir’s and Shenhar’s work provides valuable insights in comparing project management practices to project types and scopes [\[43\]](#) and management variables and project success factors [\[44\]](#). This literature can form a basis for defining contingency factors for the projects done by Ordina VisionWorks. Another part of this basis will be the project manager’s experience. As mentioned above, project managers already make choices between certain management practices for specific projects. What has to be done with those choices is to see whether such a choice proves successful and whether choices of other colleagues prove more or less successful. The main question to be answered here is: “*What types of tools, management style, or other components related to a project management method, should a project manager use to fit specific projects?*”

To measure success, first a model of appropriate success factors is needed. There is much literature and discussion to be found on success measures, and more specifically on project type and project success [\[20|46\]](#). Soderlund especially asks basic questions about projects, to determine success factors for them. (Why do project organizations exist? Why do project organizations differ? How do project organizations behave?) Some of these questions will be answered by this research. This can be used for a further classification of project success measures.

Seddon as well as Shenhar provide a framework for classifying success measures for specific stakeholders [\[42|43\]](#). A little introduction to this research was given in the goal setting of this research; [see 2.3](#).

Hopefully, a relationship can be found between the different stakeholders and their ways of measuring success and the way project management contributes to this success. When these relationships are clear, a model for a new methodology can be drawn up

### 3.4.4 The new methodology: a bookcase



The third and final research question was: “*How is this new methodology implemented?*”

When these previous research questions are answered, the part that remains is finding or designing a successful method to manage specific projects and implementing it. To find a successful method we can partly use the previous research as well, but part of what is successful enough to be used later, will have to be selected here.

What also has to be done here is making a list of requirements for this new methodology. The Project Management Body Of Knowledge has drawn up requirements for a project management model [49]. These requirements can prove useful when drawing up requirements for the methodology created by this research. Other requirements follow from the research questions: “How does the methodology encompass the Ordina VisionWorks culture?”, “Does the methodology incorporate the strategy of the management of OVW?” and “Will this new methodology work in the practice of day to day management?”

For designing a new method, again the project managers will be very important. A choice will have to be made between their best practices and a choice will have to be made for what the underlying thought of the new methodology will be. In defining what is good management practice and what is a good methodology they will have the final say. To implement the results of this project or research successfully, it is important that the stakeholders are kept up to date and are involved in this research. The next research question addresses this issue: “How can the methodology effectively be communicated to the organization?” Giving them a say in what the final result should look like and involving them in the discussion as to the thoughts, ideas and values a project management methodology should have should help their involvement. A website, as mentioned in 3.2 should also provide means of feedback for the project managers involved and basically anyone else who is interested.

The final question was: “Does the methodology solve the problems and does it meet its requirements?” In order to answer this question, the new methodology needs to be evaluated and tested. Two criteria for this test are already implied by the question itself. These are the requirements the model or methodology must meet and the solution to the problem it must be able to provide.

To design a new methodology, it might be best to use an old methodology as a framework or stepping stone. The methodology proposed for this, once more, is the Prince 2 methodology. A choice for this methodology is made, because it is a very complete methodology, with the most different categories (phases, processes, etc.) to place components in. The bookcase with the most shelves, to put components on, as it were.

### 3.5 Managing the research: The WBS

Answering the exploratory questions, by using the scenario as described above, leads to an end product. This end product is a new project management methodology, as described in the previous paragraph. When breaking down this end product, using the scenario as described above, specific sub products can be defined. Such a work breakdown structure [45] is graphically depicted below. This WBS is one of the management products (described in paragraph 3.2) used to perform this research.

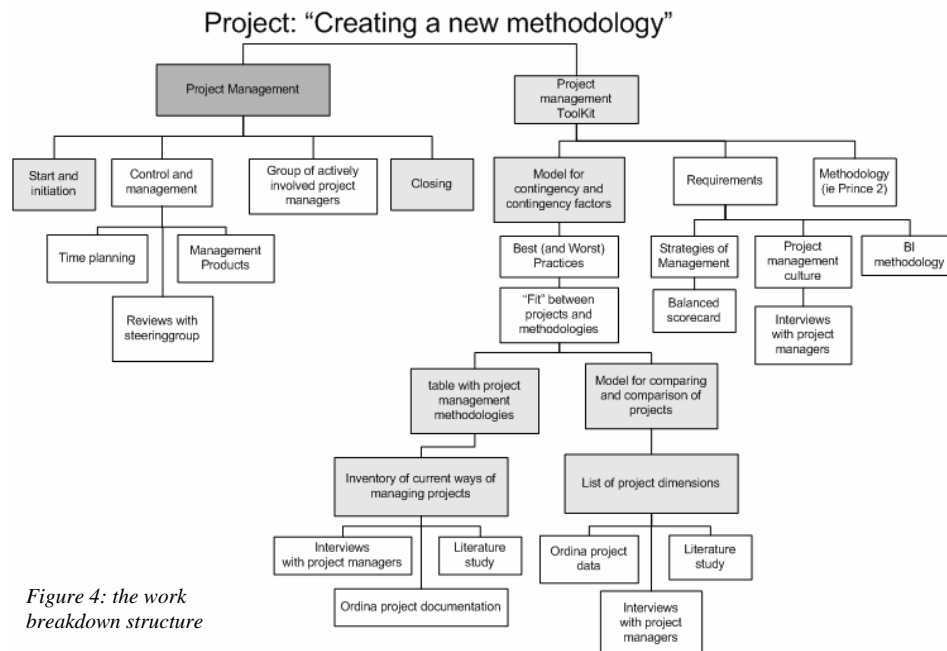


Figure 4: the work breakdown structure

# Chapter 4: Current Project Management Practices



## 4 Current project management practices

### 4.1 Introduction

In the next chapter the first research question will be answered. The first question was: “What kind of project management methods are currently used in practice?” To gather information about the current project management practices at Ordina VisionWorks, interviews with project managers were held. How the information gathering was done and how the interviews were done is explained in the next few paragraphs. Then an inventory of these practices is drawn up. This inventory is finally summarized in a table at the end of the chapter.

### 4.2 Taking an inventory

To create an inventory of project management methodologies used by the project managers of Ordina VisionWorks, the exploratory research questions will have to be answered properly. In doing this the inventory of methods will be divided into the four steps as described at the beginning of 3.3. Firstly all methodologies used will be inventoried. Secondly an inventory of practices, or how the methodologies are used, will be formed. How this will be done will be described in the next two paragraphs. The method for gathering the needed information is described, and then a conceptual model, used to structure the inventory somewhat will be proposed. A schematic description of this inventory, as a part of the solution can be found in the management products as the product description.

#### 4.2.1 Information gathering: interviews

The type of research that has to be conducted in order to get results with which a start of solving the problem can be made, is classifiable as qualitative sociological research [40]. An analysis of the aspects of a sociological reality as it is lived or observed needs to be made. [14] Simply put an analysis of the way people do things (together). About which Ragin notes: *This usually involves in-depth examination of a relatively small number of cases [which are] examined intensively with techniques designed to facilitate the clarification of theoretical concepts and empirical categories.* Most sociology is based on the wording of people of what they do or experience. This can be wording in the form of interviews or written documents. When using interviews (or written documents) as a primary source of information, a few cautions must be made. One: interviews are not a description of the world, but they are claims being made about the world as it is perceived by the respondents. And two: the truthfulness of the respondents should not always be taken for granted. However when an informant is seen as a part of the reality that is studied, these perceptions are irrelevant; it merely is a matter of quality of the ‘object’ studied. [14]

Qualitative sociological research

Sources

Project managers

Project documentation

The main method of information gathering is using interviews. The information needed for the inventory is information about how people perform and structure their work. The obvious way of gathering information is asking project managers about their work and activities. Requirements for gathering information like this are the willingness and the ability of the respondents to word their project management practices [14]. Other ways of gathering the required information, could be interviewing consultants about their project manager’s practices, or gathering data about how projects are managed from historical information and data about projects. This information however is not available in great quantities.

Ordina VisionWorks uses a system from SAP for most of the business’s administration. There are complete systems for planning a project and for reporting on a project in this SAP system. These are not commonly used however. After some casual conversations with the administrative staff, it turned out that there is one form of reporting that is used by project managers, within this system. These are quantitative and qualitative management reports and management summaries. These will be analyzed to get a better understanding of how projects are currently managed. Then there are also templates for project planning in another system of Ordina VisionWorks. These will also be used for the analysis of project management practices. Whether this data is structured, or will prove useful remains to be seen. It will however provide an insight in project management practices in addition to the interviews.

**Business unit managers**

It is important that enough managers of every business unit are interviewed. Managers from every business unit are needed to get a complete picture of management practices for all different business areas. One of the goals of the research is to give project managers an insight in how managers from different business units handle their responsibilities. Therefore a complete picture of all the business units is needed. How many project many project managers are interviewed depends on the availability of the project managers at the time of the research. The target is at least three project managers per business unit. From casual conversations with some of the project managers it became clear that there are not only differences between business units in managing projects, but project managers within the different business units also seem to have different ways of going about their work. Therefore more project managers per business unit may be needed.

The interviews will each time be done with one project manager and with the researcher. The interviews will preferably be held at a project site. [43] At a project site it is easier for a project manager to relate questions to what he or she is doing at the time. Also examples and anecdotes will be easier to think of by respondents, when they are interviewed in their current place of work. The time reserved for doing the interviews was six weeks. This is based on the total time available for this whole research project.

### 4.2.2 The interview questions

  
**Methodology**

The first thing that project managers were asked about was whether they used a specific methodology for managing their projects. When a methodology was used, the project manager was asked a question about what he or she believed to be the underlying thought of the methodology. When a methodology was not used, project managers were asked about their own underlying idea's about project management and about their general perspectives on how to manage projects.

**Project life cycle**

Next a project life cycle model [20] was presented to the project managers. This model roughly determines phases for project management. Project managers were asked about their thoughts about the model and whether they found it a good representation of how they saw project management, or if they had a different way of phasing their projects. The idea behind presenting this model was to get a small discussion going on what project management should look like and to start their thoughts about modeling their activities. Enough room was given to project managers to completely disagree with the model if that was the case. This model turned out not to be applicable to many types of projects and project management practices.

**Project management activities**

To ask accurate questions about project management, a list of activities associated with project management was drawn up. This list consists of all management activities that could possibly be identified from the available project management literature, at the time of the interviews. These activities are taken from project management methodologies, but also from articles written about project management in the past. The activities asked about were initiation, planning, scheduling, budgeting, team management, risk management, change management, configuration management, control, reporting, project evaluation, management documents, management skills and linkage with clients and Ordina. Project managers were then asked about whether they used specific documents like a project planning, reports, proposals etc.

The notion that should be repeated here is that the project management practices or methodologies are described each in their own form. To get all the relevant information about a managers practices, those practices were not modeled in the interviews and will not be modeled in the inventory. In the next step of decomposing and comparing methodologies such a model will be made. The purpose of this step is amnesis, not analysis. [Medical terminology]

**Responses: Pm practices**

This research and the exploratory questions make a distinction in how projects are managed currently and how projects should be managed in the future. The most important method of information gathering for this part of the problem was having interviews with the project managers. When asking project managers about their management practices, most of them explained how they performed their work. The way they conduct their work is the result of years of experience in the field. Therefore the way they do things now usually seemed to them the best way to do things in the future. At least that was how it was formulated during the interviews. What is described here however is not the way things are done and can best be done, but the

way things are done at the time of this research. How things can best be done will be described at a later stage, although it might seem to the reader that that is what is implied here as well.

### 4.3 The inventory of current project management practices

In the next few paragraphs the results of the interviews are presented. These results will be supplemented by the documentation about project management, specific to Ordina VisionWorks. These results are structured in the components of project management methodologies. Firstly there will be a description of the methodologies used throughout Ordina VisionWorks. Each of these methodologies will be described in the way they are used. The thoughts project managers have about use of methodologies and their thoughts about how to manage a project will be a part of this description.

Next the way projects are phased by these different methodologies will be described. Phasing varies a great deal in the different methodologies and also what project managers think should belong in certain phases of projects varies a great deal. Therefore the phases and what should or should not be done in each phase, specifically mentioned in the interviews will be described there.

Some project management methodologies identify specific processes, and some methodologies define in more detail what practices of management belong to the domain of project management. Not all methodologies or practices contain both these components. In the final two paragraphs, how projects should be managed and with what tools this can best be done is described.

#### 4.3.1 Methodologies

The methodologies that are currently used by the project managers of Ordina VisionWorks are: Prince2, DSDM, DBIM, Guide, Ordina VisionWorks Balanced Scorecard, Management Information; an old methodology from the company formerly known as Oasis and several combinations of management practices based on personal project management experience.

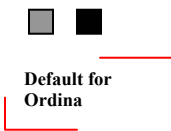
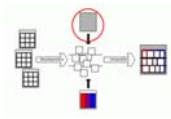
Prince2 and DSDM are relatively well known and well documented practices. These practices will therefore not be described here to the full extent, but what will be described is which parts of these practices are used by Ordina Project managers. The other project management practices are all practices developed within Ordina, sometimes with the intent of serving as project management methodologies, sometimes developed for a completely different purpose.

#### Prince 2

Previously it was mentioned in this document that Prince2 was the default project management methodology of Ordina. It would therefore be logical to assume that this is the most widely adopted project management methodology in Ordina VisionWorks. This however is not the case. Prince2 is not commonly used; moreover it is hardly used at all. Only two or three of the interviewed project managers used Prince2 as a standard way of practicing project management. Other project managers know of the methodology and they also know how to work with such a methodology, but it is only used at the request of a client organization. What are used of the Prince2 methodology are the processes it has with respect to managing phases and managing phases of software development methodologies in particular.

Prince2 seems to fit nicely on top of most phased software development methodologies. Although projects are always different from one another, project management is always the same, at least according to the project managers that use Prince2. The processes that have the most relevance to software development are 'control of a stage' and 'managing product delivery'.

Also the link between the client organization and the project management seems to be an important one. Factors as client relationship, commitment and involvement of the contractor and cooperation of the client organization are mentioned as very influential.



Fits on top of BI-methodologies



Figure 5: Prince 2 Process model (www.prince2.com)

Business case

One component that is mentioned separately from all others is the 'business case'. This business case is a document that contains the costs and benefits of a project, as well as the project's legitimacy. This document should explicitly not be seen as a formulation of the end product, since that is usually subject to change, but it should be kept handy to remind the stakeholders of a project of why a project is being done.

Project board

Another component of Prince2 is the 'steering group' or 'project board'. This is a group of people, formed out of high ranking individuals from the client organization and the supplier; Ordina VisionWorks. Such a group is used to take decisions that need a lot of support for carrying on the project. Other responsibilities include: The risk(s) associated with the project, agreeing the project tolerances, communicating information about the project to the organization(s), signing off the Project Brief and Project Initiation Document. [ocg.com, 2004] The project board is not exclusively used in Prince2. An equivalent of this group is found in more project management methodologies.

Product delivery

The central thought behind all Prince 2 practices is a focus on products and product delivery. These products don't necessarily have to be end products or even parts of products; they can also be reports or data models, or studies. At the end of every project stage a product has to be delivered. These are the so called milestone products. From the process model (the figure above) it becomes clear that these stages and especially the boundaries of a stage – begin and end – are extensively managed. Activities at the beginning of a stage usually entail planning of that stage. Activities at the end of a stage are mostly concerned with the delivery of a product. A focus on products is found throughout project management of Ordina VisionWorks. It only is in isolated cases and only in special types of projects part of the Prince 2 methodology.

**DSDM**

Iterative phases:  
Shaping products

DSDM is a methodology, or rather a framework, that was designed to develop information systems. It was a methodology developed in 1993, and was intended to be different from the classical 'waterfall' software development methodologies and methods, where each design or build step follows a preceding step, until a project finishes. It was designed to deliver products in an iterative way. [DSDM.org]

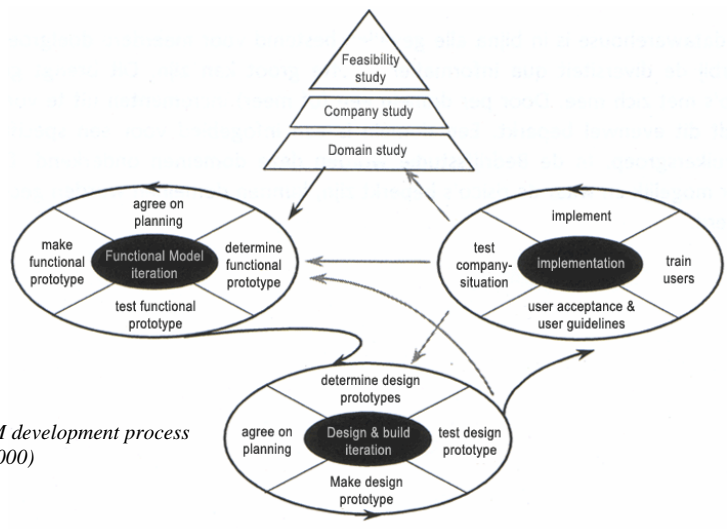


Figure 6: the DBIM development process (source: Kuipers 2000)

It consists of three main iterations: the functional model iteration, the design and build iteration and the implementation iteration. Preceding the iterations are studies that study the business, the client organization and the feasibility of a project. At the end of each iteration and also within each iteration specific products are delivered to the client organization. Advantages of this framework are, according to project managers, the flexibility of the framework: products can be shaped and reshaped until they are right for the client. According to the project managers, the products a project delivers are only useful to an organization, when a client is indeed able to use the product. Aside from being a framework where communication with a client and feedback on the basis of sub-products is deemed important, it is also a methodology which makes the whole software development process easy to follow for the client or the contractor.



The difference with most methodologies is that the implementation is a real part of the development process. Implementation is not always done by the supplier, but it is taken into account when products are designed and built.

Specific components mentioned by the project managers are timeboxes and the MoSCoW analysis. Timeboxes are virtual boxes, which define time and product boundaries. In a specific timeframe a specific product has to be delivered. The MoSCoW analysis is a form of prioritizing these products by categorizing them as Must have, Should have, Could have and Would have products.

## DBIM

DSDM for BI projects

DBIM is a framework developed in response to a need to make the DSDM method more specifically applicable to BI and dw projects. Specific to BI and dw is the quality of the data on which a data warehouse is based. The back-end technology itself – the data warehouse – proved to be difficult to control with the DSDM method. [12] and is obviously also specific to these type of projects. To cope with the quality of the data and with the specific data warehousing technology, DBIM introduces the domain study. This is a study added to the two existing studies preceding the development increments. In this domain study, the user specific domain, the user's needs and the various business information areas are analyzed. Timeboxing – the planning of products, to be delivered in small timeframes – as it is also described for DSDM, is introduced in this study as well.

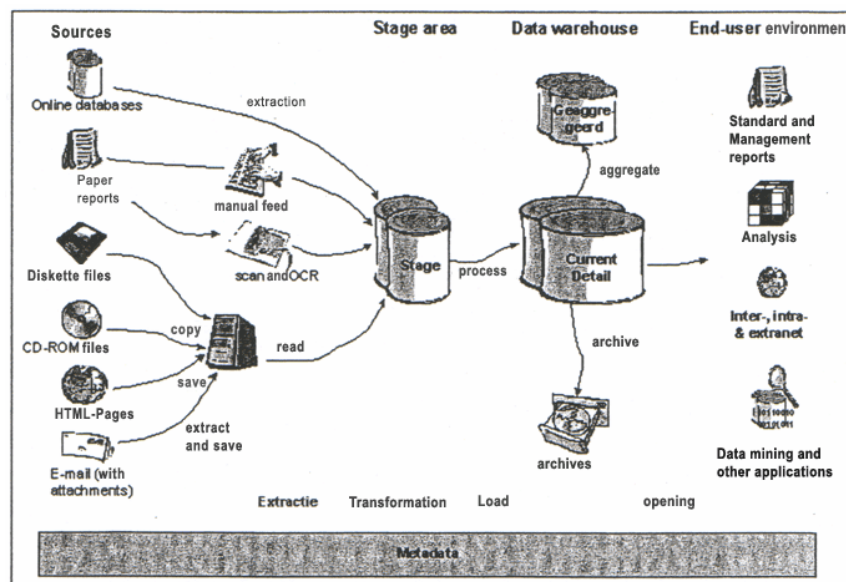


Figure 7: the DBIM architecture framework (source: Kuipers 2000)

## Guide

Guide is, like Prince2, a methodology that fits on top of software development methodologies. It is designed to fit on top of DSDM for example, but it can also fit on top of methodologies that support a pure waterfall structure.

Templates

Guide is developed in house by Ordina VisionWorks. It was designed to optimize project documentation and to keep the organization of projects simple. Accompanying this methodology are document templates. These are templates for planning a project, initiating a project, closing a project, keeping track of actions and bottlenecks and reporting. Guide is a methodology designed specifically for Business Intelligence projects. There are also specific templates for the design of Business Intelligence systems: information and source analysis templates, output analysis templates and data modeling and architecture templates. Furthermore this methodology integrates the use of Business Intelligence by keeping track of all the hours members of a project team work on projects by making use of Data Cubes (a data model used to model and represent data in data warehousing).

Team structure

Another characteristic of the guide methodology is the way teams work on projects. A member of a 'Guide' team must be proficient in the analysis of a company and its information flows and processes, as well as in the design and implementation of a Business Intelligence system or data warehouse. This way, team members can work simultaneously on separate sub-projects, which in the end form the whole project. This is called the parallel execution of projects. It ensures short developing cycles, intensive participation of project participants and commitment of a client organization.

Several steps are identified by Guide. These steps are shown in the following figure. What this figure is meant to illustrate is that the design process is a cyclic process and that some steps are required to start a project, but that most steps do not have to precede or follow other steps.

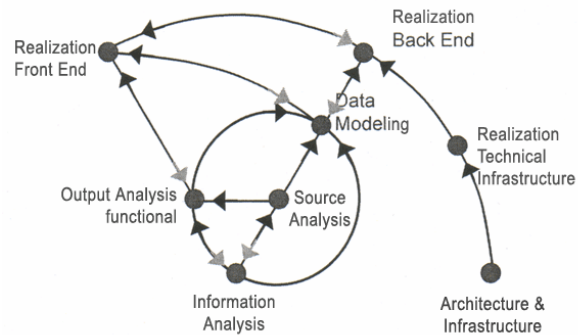


Figure 8: the Guide process model (source: Hobo 2004)

### Balanced Scorecard

Ordina VisionWorks recently internally published a balance scorecard model. This model contains the strategy of Ordina VisionWorks. It is used by some project managers to structure their work and therefore mentioned here as a methodology.

BSC areas

It is divided into six main areas: learning and growth, clients, finance, ambition, internal processes and primary processes. The primary processes consist of the projects Ordina VW does for its clients. This primary process is made up out of processes, divided into several phases. Some of the processes are stretched out over more phases; some processes are unique to a specific phase. Processes that are ongoing during the whole project are: professional discipline, integration of value chains [39], planning and allocation of resources and the (re-)use of knowledge.

KPI's:

- Client focus
- Value chain
- Re-use knowledge

The thought behind professional discipline is a clear and open communication with clients. Communication should be clear on several points. The first one is the agreements made between clients and suppliers. These should never be open to discussion. Another is the management of a client's expectations. A client should be realistic about what he or she wants and a supplier should be realistic about what it can offer. This client-supplier relationship is taken one step further in the value-chain approach this framework supports. In a value chain a firm is depicted as a chain of value creating and adding activities. These are also described as the chains of clients and suppliers base-products go through to form end-products [2]. In such a chain, actions in one process have consequences for processes preceding or following the process that is changes by the action. This framework notes that one should anticipate the changing of processes throughout the value chain.

The use and re-use of knowledge pertains to evaluation of projects. Ordina VisionWorks does and has done many projects over time. During these projects, knowledge about doing projects and knowledge about specific information systems and the design thereof is gained. This knowledge should be made available to participants and should be used in ongoing projects.

Phases

The model identifies 5 phases in a project: acquisition, preparation, execution, implementation and relations management. Most of the processes are aimed at the first phase. This suggests that it is a commercial model, aimed at acquiring new business for Ordina VisionWorks. These and other processes suggest a way of doing things. The processes are modeled in such a way however, that they can actually provide a usable framework for project management.

### Management Information

Design phases

'Management Information' is not really a project management methodology. It is a structuring of documents and ways of doing things, as they were done previously at Oasis; currently unit Blue at Ordina VisionWorks. It was developed as a way of analyzing a companies information processes and designing management information systems. The development of information systems is roughly divided into seven or eight design phases. Most of these phases are aimed at development of management information systems and not at project management. The first phase has some overlap with project management, as it defines rules for project planning, defining of deliverables and prioritizing these. This framework differs from most project frameworks in the pre-design phases. Instead of using prototyping in the development of a product,

it uses 'storyboarding'. Storyboarding is a technique which is much lighter than prototyping, since only the visual outlines of a finished product are made and presented to the clients for approval.

#### Project proposal

One of the most important documents for project management to be found is the project proposal. In this document the reason for doing the project is defined and the problem the project needs to solve as well as the goals the project needs to attain. These paragraphs define the problems domain of the project. In the next chapter of the document the formulation of the contract, the contractor and contacts within the client organization are defined. Also the deliverables and the boundaries and scope of the project are defined. Next the vision of the solution to the problem of Ordina VisionWorks will be described in this document. Then the document goes on to list matters of a more organizational nature such as expertise needed for the project and the planning of the project. Also the ways of reporting and communicating as well as the quality demands of the product are pre-defined. Finally administrative matters such as hours worked on the project, overtime, acceptance of the project and product guarantee are committed to paper. This document is important because it describes the organization and administration of a project. Besides serving as an official document by which two parties agree to a project, it serves as a guide for the project manager to manage the project. This document is kept up to date throughout the project by the project manager. Changes in the planning or the product configuration are tracked in this document. It therefore can serve as a status report and as an end or acceptance report for a finished project.

#### Business case

Another document is the document on the creation of a business case. This document explains briefly how such a document can be created or drafted. It goes on to explain the importance of business process improvement as being equally important to implementing a management information product. Notable features of this project management method are: planning and control, defining of deliverables, defining of the 'level of ambition' a project has; how much it needs to accomplish and again a cyclic approach to analysis, planning and execution and evaluation.

As previously stated, most project managers don't use a specific project management methodology. The methodologies, or frameworks, listed above are methodologies that are used by different project managers, although most of the time not explicitly. Project managers seem to use specific frameworks for handling their projects and they turn out to be based on actual existing methodologies. These methodologies were listed above. The thoughts of how to manage a project are included in these descriptions. What follows are thoughts behind the work of project managers, who's methods do not fit methodologies. Most of these thoughts overlap and what are mentioned are two distinguishable 'thought sets' that were encountered during the interviews, listed per set, not per project manager.

#### Others

#### Management skills

The first set of idea's about project management: project management is a 'craft'. This means that project management requires specific skills of a project manager. Skills are usually seen as a component of project management. Some project managers see skills as the most important aspect of their work and the basis of what they do. Therefore they are listed as a methodology also.

#### People skills

The most important skills are people skills. These skills are needed for trust, the ability to give project teams enough freedom to perform their jobs independently, keeping an overview of a project and feeling with the technology involved in project management.

#### Trust

Trust works two ways. As a project manager, you want your clients to trust you and you want them to rely on you for doing a good job. As a project team you will want the same from your project manager. People need a certain amount of freedom to perform their duties. Trust in the abilities of people gives people this freedom, which in turn facilitates a level of creativity dealing with problems and solving problems. How the role of trust influences performance and how it relates to control, in outsourced IS development projects is also outlined by an article of Shaberwal. [\[41\]](#)

#### Feeling with technology

A feeling with the technology involved in a project is very useful for planning; with respect to the time it takes someone to perform a certain task. It is also useful for keeping an overview of a project. When a project manager knows what technology is involved and how this technology works, it is much easier to asses the status of a project. The last aspect of knowledge about the technology involved is the

communication aspect. A project manager is often a mediator between project team and contractor. It usually is important that only the project manager performs this mediating role and that all communication goes through one channel: the project manager. When a project manager has sufficient know how of the technology he can communicate with the project team members and translate their issues to the contractor.

Product delivery for a client

The second approach to project management is a client oriented approach. This is a very basic approach, and therefore commonly used and shared within the organization. The emphasis of this approach is on the product. It is assumed that a client wants a specific product and that the client needs this product within a certain timeframe and is willing to pay an x amount for this product.

Goals

The job of a project manager is to set the goals for a project, based on what a client needs. To do this a project manager first needs to have a clear idea of what a client or contractor wants. When this is known and then communicated clearly, goals are set for a product, the time needed to complete the project and the resources that need to be used in order to complete it.

Products

When the goals are set, a milestone planning is made, resources are acquired and the project starts. A project manager usually acts as a foreman who also helps in the developing of the end product. A project is monitored by informally communicating with the project team, during the work. Milestone products are released when they're done and communication with a client happens informally and usually only when things tend to go wrong and thus communication is needed. What is communicated, is the status of a project, possible roadblocks that a client needs to help remove and the planning for future milestones.

### 4.3.2 Phases



PLC phases and processes

The classic project life cycle consists of four phases: the conceptual phase, the planning phase, the execution phase and the termination phase. The fundamental purpose of the conceptual phase is to determine the feasibility of a project. Objectives are examined in the context of the business environment, alternatives are defined and evaluated and preliminary estimates of cost, schedule and risk are made. In the planning phase the performance, cost and schedule estimates are refined to a point where detailed plans for project execution can be made. The project team is formed and a project management is established. In the execution phase, plans are carried out and in this phase the manager's responsibility is to manage the resources necessary to accomplish the objectives. In the termination phase the project activities are phased out. [20]

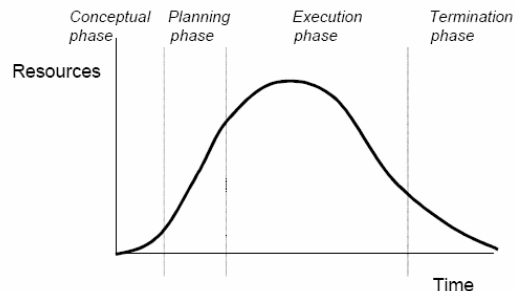


Figure 9: the project life cycle (source: Jurison 1999)

This model was proposed in the interviews with project managers. As it turns out this model is not very commonly used. Phasing of a project differs a lot per project management methodology and per project manager. Some project managers however do support the phasing of this model albeit with the termination phase replaced with a phase called implementation phase, where the product developed by the project is implemented.

Prince2: technical and management phases

The Prince 2 methodology defines management and technical phases. Management phases are defined as the period in which the project manager is managing the project. The phases are identified as deemed necessary by the project board. The minimal number of phases is two: an initiation phase and an execution phase. The project managers of Ordina VisionWorks mostly stick to these two phases. It defines guidelines for managing phases and closing technical phases. Within Ordina these phases are defined by the products a project delivers. Each technical phase consists of a milestone product. Prince2 is adaptive in the phasing of the underlying information systems design methodology and offers guidelines for handling transitions between phases.

DSDM & DBIM: Set phases

The DSDM and DBIM methodology are also phased quite differently from the traditional model. Roughly it is phased in analytical phases: feasibility study, company study and domain study. In these phases the problem which the project needs to solve is analyzed, the end result is determined, alternatives are drawn

up, the infrastructure of a company is assessed and a preliminary planning is drawn up. These phases follow each other. An important notion here is the pre project phase. According to this methodology, a project is never self-contained. A project always comes into existence because of previous activities. These happen in the pre-project phase.

**And cyclic phases**

The next three phases are cyclic. In the fourth phase the functional model of the software is determined then the software is designed and built and in the final phase the software is implemented. These phases do not follow each other per se. From each phase the project can go back to any previous phase. The following figure shows these phases graphically. In each one of these phases goals for the phase are set, conditions for ending each phase are determined and set and a list of deliverables is drawn up.

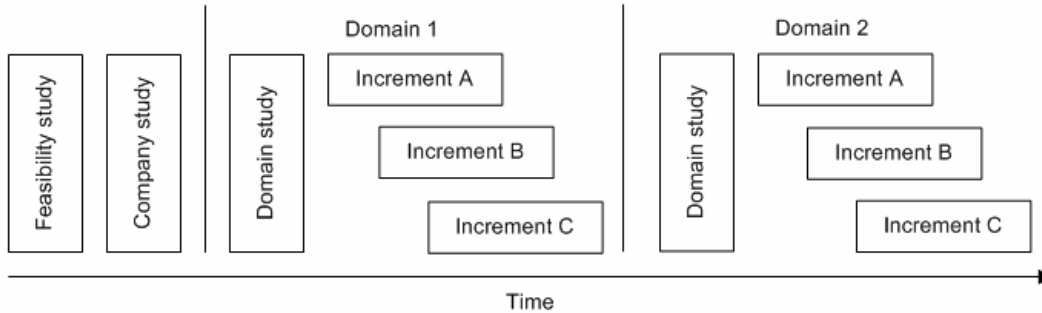


Figure 10: the DBIM phases (source: Kuipers, 2000)

**Guide: steps for BI development**

The Guide methodology is very clear about phasing projects. It offers distinct project steps for developing Business Intelligence products. The phases are called steps in this methodology.

In the first step the scope of the project is defined. In the next step a plan for handling the project is drawn up. In the next two steps the infrastructure that is present at a company is analyzed and the infrastructure that is needed is analyzed and built in the next step. These steps are followed by the product development steps. These are functional steps, such as information and data analysis, modeling of the information system and building the front-end and backend products. These steps can be performed sequential but are usually performed parallel, by different members of the project team, each of them working on his own step in the whole process. These steps are drawn up to plan a project. These steps are meant to be small (taking about 10 to 15 days per step) so that the planning and scheduling of the project remains flexible.

Project step	w1	w2	w3	w4	w5	w6	w7	w8
Information Analysis								
(Bron) source Analysis								
Output Analysis								
Data Modeling								
Realization back end								
Test and acceptance b.e.								
Realization front end								
Test and acceptance f.e.								
Implementation								

Figure 11: The Guide phases (Source:Hobo 2004)

**BSC phases = PLC phases**

The Balanced Scorecard framework defines five sequential phases. The first phase is the acquisition phase. The project managers who use this framework do not see this phase as a project phase. Their responsibility starts in the next phase, the preparation phase. In this phase the project is planned and the organization of a project is set up: a team is formed and all the means needed to start a project are acquired. Then follows the execution phase, in which the work is performed. In this phase it is the project manager's job to guide and control the project. This can be done by controlling the project based on activities or on results. Activity based is much more labor intensive. People have to be monitored and guided by everything they do. Results control assumes that every member of a project team is capable of doing their work and only delivery of results needs to be monitored.

The next phase is the implementation phase. Here the products are rolled out and users are trained to work with the finished product. The final phase is the customer relations phase. This is the phase where the actual product is turned over to the client organization. Although this is the final phase, the activities in this

phase need to be planned in the preparation phase, along with the product planning. It is deemed important that transferring and maintenance of a product is planned right along with the design and development of the product.

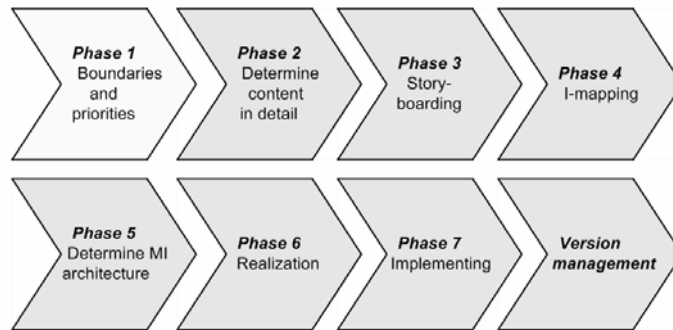


Figure 12: the management information phases (source: management information presentation - oasis)

MI phases

The phases in the Management Information framework are all aimed at creating a product. The phases that pertain to project management are listed in the previous paragraph, as a part of the description of the methodology itself. They are listed here to give the reader an idea of how development of a product goes using such a methodology.

The phases are: Prioritizing and determining the scope of the product, determining the configuration of the product in detail, determining the reports that have to be produced and creating storyboards, i-mapping (transforming information in such a way that the systems that is developed can use it), determining the MI architecture, realizing the product and implementing the product. The phases are sequential and can be depicted in the same way as the phases of the balanced scorecard.

### 4.3.3 Processes

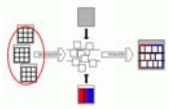


Most project management methodologies identify processes. Prince 2 for instance identifies the following processes: starting up a project, initiating a project, managing product delivery, control of a stage, managing stage boundaries, planning, directing a project and closing a project. The steps from the guide method can also be seen as separate processes, aside from dividing the project into phases. The balanced scorecard framework of Ordina VisionWorks defines distinct processes as well, as is stated in the description of the methodology.

PM's: Process similar to activity

When the project managers were interviewed however, processes as formulated in the theory did not seem that interesting for managing a project all together. Some of the processes, such as initiating a project and planning were used in managing projects, not as a process in a methodology however, but as an isolated management activity. In practice it turned out that processes and management activities, or components of project management were hard to distinguish. To isolate processes from project management components and write up processes as part of a methodology would be deviating too much from the practical reality. Processes therefore are listed under project management components, because they are seen and used as such by the project managers.

### 4.3.4 Components



The components described below are a mix of components used by project managers. Not all components are used by all project managers and not all components are used on every project. Components are sometimes not even completely used by project managers, but only used in part. Because this chapter of the research describes an inventory, the project management components are described here are composite components. Where needed however, for instance when different activities don't overlap, they will be separately described. What should be used when and by whom and why are questions that are to be answered later in this research.

## Acquisition

The first component of project management is the acquisition. Acquisition is one of the components that is seen as a process or even a phase in several project management methodologies. As previously discussed, it will be handled as a separate component.

Part of project management?

Whether this is actually part of project management is a topic of discussion. Some project managers believe the responsibilities of the project managers should start with acquiring projects. They want to be involved in a project the moment it starts. Other project managers believe acquisition is something that account managers do and that their involvement is not required.

Account management

The most obvious part of acquiring a project is account management. Here the two parties – Ordina VisionWorks and the client organization – should ask themselves the baseline question: “What are the projects benefits and what would the return on investment for this project be?” Another part of account management is convincing a possible client to have the project done, based on the need and benefits of a project for a client. Some project managers see this as their duty, others do not.

Business case: Made by client

The baseline questions are often asked when creating a business case. The creation of a business case is usually done in this first phase. Standard elements of a business case are: the legitimacy of a project, the costs and the benefits. A business case should be drawn up by the client organization. Sometimes project managers assist companies herein. For most projects a business case is not formally draw up but made none the less. Furthermore, most project managers think a business case should be flexible. Demands for a project can change and so can the needs of a client. When they do a business case should be modified.

Another thing the project manager does during the acquisition phase is drawing up the first project plans in which the way the project will be handled is formulated. To do this informal communication with the client is necessary: the client’s needs need to be assessed.

On the basis of this preliminary planning, when an assessment of how many man-hours a project is going to take is done, a tender or project proposition can be made.

## Feasibility study

Before a project is initiated, first the feasibility of the project has to be determined. Based on this a decision will be made whether to actually go through with a project. For some projects this study is not very extensive, for others it can take up to two weeks.

A feasibility study is best described by the DSDM methodology and by project managers who work with this methodology. The parts of the study as it is described here are mostly taken from that study.

Link workers and management

Feasibility is determined by different activities. One of the things a project manager should keep in mind is that the contractor and the people on the work floor should be linked. What the contractor wants should work for the people on the work floor, who in the end are affected most by the project.

Usually determining feasibility starts with interviews and or workshops. Here the problems and the possible solutions are determined. Also the business processes and information systems that are going to be affected by the project are inventoried here. This is then communicated back to the contractor, who has to agree on the problem and the solution.

Technical feasibility

Another part of this study is the study of the material that a project team has to work with. This is called determining the technical feasibility. This can be data quality or reliability of numbers and data.

At the end of the study alternative solutions are drawn up and it is assessed whether they actually solve the problem. Also a report of the study is made and presented to the contractor and client organization.

## Initiating a project

Initiating a project is the second component that is often called a process or is mentioned as a phase. Again, it is mentioned as a component, because project managers treat it as such. The line between acquisition and initiation is often somewhat vague. Initiation is therefore defined as the part of a project that starts after the client has agreed to the project proposition (and signed the contract).

If a planning was made during the acquisition of a project, that planning will be refined during the initiation of a project. If there was no planning, a preliminary planning will be made. Such a planning is usually

found in a project initiation document. Documents which are used with the same purpose are the project contract or the project proposition. Examples of templates of such documents can be found in the [appendix](#).

#### Activities in initiating

Usually in initiating a project the following things are done:

- Determining the time a project will take in man-hours. This is based on the available skills or resources for a project. These are determined here too.
- The ideas a client will have about a project or the technical specifications of an end-product, will be identified and worked out in more detail.
- Deliverables will be identified and drawn up in project plans. If a project can be divided into several sub-projects, they will be described here.
- Goals for the project or sub-projects are determined. These describe the way a project is handled. They are described in accordance with the client's wishes.
- People who are responsible for the project and people through whom the communication about the project will go are identified and listed. Such activities include assembling a project team, assembling a project board, assembling other groups of people, for instance a reference board with people from within the business, who have knowledge about the content of an information system.
- Sometimes an assessment of whether products of a project can be implemented at all will be made.
- Finally the scope of the project and the conditions for a project are determined.

### Planning

One of the most extensive forms of planning is called the matrix approach [48]. To describe planning, a matrix planning will be described and then some other, less extensive forms of planning will be discussed.

#### Matrix: - Activities - Stakeholders

In a matrix planning, first the end product is broken up into parts. Then the resources and skills needed to finish a part are determined. With this and with the experience of each resource or consultant in mind, the time needed to complete the part is determined. For the execution, the stakeholders are determined for each part. Listed is who need the product and what their demands and expectancies are of the product. The time each consultant has to work on a product or part is then determined and listed. And finally closing of a project is planned. The quality of work of every consultant is listed next to the parts they have worked on and the means of evaluating this are listed. Less detailed forms of this planning are often used. Stakeholders are not always listed for instance in a planning and the evaluation phase is often left out too. A template for such a planning can be found in the [appendix](#).

#### An overview: - Gantt chart

Another planning that is often used in project management is planning with Gantt charts [45]. A Gantt chart lists phases or activities as blocks, set out in time, with a milestone product at the end of each block. Dependencies of blocks or activities are also drawn in this planning. A block has a start time, and an end time and thus a duration.

A Gantt chart provides a very rough overview of activities and products. For communicating plans with clients this is seen as a good tool. For project planning it is often seen as a bit too rough. Activities are therefore planned in more detail by a project manager for his private planning. In the detailed planning of activities, resources, skills, costs and sometimes stakeholders are listed.

#### Planning doc.

Other items that are often seen in a planning are:

- The conditions which have to be met in order to continue a project.
- Responsibilities of everyone involved are also listed.
- Goals for each phase or activity or sub-product
- Deadlines set by a client

What items are listed in a planning is a choice left to a project manager. Some project managers like to plan extensively and in great detail, other project managers only want a rough overview of activities. The detail is also dependent on what detail in planning is needed by the project team to work with the planning. Some teams or consultants can do their own planning when they have an outline planning and finish date; others need detailed plans to work with.



#### How to plan

There are two ways of planning a project. The first method is taking deadlines a client sets for phases of a project and calculating what is needed to meet these deadlines. The MoSCoW priorities and Pareto's 80/20 law are used when determining important activities that are needed to meet the deadlines.

The second method used in planning is taking the budget and the product specifications as a given and determining the time needed. This time is estimated based on experience with similar previous projects, usually plus a float of 25%. What is also taken into account when calculating time needed is the experience of resources and team members, the project management and information systems development methodologies used, the quality of technology that has to be worked with and the resources (men and means) provided by the client.

### Scheduling

The only methodologies which explicitly do scheduling are the Guide framework and DSDM. Other methodologies may incorporate methods for scheduling but they are not used by the project managers. Scheduling is mostly seen as an integral part of planning.

#### Guide: Small projects

The Guide framework schedules projects as follows:

Most projects take about 50 days to complete. These projects are divided into smaller projects, based on products that have to be delivered. The sub-projects are divided into eight steps. One step takes about 5 to 10 days. Some steps take more time than others. It is the project manager's job to identify these steps and to take note of this. Use of new tools team members have to work with or specific data warehousing processes such as ETL [18] or the development of a custom report are tasks or steps that take up more time than others. The key to scheduling is to divide the sub-projects into clear steps of which the duration is easy to estimate. Steps have to be limited in time and number.

One of the benefits of scheduling this way is to have results quickly, usually within days. The other benefit is that it can quickly be seen whether there will be (good) results at all.

#### Timeboxes: fixed time frame

Another form of scheduling, which is used by the DSDM methodology, is Timeboxing. Timeboxing divides a project into predefined activities and sets a start and end date for the activity. Timeboxes also list the people who perform the activities. When an activity is not finished before its set end date, the activity is moved to another (new) project. Every timebox has an associated product. This means that one way or the other a product will be delivered at the end date of the timebox. This is done to insure the client's involvement in the project.

### Managing changes

#### 2 paradigms: - Change - Order

Managing changes in a project should not be confused with change management. What is implied are the ways changes during a project are dealt with. Hirschheim in his article about paradigms defines two dimensions. One of these dimensions is the order-conflict dimension. In the order-conflict dimension, the order or integrationist view emphasizes a social world characterized by order, stability, integration, consensus, and functional coordination. The conflict or coercion view stresses change, conflict, disintegration, and coercion. [50] When researching project management at Ordina VisionWorks, two extremes of this dimension were found. There are two general ideas among the project managers in dealing with changes. The first idea is that changes cannot be made during a project. A project manager and a client agree to a planning and to product specifications and that is what will be delivered. Changes can be made to a product as long as they don't affect the planning. When changes do need to be made, the planning or even the project contract has to be revised.

The other view is that 'things change'. Environments change, managers change and the information they need changes on a regular basis. Projects should adapt to these changes. When a client does not want the product that was agreed on in the beginning of the project, a project is not seen as successful.

Which view is adopted depends on several factors, which will be examined at a later stage in this research.

#### Changing the planning

The view that is adopted has effects on the way changes are made. In the first, more rigid view, when changes are made, they have to be communicated with the client. Even before changes are made, both the client and the project manager have to agree on the changes. One mechanism for flexibility is planning. When changes are not seen as a natural part of a project, usually the planning that is made in the beginning of a project is somewhat loose. The products that will be delivered are communicated to the client, feedback is gathered and products and specifications are communicated back and forth until all parties

involved agree. These parties include the party responsible for the project, the sponsor of the project and the business, or the party benefiting from the project. Only then are products and their specifications 'frozen' in the planning. An aspect that is seen as important during this process is expectations management. The expectations a client has about a project have to be managed carefully. They should be in line with what can be delivered in the end. Expectations are managed throughout the project.

#### Approval of a phase

Another mechanism for more flexibility is called approval of a phase. Here the planning of a phase and the preliminary design of a product to be delivered at the end of that phase are presented to the client or contractor and approval is acquired before the phase starts. This is only feasible when phases don't overlap. One of the tools used in communicating changes during a project is the exception report. This is a formal document, in which the situation, the cause for the situation and the alternatives solutions are described. This document is shared usually with a project board. Their agreement on one of the alternatives is needed, if the project is to go through. Less formal documents are often used to communicate changes, but they are always communicated.

#### Managing changes less formal

Under the second paradigm, changes are communicated to a client as well. Under both paradigms it is necessary to timely and accurately inform a client of changes. The thought behind this is that a client, or a project team, should never be surprised by changes. Surprises take a way the feeling of control that people always need when there is an investment at stake. Changes are communicated less formally when they are seen as natural occurrences. One of the conditions for adopting this paradigm is that the client organization adopts it as well. A characteristic of this view is that product requirements change continuously and are therefore never predetermined before starting a project. They are continuously discussed with the client and a product is modified whenever it needs to be, on the basis of the new requirements. The products are also not formally delivered, but they are rolled out and modified after users have worked with the new product and have come up with new wishes or demands.

### Risk management

In determining the risks of a project, there are several methods found, which all are more or less alike. The simplest form of risk management is determining risk in advance, based on what the project manager knows to be risks, based on experience with previous projects. Risks are monitored and issues that come up during a project, for instance untimely delivery of needed resources, are monitored and become risks when they pose a danger to the project planning.

#### Risk assessment: - A table - 2 risks

A more structured way of managing risk, is to draw up a table and list risks, the chance of that risk occurring, the impact it will have in currency and the priority a risk therefore has. A scenario of what will happen and of what to do when a risk occurs, is usually also listed in such a table.

In planning for risks, some project managers only list the two most important risks. The idea behind this is that when one thinks long enough, every occurrence during a project can be seen as a risk. This would make a risk assessment too detailed to be useful. Other risks are managed when they occur and are not planned for in advance.

Risk avoidance is generally not seen as a good strategy for project management. For a project it would be good if not too many risks existed, but not all risks have a negative effect. Some risks can also turn out to be commercially interesting opportunities. Therefore risks must be managed and not avoided. Listing only two risks facilitates this idea.

#### Minimizing risks

To avoid risk, the general consensus is that communication is necessary. When communication with a client or with third party suppliers is good and everyone is kept up to date on changes and problems, the chance of risky occurrences actually happening is minimal. What are to be communicated are problems and the time it will take to solve them. Another mean for minimizing risk is keeping issue logs. These are lists with things that have gone wrong during a project and things that will go wrong if no action is taken. When such lists are analyzed, major problems can be identified with more ease.

#### Insurance

Insuring your project against risks isn't free of cost. When risks are to be avoided, people usually tend to take firmer positions when it comes to their work and changing it. People also tend to take more time into account for their tasks than they would when they don't have to account for the risks they take, just to be on the safe side of things. Therefore a balance must be found between the cost of risks and the cost of avoiding them.

A model such as McFarlan proposes it, and seems to be popular in project management, is not used in practice [33]. The general consensus seems to be that risk analysis on the basis of such a model is too extensive and is therefore not useful in managing a project.

#### Escalation of issues

What is done when risks do play out is a process called 'escalation'. Escalation means that whenever things go wrong, the people involved, set up a direct communication line with all the parties involved in a project. When the management of Ordina or the Client comes onto a roadblock, for instance a shortage of funds or personnel, this issue is communicated down into the whole project organization, until everyone knows of the problem and of the solution that will follow. When projects go wrong at the bottom, the issues are played up to the project board. A project manager must seek the support from this party, to have sufficient support in solving problems that are otherwise impossible to solve. Such escalations often occur when a project is well underway. In the begin phases of a project, people tend to be more flexible and such a means of resolving issues is not necessary.

#### Choosing consultants

### Team management

Before anything, project teams need to be assembled. Consultants are assigned to a team, based on their skills and availability. When a project is initiated, and when a preliminary planning is drawn up, a project manager can ask the resource planning of Ordina VisionWorks for available consultants. Based on availability a project manager gets the necessary resources for his team. A choice for the consultants a project manager needs is usually based on the skills consultants have, the experience they have in similar projects and the training they have on a particular subject. Skills of consultants are matched to skills needed to fulfill certain roles or tasks of a project. The skills consultants that are appointed to the team have, is fed back into the planning.

#### Structure depends on skills and knowledge

There are alternative ways of assembling a project team. For some projects it is useful that every team member has all the skills necessary to work on the whole product, from beginning to end (analysis of a problem to implementation of a solution). An assembly of team members who have all types of skills needed happens when projects are divided into smaller projects, which are worked on parallel. The team members are needed for the whole duration of their own sub-project. Team members can support each other when their project finishes, or when their skill is needed for a moment.

Yet another way of assembling a team is to have team members with knowledge of a certain business type work on information systems that support the business they have knowledge of.

Other team members can include consultants of an external organization, people a supplier of a specific product supplies for assistance in working with that product and people from the client organization, who have to work with the end product or have special knowledge about the problems domain. Such users are called ambassador users.

#### Control

Teams are controlled in the same way throughout the organization. Consultants are expected to be good at what they do. They are given the freedom to plan their work and to work without much control, as long as they think they can handle such a way of working. (*Results control*) More supervision is provided when things tend to go wrong or when a team member requires it. (*Action control*) What is managed in people is a sense of urgency and their motivation to work on a product. (*Personnel control*) [13] To improve a sense of urgency and motivation, a planning has to pose a challenge. The tasks need to be doable in the time that is planned for that task, but time should not be given to tasks in too much abundance. Also team members should be involved in creating an overall planning, so that they see how their work is a part of the project as a whole.

#### Reporting: - To the board - To management

### Reporting

One of the most important reporting mechanisms is the use of a project board or steering group. In the discussion of methodologies this was described in the paragraph about the Prince 2 methodology. A project board is described best in this methodology, but is used in many more projects.

Members of a project board are the management of Ordina VisionWorks, the management of a client organization, (usually) the project manager, the contract manager from the client organization and sometimes someone from the business that an information systems development project is concerned with.

A project board controls the project.

- They decide on issues and changes brought forward by the project manager.
- They resolve conflicts between client, supplier and business.
- They approve of phases and of products.
- They monitor the project's progress and status.
- And they can supply the project with means and resources.
- They steer the project in the right direction, but they do not manage nor plan the project. These are the responsibilities of the project manager.

A project manager reports to a project board once every two weeks. A project manager reports the status of a project, the deviation from the project planning, and the project manager reports issues and changes in the project.

**Reference group** Not all projects have a project board. A project board means an extra communication channel and an extra group of people who have to agree on issues. This can be inflexible at times and therefore time consuming. Some projects have besides a project board a so called reference group. This group consists of people from within the business. They can contribute knowledge about specific information areas to a project. They can also evaluate a project's products and make sure they are of sufficient quality. A project manager reports to Ordina separately. Once every x weeks, or whenever things go wrong, a project manager reports the status of a project to the project bureau. They monitor and control the risks of a project and are ultimately responsible when projects fail.

### Evaluating

The project bureau of Ordina VisionWorks has specific templates for evaluating projects and feeding this information back to the customer and the organization itself. None of the project managers have ever seen, let alone handled such a document.

**How it is done** This does not mean that projects are not evaluated. Sometimes project evaluation does happen. The project manager evaluates the project with the client. Sometimes projects are evaluated with a commercial purpose, but mostly they are evaluated because both parties feel the need to learn from a project. Evaluation is done by having a meeting with the project board, in which issues are discussed and things that can be learned from a project are listed and documented.

**During a project** Projects are evaluated at the end of a project as well as during a project. Evaluations at the end of a project happen in a way as described. During a project evaluation is used as an aspect of expectancy management. The client's wants and needs are reassessed, issues that need to be resolved are assessed and discussed. When things don't go the way they are agreed to go, a group of people is formed, with which the deviations are discussed. What is important during such meetings is that everyone involved understands why the project deviated from what is agreed and understands the underlying problems. Naturally it is also discussed during such meetings how the project can be put back on track.

**At the end of a project** At the end of a project the performance of a team is also evaluated. This happens in meetings with the project team and the project manager. Each team member's performance is assessed and discussed and an assessment of what can be learned and improved for future projects is made. These meetings have the form of a debriefing.

**Not at all** Not all projects are evaluated. Time is often a constraining factor for evaluation. When a project is finished, a project team and a project manager move on, to another project or to another phase of a program a project is a part of. Project managers say they do want projects to be evaluated more and there are many who do evaluate a project, but since no one can be forced to have a sit down once their work is complete, sometimes it just does not happen.

### Monitoring and control

**Time, cost, quality** Time, cost and quality are the three things that are monitored by the project managers. They are also the main status indicators of projects. The importance of each of these indicators of a project's performance depends on the project and on the client's or contractor's wishes. Project managers see it as their job to

balance these three factors, in order to get a good project outcome. These are also the main indicators the project bureau of Ordina is interested in when they monitor and control projects.

**Hours** Other things that are monitored are the performance of individual team members and the hours they spend working on their products, the atmosphere within the project team and issues that arise during a project. These things are usually not reported but managed by the project manager.

**Status** What is controlled in projects by project managers are these same indicators that provide the project manager with an overview of the status of a project. These are time, quality and cost. A fourth indicator, product scope is also often used as a control element. Controlling product scope means making sure that the products a project delivers are contributing to a solution for a problem the project needs to solve and that these products are within the range of products that a client and Ordina agreed on.

**Theory of constraints** Another form of control is using the Theory of Constraints. [53] In this form of control, every bottleneck or constraint in the design and build processes is identified. The most important constraint is then analyzed and it is decided how that constraint can be exploited. Next all other processes that are not constraints are subordinated to this constraint. They don't output more than the bottleneck can handle. Then the bottleneck in the process is handled. Action is taken so that the bottleneck will disappear and the constraint is broken. What will happen is that another process will automatically become a new constraint. This constraint is then handled in the way the first one was. The Theory of Constraints simplifies the process of planning and decision making on the basis of problems and issues a great deal.

### Management skills

Some of the skills listed here are also listed in the description of project management methodologies. Project managers, who don't use a methodology, do have ideas about how to manage a project. These ideas are often similar to management skills needed for a project.

**Communication:**  
- With team  
- With client  
The first thing project managers mentioned when they were asked about the skills needed for their job were communicative skills or people management. Communication with a client organization and communication with a project team were mentioned as equally important. Also a project manager acts as a link between a client organization and a project team. He translates the technical issues of a team into issues which are understandable for a client who has little knowledge on the technical plane – which is usually the reason for contracting a project.

To be able to communicate technical issues, a project manager must have at least a little knowledge about the technology involved in the project. A project manager is therefore usually someone who has done technical consultancy work before he became a project manager.

**Bridging tech. and business** A project manager's function in most business intelligence and performance management projects is to act as a bridge between management and the technology that management relies on for management information. Aside from technical know how, a project manager must therefore also have an understanding of management issues and the information needs of managers.

**Motivating** A project manager must be able to motivate people. When needed team members must put in extra time. A condition for people to work overtime is that they feel good about what they do and how it is done. It is the job of the project manager to accomplish this.

**Trust** Another skill that was mentioned by the project managers is trust. A project manager must be able to trust his team members to do their job properly. A team needs a certain amount of freedom to be able to work creatively towards a solution. Too much control impedes performance. [41]

**Tact** Lastly 'tact' is seen as a skill. A project manager must have this to be able to make everyone who is needed for the project cooperate. In a client organization for example there often is an IT department, of which people feel made redundant by the hiring of external consultants. A project however often relies heavily on the resources, data and information provided by this department. Tact is required to get these resources, from a group of people who might not feel altogether willing to provide them.

## Management documents

On the preceding page is a list of all the management documents that could be found in the organization at the time of this research. There are many more different documents used in the past by all the different business units. These are not represented here. The arrows between the documents illustrate how these documents are integrated. The use of these documents for each separate document can not be attributed to the specific business units. At this moment document from different methodologies are integrally used. The colored squares however do identify the methodology in which the document was originally found. The documents are listed according to the project phase they are drawn up in. The sources of information about these documents and their interrelationships are the interviews with the project managers, the documentation available about the methodologies and documents found in various places throughout the organization.

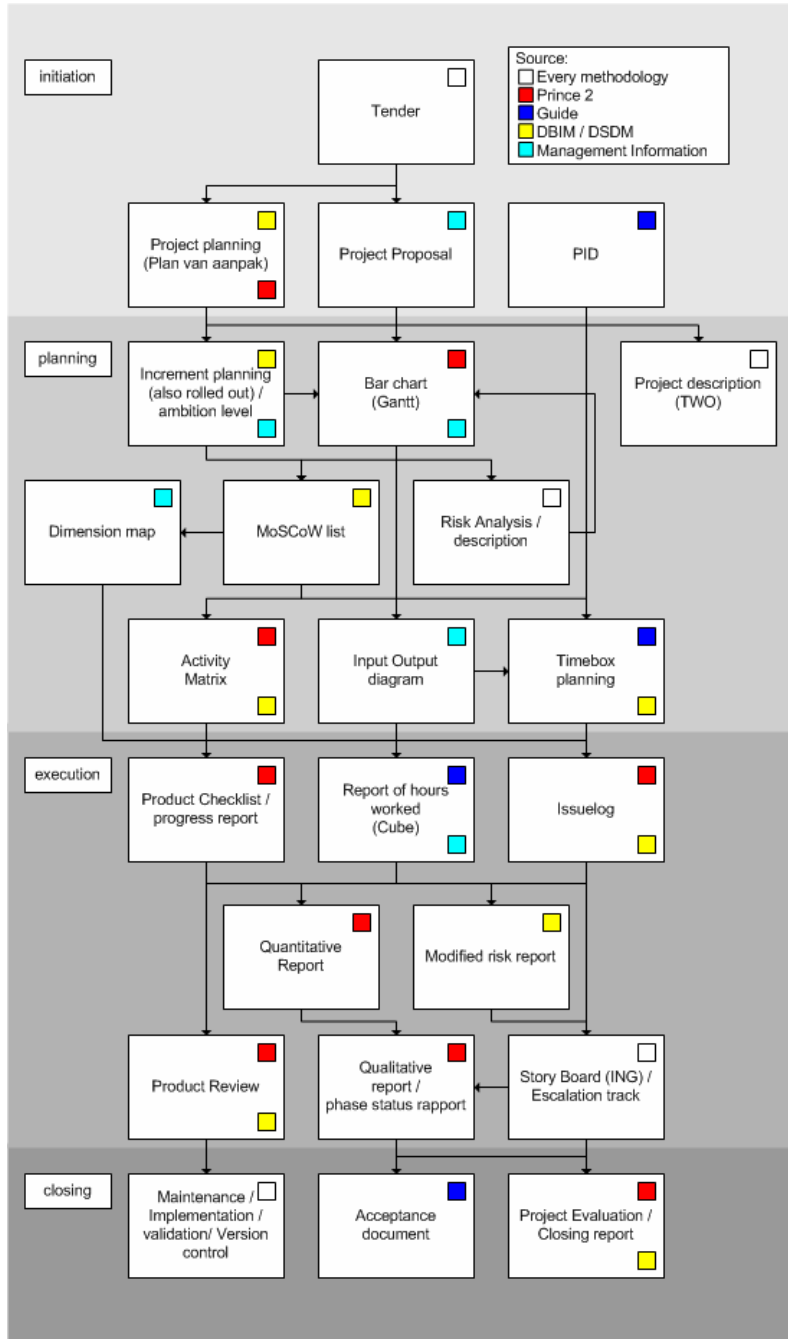
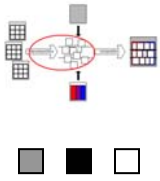


Figure 13: management documents at Ordina VisionWorks

#### 4.4 Comparison of practices: Summary table



In the table on the next page all the project management components are summarized per project manager. The components are roughly the same as the components used in describing the interview results. A ‘new’ component is management documents. These are the official documents used in project management. In describing the interviews, a full listing and clarification of all these documents would be to elaborate, considering the space it would take. In the table they are listed briefly because they do form an important part of managing projects. Examples of management documents currently used can be found in the [appendix](#). A partial listing can of course be found in the previous paragraph. The column ‘other’ describes the main thoughts of project managers behind the ways they do things when managing projects. These are described by the different methodologies at the beginning of the inventory of practices.

Conclusions from this summary will not be drawn yet. This is meant as a short description of current practices, to provide a quick insight in and glance of project management practices. Noticeable differences between practices are described in the inventory of practices. These results will only be modeled in their current form (of components) with regard to different projects and how the practices for each of these components differ per project. Modeling them further here would not provide this research with a better insight in the practices themselves. The goal of this comparison is to take project management apart, not to combine it in a new model

component / PM	Pre-Project (Acquisition/initiation)	Planning	Scheduling	Managing Changes	Risk Management	Team Management	Link between Ordina, client
<b>De With</b>	Make Tender Know what client wants Pre-research → Gantt	Milestones: products , sub-steps, problems Product → sub-product → activities	Dimension-map → tasks define: time money specs start with work right away; don't start with planning	Make what is agreed on in the tender	Involve client in risk by the tender. Inventory risk you cant but the client can manage	Make sure the right people do the right things on time. Team makes its own priorities	Project board: remove roadblocks, agreement Note! Experts are not your contractors
<b>Geelen</b>	Feasibility study Company study Domain study	Plan in all phases NOLAN stages	Timeboxes: timely delivery of products → client stays involved and committed	Clarity, Document, Communicate The environment changes; so do products	Determine in advance; then keep monitoring Communicate escalation and time-loss	Ensure good skills Openness is important Relation team <-> client	
<b>Genuit</b>	Assessment, tender: cost handling the project and planning	Determine phases, units: time, resources, employees, decisions, float in 'build-time'	Time boxing, or else plan phases with a generous float	Cancel functionality or increase budget. Feedback wit stakeholder or more resources	Mention solutions, not risks Escalation track: top down and bottom up	Capacities must overlap. Discuss social friction immediately. Build team around Lead Architect .	Board (board/ bum), project group (leaders), project teams (team champions and others)
<b>Griffioen</b>	Determine requirements, obtain means Tender: scope, phases, priorities	Plan for project control but also for exploitation Bar chart with activities	milestones and timeboxes, a detailed version of the Bar chart (per activity)	Firm choices: make client trust you Change up to the design freeze	Manage expectations: prevent surprises Table with: risk, chance, impact → priority	Kickoff meeting Celebrate milestones Team: Sense of urgency	Work with the project mgt standard of the client Organization: board, project-, reference- and team-group
<b>Hobo</b>	See what client wants Planning: costs, budget, proposal, business case, proof of concept	Globally month/week plan, team in detail themselves	Appoint team members to a project depending on the business concerned	Things change: keep listening and change with the demand	Financial: spread budget over multiple projects. Time: be honest and open (when more resources are needed)	Team members specialized in business arena's Always provide work for your team	Account manager and project manager have a monthly meeting
<b>Kruger</b>	Make a project proposal and / or business case	Gantt chart: Don't draw in dependencies do think about them however	activities, consultants laid out in time Milestones	When the planning changes: exception report, notify client, situation clear, offer alternatives	Risks in advance in proposal by setting requirements	Weekly meeting: discuss progress and status per team member	Board: someone from the business and from ICT, delivery manager, project leader
<b>Kuipers</b>	Tender: short PiD Mostly project manager not involved	Plan with to get there with team: Product levels, milestones, steps in time. ! WBS clear for team	Timeboxes or classical: make product after product	Version control: Accords on product → changes → new version	On basis of experience Issue log: counter actions, responsibilities, escalation levels	Competencies more important then personality. Team buildings activities: behavior and expectations	Reviews / validation of products by client. Clients employees participate in project, Workshops
<b>Peters</b>	Assessment, sub-projects, scope, expectations and priorities straight	PiD: responsibilities, hours, costs, goals, risks → acceptance document	Parallel p. team member, make timeboxes. Get results fast, see if there are results fast	Don't commit too much at the start: prototyping Discuss consequences: client knows what goes on	Based on experience Name the 2 most important risks, be alert for others Anticipate, don't protect	Everyone able to do all development tasks: minimal info exchange. Let team members work themselves	Board for: tough decisions, non-real expectations, steer and guide, insure commitment
<b>Pilon</b>	Acquisition: possibly with the pm. Business case: not too formal. feasibility study: problem statement	Plan with the client Project planning: who what when, Gantt chart, meeting moments	Matrix planning Skills of team members can influence a planning	Client relation: manage expectancies clearly. Things change, but only with an accord	Identify slowing and result influencing factors Manage Ad Hoc		Board is a possibility, but informal meetings with 'high status' members of the organization is better
<b>Van Fulpen</b>	Acquisition: commercial side is important Concept phase: set team and goals	Steps based on products → activities → time and people needed → tender		Communicate with client in advance, document extensively	Risks are future problems, communicate timely. Risk adversity costs money	Project leaders, involved with content, roles on basis of personalities, cooperation	board: all stakeholders involved, make decisions
<b>Verhaegen</b>		Deadlines of client, then back track (80/20) or specs set by client and then time + 20%	Matrix planning: sub-products, tasks, skills, stakeholders, expectancies. MoSCoW and timeboxes	Changes are ok if the budget allows it. Ordina provides resources when necessary	Categorize risks, priorities and counter measures	Large teams: handle more formal and structured → code of conduct. transitions → project culture	Determine and assess behavior of 'high status' people in organization. Board is for monitoring and accords

Table 1a: An inventory of project management practices



Component / PM	Reporting	Evaluating	Monitoring	Steering	Management Products / Templates	Management Skills	Other
<b>De With</b>	Status vs. planning Roadblocks, deviations: Get client to act	Reward good work, bad work: no need to discuss, it will be clear		Find balance between time cost and quality	Project planning: functional and tech design Tender: plans, milestones	Know development processes → Communication and oversight Be able to work on a project	Focus on: issues, product, targets, responsibilities
<b>Geelen</b>			Time plans, commitment, budget, work in team, take responsibility	Pm is like a U.N. soldier: only act when things go wrong	Project plans: pre-project	Formal to the board, informal towards the team Pm is 'president': make sure the work is done effectively	Note: People → atmosphere → feasibility
<b>Genuit</b>	To project board, report hours worked. Document project board meetings	For the team: yes For the client: only when there is a formal demand made		On the basis of components and documents (products) Capacity that goes into products		Know the technology as well as the business, aimed at human contact, at home with board as well as techies	Phases from xDWH → results and components → architecture and capability
<b>Griffioen</b>	To the project board To the project bureau (quantitative & qualitative)	During and at the end of a project: share knowledge and make problems clear to everyone	Status vs. Plan MOQIT: money, organization, quality, information and time everyone	Results control: team of professionals Action control: Monitor every step		Maintain short communication lines Get your boots dirty: work with the team	Phasing: (acquisition), <u>preparation</u> , <u>execution</u> , implementation, (exploitation)
<b>Hobo</b>	Financial reports and bad news reports	Learn when there have been tensions, listening is important	Give freedom: don't be present too obviously but do monitor	On cost and quality		Get the client's trust Give the team their freedom Maintain an oversight Feeling with the 'matter'	Project mgt is a trade Knowing how to deal with people & specialized skills are needed
<b>Kruger</b>	With Storyboards: Decisions to take, progress, issues With exception reports		Eye progress and expenditure on the basis of milestones, weekly 'hour states'	Fixed Price: time and cost fixed; quality Cost Calculation: costs matter less, quality does	Storyboards, product checklist issue log, project proposal, Ordina's forms	Communicate techies as well as the client Be able to motivate Act with tact (in conflicts)	Note by fixed price: Product focus and keep an eye on the costs
<b>Kuipers</b>	Product checklist: progress and status Issue log, Ordina's reports "Lean and Mean"	Determine what went wrong / right Not on a personal level Closing workshop		Devils triangle / strategy triangle: cost, time, quality: Management depends on what is fixed	PiD, go / no-go document, progress document, reviews, see also: reports		Project management method depends on what the client wants, is able to handle
<b>Peters</b>	When the client wants it: Issues, action points, hours (Powerplay cubes), work status	Team: things you notice Project: with client on basis of docs and expectancies	Only when there is a demand: product results (is it what the client wanted)	Steer on the basis of bottlenecks and the TOC	PiD, acceptance document, hour cubes, issue and action logs		Keep it simple stupid. Optimize the documentation. Plan Ad hoc and meet informally.
<b>Pilon</b>	Informal meetings with the client and Ordina	Informal evaluation with Ordina: lessons learned, new knowledge gained	Check progress, put out fires Keep an eye on the schedule with respect to time and the costs				Larger and <u>more complex</u> projects are managed more formal
<b>Van Fulpen</b>	Reports depend on how much control the client wants, report issues and risks	Evaluate the team in order to coach them	Monitor risks Monitor atmosphere	Client sets priorities, The project manager balances time, cost and quality		Coach a team, guide the processes, Communicate with the client, Overall strategy	Difference between: Programme manager Project manager Project leader
<b>Verhaegen</b>	Through 1 channel: the project manager. Formal communication points: status deviations, budget	no		On the basis of quality and costs. Time influences costs directly	Risk log, progress doc, planning: Are "life jackets" Are production tools		Standard: product structure, requirements, decision structure. Structure provides certainty and security

Table 1b: An inventory of project management practices



# Chapter 5: Future Project Management Practices



## 5 Future project management practices

### 5.1 Introduction

In this chapter the second research question: “*what would be a successful methodology for managing future projects?*” is partly answered. To be able to answer this question, different types of projects are defined. This is done in the next few paragraphs. What is researched next is how project management practices and management methods fit these different types of projects. This was done by means of a small questionnaire amongst project managers. The results of the questionnaire and thus of how project management methods fit types of projects at Ordina VisionWorks is evaluated and with this as a basis, as start towards a unified project management methodology is made in the last paragraph.

### 5.2 Defining projects

Determining what kinds of projects there are at Ordina VisionWorks might seem trivial. When project managers were asked about what types of projects they did, their first answers were: “Right now I’m working on an extreme data warehousing project”, “We do Business Intelligence projects” or “I only do small projects”. These three answers all pertain to different project dimensions. The first answer says something about the information systems design methodology used in the project. The second answer classifies the project according to product and the third answer classifies it according to project size and with that it doesn’t even say anything about how the size of a project is defined. When given this answer we don’t know whether the project only has a few people working on it or whether the project is limited in budget. Contemplating these issues, defining project types all of a sudden doesn’t seem so trivial anymore.

To define different types of projects, projects dimensions will have to be determined. As might have become clear from the introduction, there are many project dimensions that each make a project different from another project. Examples of such dimensions are products produced, design methods used, size of a project, etc. These dimensions can also be classified further into sub dimensions. For instance, project size is determined by the number of people working on the project, but also by available budgets, costs, gross income and time it takes to complete a project.

In order to classify projects, in a way that makes sense for the remainder of this research, first a list of all dimensions that are described in the various articles about project management is made. Whenever possible sub-dimensions are listed as well. This list will be as extensive as possible. The dimensions are then categorized. Finally the dimensions that actually have an impact on the way a project is managed are selected.

Using dimensions  
to classify projects

#### 5.2.1 A list of project dimensions

Various articles and manuals about project management were used in order to find as much dimensions of projects as possible. What follows next is a short oversight of most of the articles used to define dimensions.

**Shenhar 1996:** This research tries to categorize projects according to scope and technology used. A total of 127 projects are categorized in this fashion. For scope and technology, elements of project management are listed and then filled in over the ranges of scope and technology.

**Shenhar 1998:** In this article projects are classified. More specifically, how certain management practices relate to two success dimensions is listed for 6 different types of projects.

**Jurison 1999:** This article is an extensive tutorial of software project management. It first explains something about projects, project features and the project life cycle. The article then goes on to explain several project management elements, such as planning, risk management, team structure, etc., in more detail.

**Kelley 2003:** In this article Turner’s five project functions, scope, organization, time, cost and quality are related to Fiedler’s situational leadership theory. The research was done specifically for IT services projects.

**Thiry 2003:** This paper is intended to demonstrate the need for a specific programme rhetoric and life cycle, distinct from that of project management. Grounded in strategic concepts, rather than project concepts, and addressing strategic level stakeholders, both the rhetoric of programme management processes and its structures are discussed.

**Seddon 1999:** In this paper a two-dimensional matrix for classifying IS effectiveness measures is proposed. The first dimension is the type of system studied. The second dimension is the stakeholder in whose interests the system is being evaluated. The matrix was tested by using it to classify IS effectiveness measures from 186 empirical papers in three major IS journals for the last nine years.

**Watson 2004:** This publication explains how project managers can cope with matrix planning. It explains a matrix planning in detail and it explains how project managers can work with such a planning in a practical way.

**Ordina 1997:** this is the in house project management handbook. It consists of several templates and explains how these are to be used in project management. It also defines project management processes and states in detail how these are to be managed.

**Kishore 2003:** In this article a framework is defined of client-supplier relationships. The extent to which suppliers of ICT services can be substituted is compared to the strategic impact of projects. The four dimensions of the framework are discussed in detail and the movement between them is discussed as well.

**Graham 1999:** This publication lists the details of management control in detail. Several forms of control are defined, problems concerning control are listed and a little is said about cultures and control.

**Lock 1987:** This is a rather early project management handbook. It explains several elements of project management of all sorts of projects.

**McFarlan 1981:** This article is widely quoted when project risk management is concerned. It provides, amongst other things, a framework for assessing risk in IT projects, based on three project dimensions: size, structure and familiarity with the technology.

**Gogan 1999:** In this article, two projects are assessed with the framework of McFarlan.

**Boddy 2004:** This article is about competing narratives. It explains how project managers and stakeholders can interpret success of a project differently. It provides a map for listing stakeholders and their issues and narratives.

**Wideman 2003:** This paper lists several models of project management created by scholars over the past two decades.

**Kerzner 1989:** A project management 'classic' about the soft skills of project management; the behavioral theory behind projects and about project planning, scheduling, budgeting and project management in general.

**Daft 1984:** This book is about management in general.

**Slack 1984:** This book is about operations management. One of its chapters is about project management and project planning in more detail. Methods such as CPM, PERT and project's deviation of planning are explained in detail.

**Onna 2003:** This book is a manual for doing projects with the Prince 2 methodology. All the processes defined by Prince 2 are explained. These include planning, management of a phase, control etc.

The dimensions that were found are listed in the next table (...). The first column lists parent-dimensions. These are top level dimensions, under which all the dimensions that were found in the project management literature are listed. The second column of the table lists the sub-dimensions that the main dimensions can be divided in. The next column lists the way a dimension is measured. This is done to get a clearer idea of what a dimension represents and how its meaning is implied. In the last column the article or manual that they appear in is listed. Some dimensions are trivial and do appear in almost every bit of writing. These sources are not all mentioned.

Dimension	Sub-Dimension	Measure	Source
<b>Means</b>	budget	\$	Jurison, Kelley
	time	T, t	Jurison, Kelley
	consultants	#	Jurison
	teams	#	Thiry
	client skills	team members, resources business / IT, high / low *	Seddon Watson, interviews
<b>Product</b>	type	BI/MI/PM	Ordina
	scope	assembly/product/array	Shenhar, Kelley
	phase	design/initiation/execution	Jurison
	technology	hi/med/lo	Shenhar
<b>Client</b>	size	turnover, employee #	Daft
	sector	finance / govt. / industry /...	Daft, Slack
	culture	formal / informal	Daft
	organization	type of functions / depts.	Daft
	relationship	close, dependent, cooperative	Kishore
	stakeholders	#, power levels of ...	Seddon
<b>Project Organization</b>	size	# of projects	Kelley
	communication	formal / informal, controversy	Kelley
	project dependencies	#, critical	Slack
	control	actions / results	Graham
	responsibilities	high / low	Lock
<b>Project Risk</b>	team form	func. / matrix / hybrid / various	Jurison
	risk	#, P, impact \$, insurance \$, priority	interviews
<b>Success Measures</b>	uncertainty	high / low	McFarlan, Gogan
	complexity	high / low	Shenhar
	client's goals	on time / quality / implementation	Shenhar, Seddon
<b>ISD Method</b>	Ordina's goals	time / budget / reputation	Ordina, Boddy
	type	budget / schedule / quality / specs.	Jurison, Kerzner
	cycles	DSDM / Guide / xDWH	Ordina
	design freeze time	#	dsdm.org
	scheduling	t	Shenhar
<b>Controversy</b>	types of phases	timeboxes / formal / matrix	Ordina
	purpose or direction	acq. / init. / exec. / impl.	Wideman
	changing goals	degree of...	Boddy
	senior support	#	Boddy
<b>Contract</b>	changes	degree of...	Jurison, Lock
	type	#	Onna
		fixed price / cost calculation	Ordina

\* Measures divided by “/” are different means of a measure, measures divided by a “;” are different measures.

Table 2: project dimensions

This table represents the dimensions having some form of order to them, since dimensions already have sub-dimensions. Categorizing dimensions was done on one hand by grouping sub-dimensions logically and on the other hand it was done by looking at dimensions as a whole and then determining sub-dimensions for them.

## 5.2.2 Selecting useful dimensions

About 38 separate project dimensions are listed in the previous table. In order to be of any practical use, the list of project dimensions has to be brought down to about 5 to 10 dimensions. As stated in the exploratory questions, in the problem statement at the beginning of this document, the project dimensions are defined and intended to help project managers to select project management practices for specific types of projects. Project managers shouldn't have to go through all 38 to be able to select a fitting management practice.

There are several ways of selecting useful project dimensions. These are:

- Taking project dimensions from previous research
- Asking project managers which dimensions they think are useful
- Filtering dimensions on redundancy and inter-relations
- Making a multi dimensional model of the dimensions

#### Dimensions from previous research

The dimensions listed here were taken for the greatest part from previous research. There is also research done on project dimensions as such and the influence they have on project management [44]. The dimensions that were found to have an impact on project management were: project scope (high / low), project output (feasibility study / improvement / new system / new generation system) and product (software / hardware). With these three dimensions their research managed to classify about 90% of the 127 projects they studied. In prior research they only used two dimensions to define project types. This research categorized projects and defined project management practices for each dimension. The two dimensions they defined then are: product technology (Super Hi, Hi, Med, Lo) and product scope (assembly / product / array). They stated that projects that were not managed in coherence with the practices they defined for each dimension were unsuccessful.

#### Research ≠ practice

The problem with using their research and not looking further into the use of dimensions for selecting project management methods and practices is that critical practices can be left out. One of the project managers of Ordina VisionWorks stated in one of the interviews that he used a client's culture to determine the way projects were planned. Such statements cannot be ignored in this research, since this research is about designing a project management methodology specifically for Ordina VisionWorks. How project managers currently choose their practices is an important factor in the design process.

#### Asking pm's

During the interviews that were held in order to create an inventory of project management practices, the project managers were also, implicitly, asked about how they manage projects differently. In order to select useful project dimensions, they could be asked to evaluate the whole list of dimensions. This however would be a problem because of their availability. No project manager has hours to spend on such an exercise. A 'light' version of this list could be presented to them for evaluation however. This is done in the form of a questionnaire with 'rating' questions. Managers are asked to rate the impact of several dimensions on several other project management practices.

In order to make a light version of the list of dimensions the dimensions were filtered on redundancy and inter-relations between dimensions. Dimensions that have a similar or opposite effect on the choice of project management methods and practices can be removed from the list. Project dimensions that have little impact on the choice of methods and practices can also be removed. Articles about project management and the interviews with project managers are used to determine these effects as follows:

#### Filtering rules

Firstly the dimensions that Shenhar et al. mention in their research, although perhaps incomplete, are important and should therefore be kept in the list. Other important influences on project management as defined by several other authors, such as for example stakeholders and their view on project success, should also be regarded when listing dimensions. Dimensions that project managers see as important should also be kept in the list. Secondly, dimensions that overlap with project management components can be taken out of the list. Those dimensions don't have an influence on project management components, since those dimensions are components. The choice for these components will be made automatically when choosing how management practices are going to be used for a project. These dimensions are risk management and project organization. Thirdly, to see which dimensions are redundant, because they have similar or opposite effects on the choice for management practices, a small exercise was made. In this exercise all of the dimensions were rated against all management components, based on the interviews with project managers. This way close relations and similarities could be discovered. A result of this exercise can be found in [appendix](#).



Based on the research, previous interviews and a questionnaire the following dimensions were listed as important dimensions for basing a choice of project management practices and methods on:

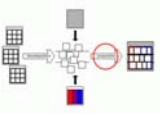
1. The client's business or sector
2. The client's culture
3. Project and product scope
4. Product technology
5. The client's success measures
6. Information Systems Design methodology
7. Available skills or resources

Multi dimensional framework?

All the sub-dimensions as they are listed in the table belong to parent-dimensions. In this way they are already grouped and a choice could be made to take the parent-dimensions as dimensions for defining projects, with the sub-dimensions only having a minor effect on the type of project that is defined. A problem here is that for instance product scope and product technology, or goal controversy and management support have very different effects on the typology of projects. This is made clear in several articles about types of projects [44][4]. This does not mean that dimensions can't be found that would suit a comparison based on parent- and sub-dimensions. It only illustrates that the categorization as it is done here is not suited for this purpose. The dimensions chosen by filtering are also relatively unsuitable to fit sub-dimensions. For the purpose of this research, such a division of dimensions is therefore not pursued further.

### 5.3 Fit between projects and project management

From the interviews with the project managers an inventory of project management practices was made. From project management theory several project dimensions that influence a choice for project management practices were determined. The next paragraph tries to explain how project dimensions influence this choice.



#### 5.3.1 Success or fit

To be able to choose project management components effectively, it would be useful to know what kind of components or management practices are *successful* under certain circumstances or in certain projects. There are several problems however to measure success. In an article about competing narratives, Boddy discusses such issues [4]. How project managers and stakeholders in the project view success differently is discussed. Shenhar et al. argue that success does not only differ for every party involved in a project but that it can also differ per assessor of success [44]. A project manual for software projects also list success measures or factors as an outcome of a discussion on success factors [20]. Project management scholars clearly be said to be divided on the subject of project success. Another problem with defining successful project management practices, is that there is very little known about unsuccessful projects. All project management components as previously described in the project management inventory have proven to have been successful in the past. When interviewed, project managers explained how they managed projects. And it can be assumed that what they explained was how the managed projects successfully, based on what is known about respondents and responses in interviews [14]. No project manager said that his way of doing things did actually not work well. As described previously in the inventory of project management components, projects are not often evaluated and when they are evaluated, they are evaluated orally between project manager and project team. Therefore there is little documentation about project management successes and project management failures. There are naturally lessons learned from previous projects. Those lessons are incorporated in the management of new projects by managers learning from each other, however not much is documented. What is therefore measured in this research is not project management success, but the way project management components fit different project types. This implies that when a project management component fits a project type in whatever way, it is automatically assumed to be a successful way of managing that type of project, since the ways of managing projects are taken from the interviews in which project managers talked about the way they successfully have managed projects.

Problems with measuring success

Interviews are success stories

Success → fit

### 5.3.2 Measuring fit

Project's influence on management:  
- How  
- Extent

To be able to measure the *fit* between dimensions and practices, two things have to be known. (1) How project dimensions influence project management practices and (2) to what extent they influence management practices. Measured fit between the dimensions and practices can provide contingency factors on the basis of which project managers can determine how to manage future projects.

There are several ways of determining contingency factors. Logic is the first. A choice for, for instance how to plan a project can be roughly made when the size of the project is known. A project which only two people work on will logically be planned less extensively than a project that consists of multiple projects. A second way of determining contingency is seeing how this is previously done. There is also some research in which project management practices are defined for different types of projects. The third way of researching the choice for project management practices based on project types, is simply asking project managers how they make such a choice. The way contingency is determined in this research is by using this third method listed.

■ ■ □

Questionnaire:  
- Rate influence  
- Explain

A small questionnaire was drawn up in order to find out how project managers think different types of projects influence the choice for a specific project management practice. Because of restraints discussed earlier in this chapter, this questionnaire consisted of only two questions. The impact project dimensions were perceived to have on project management practices was asked to be rated, per dimension for every project management component as they are defined in the previous chapter. Project managers were given the choice between high impact, low impact and no impact. Some components are grouped, again to make the questionnaire as light as possible. Evaluation is left out of the questionnaire, since it does not seem to be used much in practice. Reporting is also left out, since it is included in both monitoring and management documents. Communication style has been added to the questionnaire, because when asked about management skills during the interviews, project managers seemed to find this the most important. After rating impacts project managers were asked to explain the influence dimensions have on components and how dimensions influence each of the components.

The results of this questionnaire are summarized in the next table and graph (...). High ratings mean the project dimensions have a high impact on the choice for management practices for the specific project management component.

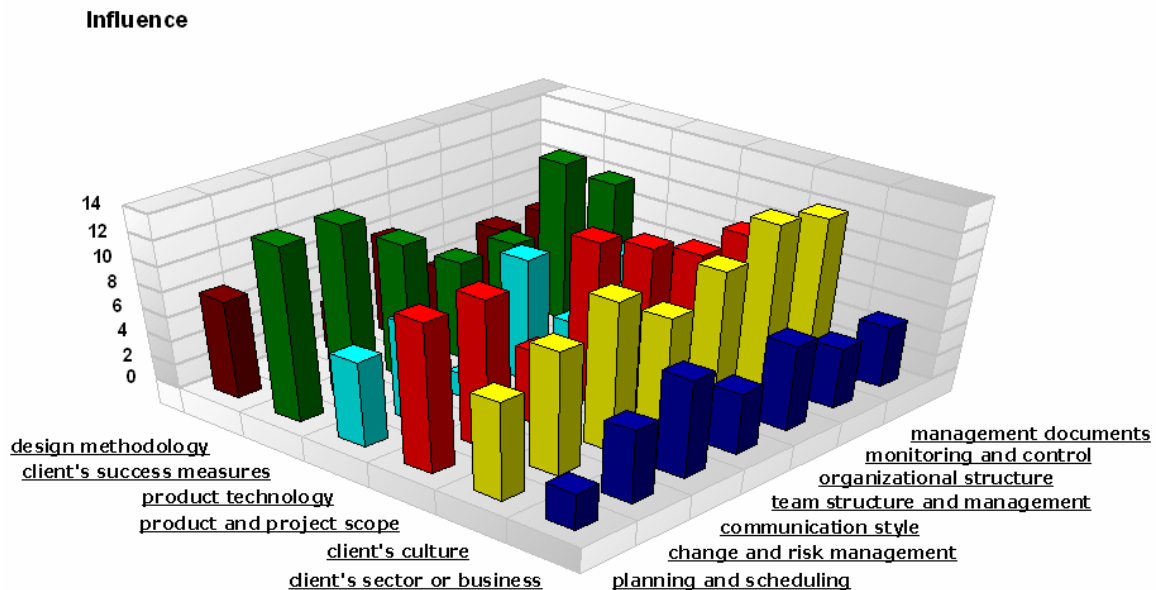


Figure 14: project dimensions and project management components compared

Component / Dimension	Planning and scheduling	Risk and change management	Communication style	Team structure / management	Organization structure	Monitoring and control	Management documents
1 sector	3	6	8	5	7	5	5
2 culture	8	10	12	9	11	13	12
3 scope	12	12	6	13	11	9	9
4 tech	7	8	2	10	3	7	4
5 success	14	14	11	8	8	13	10
6 design	8	7	4	8	4	6	6
7 resources	high	high	...	low	...	low	...

Table 3: project dimensions and project management components compared

This table provides an insight into the extent as to which dimensions influence the different project management components and thus practices. The last dimension is not filled in. Before this questionnaire was conducted, it was not yet recognized as an important influence on project management components. Project managers however found that available resources and skills had an extensive impact on components such as planning and risk management. The dimension is therefore listed under dimensions, but not numerically rated in the questionnaire. Theoretically the extent of these influences could be argued with. These however result directly from choices of managers of Ordina VisionWorks.

Project dimension's influences

The influence that every dimension has on project management practices differs per dimension, per project, per project manager. In the questionnaire project managers were asked to comment on how these influences. These comments are listed next, for every dimension. These comments provide an insight in how different types of projects are successfully managed by the different project managers and what issues have to be dealt with in order to manage a project successfully.

*Sector or business of the client:* Organizations in the public sector tend to put their least valuable resources on a project team. This influences not only the team composition but this also produces more risk in projects and this again influences monitoring and control and the way risks are dealt with: lesser resources have to report more to their organization. Financial institutions tend to deal with changes more rigidly. This brings about more management documents such as status reports and issue logs.

*The client's culture:* Culture influences everything that has to do with communication and the way communication is organized. It also determines the way people act. When a project is done by external people, it usually can maintain its own culture. It also determines the way a client and thus a project manager deal with changes. Dealing with changes more formally has an impact on the way these changes are communicated. Large organizations tend to have more bureaucratic overhead. This influences planning and the way responsibilities are shared.

*Project and product scope:* The size and complexity of a product determine the team size and the team members, chosen on the basis of their skills. Team members or available resources again influence the way projects are planned and scheduled. Complex projects also tend to be documented more extensively. In order for large projects not to go out of control, they are monitored more tightly as well. When a project is part of other projects, it generally is more difficult to manage.

*Product technology:* Technology is also a determinant for the composition of the project team. It also requires more technical skills from the project manager in order to communicate and control better. A planning of necessary resources is usually done more extensive as well, in order to prevent problems unforeseeable because of the uncertainty high-tech products normally bring about.

*The client's CSFs:* The things that the client thinks are most important are communicated more extensively than others. They are handled more careful in order to maintain the client's involvement. Risks of critical products and the delivery of those products also tend to be managed more extensive. Different stakeholders have different interests. Politics are involved in managing these. The sponsor can be a guide in determining whose interests are satisfied best.

*Design methodology:* A ‘waterfall’ or sequential method complicates change management. Iterative methods cope with changes more easily. Different methodologies also require different skills and different ways of documenting a project. More ‘advanced’ methodologies tend to take up more time.

*Available resources:* The skills available to a project manager to do a project have and impact on how the project is planned. Weaker skills need a bigger float in the planning of phases. Resources can also determine how a project is scheduled. When project members don’t have all the skills necessary, parallel project panning can’t be done for instance. Monitoring and control is also affected by available skills. People new to an organization may need actions controlling where professionals with a long history of projects may need results control. [13]

### 5.3.3 Pattern Recognition

When looking at the table and at the chart, several impacts are immediately noticeable. The sector or the business the client is in doesn’t generally seem to have much impact on project management. It has some impact on communication and the way a project is organized.

Culture influence  
all components

The overall impact of the next dimension – a client’s culture – is much higher, over a broad range of management components. Every component aside from planning is influenced by a client’s culture. Monitoring and control and management documents are influenced most. This influence is attributed most to the way a client’s culture is formal or informal. This differs, according to project managers, most with the size of the client’s company.

Scope

The scope of a project or product also has a great impact on a wide range of components. What is noticeable here is that the way a project manager communicates with his team and with the companies involved is not influenced by this dimension. What can be drawn from this is that project managers generally tend to communicate the same way for every project, no matter how complicated the results.

Low impact of  
technology

Product technology seems to have a generally low impact on the way projects are managed as well. The way a team is composed is however greatly influenced by the technology involved. Different skills are supposedly needed for different technologies. The uncertainty project management literature attributes to high project technology seems otherwise not to have a great impact on management. Perhaps this can be explained by the fact that technology involved in projects does not fluctuate much for the projects a project manager at Ordina VisionWorks does.

Success measures:  
Client orientation

The next dimension – success factors of a client – has a high impact on the way projects are managed. Especially planning, change and risk management, communication and monitoring and control are highly influenced by this. The reason for this impact to be so high can possibly be explained by the fact that Ordina VisionWorks tends to put the client first in projects. This will become clearer when the strategy of the management and the project management culture is taken into account. This is examined in the next few paragraphs.

Methodology =  
templates

The design methodology used for a project generally has a lower impact on the way projects are managed. This impact however seems to differ more greatly per project manager. Project managers who have worked with more methodologies seem to find that the methodology used influences planning and change and risk management most. Also the skills needed are influenced highly per methodology, as well as the documents used in managing a project. This can be explained by the fact that every methodology has different documents as outputs. These are also used in managing a project.

## 5.4 Managing the research: inputs for a new methodology

Up to now, the current ways of managing projects are described. A table with all these different practices is drawn up to have an overview of these practices and to be able to compare these practices. Also how projects differ from each other is described. A model is made with which, on the basis of the differences between projects, a way of managing projects are chosen by the project managers. The final product that this research delivers is a new methodology. (For a list of deliverables, see: the product descriptions in

appendix) The previously described products are all building blocks for this methodology. In order to create this new methodology, besides the deliverables, several other inputs are needed. These are depicted in the work breakdown structure of this research project (see: 3.5). These inputs are described next, before creating a new methodology, which will be described in the next chapter.

### 5.4.1 Management strategies

The first of the inputs for the new methodology is the strategy of the management of Ordina VisionWorks. For the methodology to be accepted, it will have to meet the guidelines and strategies the management poses for project management. Project managers must do their work according to these guidelines. To meet the requirements drawn up previously, the methodology will have to facilitate this. The strategy of the management is clearly communicated throughout the organization by means of a balanced scorecard. This in fact the same scorecard as some managers currently use as a guide or methodology to manage their projects. The scorecard lists projects as internal processes. These are divided up in several project phases. Most strategies cover all the phases; some are unique to a specific phase. The guidelines are listed here in their respective phase. The guidelines that supercede the phases are listed as to the processes or components, as defined earlier in this research, they pertain to.

Balanced Score  
Card



Internal processes

#### *Acquisition*

- Make sure you know the client's problems and issues
- Offer solutions that are different from the competition's

#### *Interaction with clients*

- Professional discipline: meet agreements and communicate them
- Make sure agreements with clients are available and accessible
- Inform clients: be realistic about expectations, time to market, and give clear information
- Always deliver what is agreed on in the tender

#### *Integration of projects*

- Think chains: anticipate consequences of change somewhere else in the value chain
- Integral proposition of Ordina: improve working together

#### *Planning and resources*

- Excellent project management: for clients and for team members
- Sense of urgency: make sure team members have it, through planning and information
- Planning and allocation of resources: make sure they're always good

#### *Evaluation*

- Re-use knowledge: learn and use learned knowledge with clients
- Relationships: Improve the internal and external quality through debriefing

#### *Sales and skills*

- See and think of project possibilities
- Generate a quality network
- Generate projects from partnerships
- Make the sales process professional
- Share sales successes with colleagues
- Be good and tell it

Beside these strategic guidelines mentioned here, the management of Ordina VisionWorks poses several other guidelines with respect to external processes, financial processes and culture. Some of these could be said to cross over into the domain of project management. These however are not specific to project management. These cover the performance of the company and its employees as a whole. These therefore will not be part of the methodology, moreover since they are already expected to be a part of the way people function at the company. The guidelines described here will for the basis of the components they pertain to and of the methodology as a whole.

## 5.4.2 Project management culture

The management of OVW has drafted what is called a strategic-A4 [22]. In this one paged document, the cultural norms of the organization are explained. The document consists of a mission statement, a philosophy, cultural norms, ambitions and a theme. These are all summarized next.

### Strategic A4

*The mission:* To improve governance and performance of companies. This is done through bridging business, management, people and information technology.

*Philosophy:* We are ambitious and are the front runners of the business. We deliver realistic solutions, which improve the added value of companies. The clients and its problems are always the core of our work. In our approach we stepwise, in cooperation with our clients, develop realistic solutions.

*Cultural norms:* Involvement, respect, authenticity, trust and entrepreneurship.

*Strategic ambition:* to make expectations of all stakeholders become true.

*Theme:* we offer innovative solutions that separate us from the competition. We deliver excellent service and we maintain outstanding relations with our clients and contractors. This leads to lasting partnerships.



What are perhaps even more important than company culture are the cultural values and norms found amongst project managers. These will be briefly analyzed by using a framework posed in Hellriegel's book "Organizational Behavior". [16] Filling in this framework is done on the basis of what is known from interviews with project managers and casual conversations with consultants and project managers.

### Human nature

At the core of culture lie *shared assumptions*. These represent beliefs about reality and human nature. Examples found amongst project managers are: employees are thought to be motivated and self sufficient. They are believed to want to work on the project they work on, or at least be professional about it when they don't want to. People who have enough technical knowledge are believed to not need much assistance, people who lack knowledge are believed to need more supervision and control. Also larger projects are believed to have to be controlled more tightly.

### Good vs. Bad

*Cultural values* surround the shared assumptions. These represent collective beliefs, assumptions and feelings to what is good, bad, valuable etc. Examples things that were found to be strongly cared about are: delivering products that are agreed upon beforehand, skills in communicating with clients, doing projects the way clients want them to be done and for consultants to be skillful in solving businesses problems even more than having the proper technical skills, which are believed to be more easily acquired.

### Norms

The next level is that of *shared behaviors*. These include norms. Norms are informally set, unwritten expectations of certain behavior. These pertain mostly to team dynamics. Examples found of such norms are: open communication, not hiding failure, communicating problems, issues and changes and communicating directly with the persons responsible for or empowered to do something about problems.

### Jargon

The outer shell off this model is formed by *cultural symbols*. These include jargon, pictures, or other physical objects. Jargon amongst project team members is mostly technical by nature. Other jargon that is used is jargon found in business consultancy. This signifies that every team member, including a project manager, is supposed to have enough technical knowledge to know what the products of a project consist of and how they work. At the same time they should understand the problem's domain addressed by the project.

### Culture not yet shaped

As is explained at the beginning of this document, Ordina VisionWorks is a combination of multiple companies. Those (4) companies merged into one Ordina VisionWorks. This of course has its impact on culture. All these different cultures have to become one. There are the norms imposed by the management, which people will have to adhere to, but besides that, there is still much room for a culture to emerge. This is exactly what is happening at this moment in time. A culture is emerging rather than being already in place.

### 5.4.3 The information systems design model

As stated in the scenario for solving the problem (see: 3.3.1) the methodology that has to be created, has to be created in a context. This context is on one hand the reports to the project bureau and on the other; the information systems design methodology that is developed simultaneously with this methodology. A picture of this methodology is shown below.

BI phases

The picture shows the phases of the design process on the vertical axis and the timeline on the horizontal axis. The names of the phases are listed in the light blue ovals on the side of the picture. The processes of this methodology are depicted by the small circles (gears), with the two-letter abbreviations. Some processes are part of a group of iterative processes. This means they can be performed simultaneously and over again when needed. These groups are depicted by the large gears. The design process starts at the bottom of the picture, with an assessment (AS), or a business study (BS) and ends with administration and maintenance (B & O) of a newly implemented (IM) system. The methodology revolves around the modeling of the data and processes (MO). For scheduling the methodology uses Timeboxing. This is depicted by the red horizontal arrow. Inputs and outputs are an important feature of the model. These are depicted by the small arrows. Every gear or process has an input and delivers an output, such as for instance a template, a data model or a system.

This new methodology incorporates roughly all the phases and processes from the 'old' methodologies. The project management methodology has to fit 'around' of the model shown in the center of the picture below.

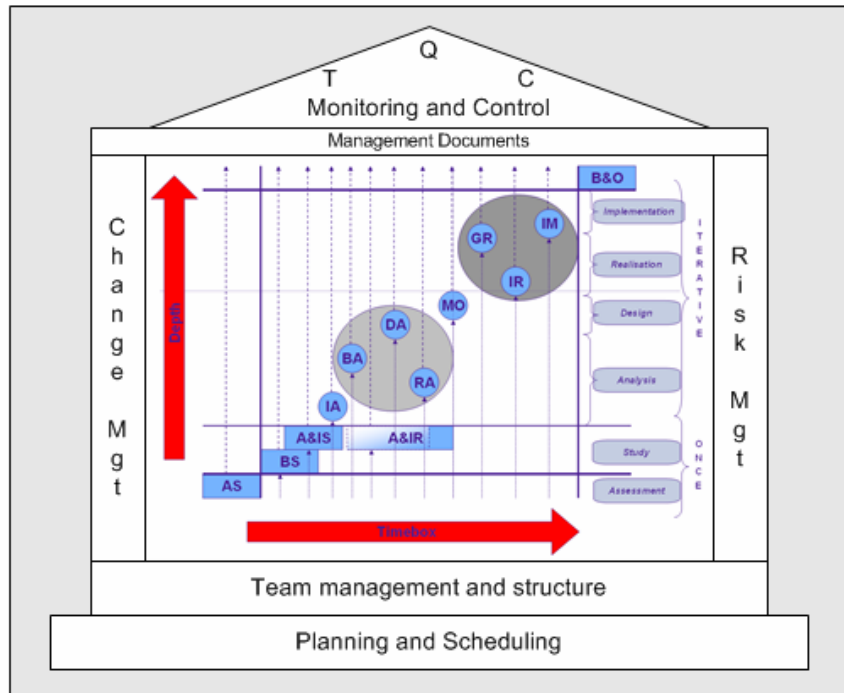


Figure 15: How the project management methodology fits the BI methodology

Integrating phases

A first suggestion for fitting this model is taking this model's phasing and assimilating it in the new project management methodology. This means that the first phase or process of the new project management methodology would be planning on the basis of the assessment performed by the project team. Scheduling would begin half way through the assessment, as is also depicted by the horizontal line in the figure above. This could continue during the study phase of the BI methodology, in which a project planning can still be refined. A design freeze could then take place after the design phase. [43] The analysis and realization phases of the BI methodology could be incorporated as an execution phase. Implementation and administration could form the last phase: ending a project.

Planning should be at the basis of this methodology, as should team management. Alteration management and risk management are ongoing processes during the execution of the project and are ‘side inputs’ for the design methodology. The depth of the systems or BI design as depicted by the vertical red arrow should be an important factor in realizing that when the design deepens alterations and risks become harder to cope with and tend to have a greater impact on cost and time. [45] The iterative nature of the BI methodology and also some form of prototyping are meant to cope with these issues. [51] Monitoring and control happens on the basis of the outputs of the design methodology. Mainly time cost and quality are monitored and controlled. To what extent each of these is controlled depends on a number of things, as has become clear from the questionnaire. Other things that can be incorporated include output templates for planning and closing a project, project documentation and the deliverables. These can be incorporated in management documents such as product checklists, evaluations and change and issue logs. They are shown in this picture as a thin layer of management documents, which again can be used for managing risks and change. What is also important to note, is that every process has an output and an input. And although the processes are depicted as round gears, they all do have beginnings and endings. The use of documents and deliverables could provide project management with handles for managing the processes and their beginnings and endings. [34]

Planning:  
- Depth  
- Time

Inputs & outputs



Project buro:  
No policies for  
project managers

Fitting the new project management methodology to the methodology of the project buro is required as well. This might prove a little easier. The project bureau requires the project managers to fill in two forms, on the basis of which they monitor and if necessary, control the projects. They’ve also drawn up a scenario for the acquisition of a project and a way for the contracts to be handled. This scenario mainly involves meetings with the project managers and proper sales people. The project buro has also issued a methodology to be used for project management. This methodology is a deduction of the Prince 2 methodology, tailored to Ordina. The project managers however are free to manage the execution of the projects any way they want, as long as they fill in the proper reports and follow the guidelines the project buro has set for acquisition. Templates of these forms can be found in the appendix. The guidelines for the acquisition process can be found there as well.

Integrating  
templates

Another suggestion that is made here on the basis of these templates and guidelines, is that the management documents the project management methodology will incorporate will fit the information systems design methodology as well as the templates issues by the project buro. This will be worked out further into an input and output model for management documents when the new methodology is designed.



# Chapter 6: The Modular Project Management Toolkit



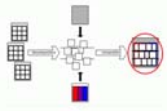
## 6 The Modular Project Management Toolkit

### 6.1 Introduction



In this chapter the he last part of the second research question will be answered. This chapter describes the new project management methodology, or as in the last part of the second question: “*What types of tools, management style, or other components related to a project management method, should a project manager use to fit specific projects?*” The new methodology is described in such a way that with little modification it can be taken out of this document and can be used as a manual for managing projects.

### 6.2 The methodology



As is stated in the research question in the previous paragraph, the new methodology is a composition of tools and management components. This methodology is composed out of best practices concerning project management. The best practices are derived from the practices of the project managers of Ordina VisionWorks. The interviews that were held in the beginning of this research supplemented by project management literature will be used to compose the management components for the new methodology. The new methodology is mainly a library of these practices, indexed by project types and project processes. Hence the analogy with a bookcase will be maintained in forming a model for this methodology.

#### How to use the methodology

In order to effectively use this library of components (1) four processes are defined. These give a global description of what components of project management are used when they are used. After reading through these (2) a project manager defines the type of project at hand, by examining the project’s dimensions, then on the basis of the model and the dimensions of this type of project, (3) the project manager chooses how to fill in the components of project management for every processes, or in fact determines how to manage the project. Next (4) the project manager determines what type of documents will be necessary to manage the project effectively. When this is decided (5) the project manager can start the work on the project. An extra guide to help the project manager use this methodology (6) is the [Quickstart](#). This is a separate one-page document explaining the basics of the methodology and how to effectively make use of the methodology.

#### Main features:

- Modularity
- Scalability
- Lean and Mean

This way of working implies the three most important features of this methodology. The first one is *modularity*. The modules – which are called components of project management in this document – that are defined by this methodology are: initiation, planning, scheduling, organization structure, managing risks, managing changes, managing a team, monitoring and control, evaluation, communication and management documents. They can each be used separately: not all decisions about how to manage the project have to be made beforehand. As the processes of a project will illustrate, not all components of project management are used right away. The components can all be used independently. A choice for how to proceed with a component will only have to be made when a component will actually be used.

The second feature of this methodology is *scalability*. This implies that each of the components can be used to the extent necessary defined by the type of project. To illustrate this: most projects that only takes a day to complete, obviously do not need their risks managed nor would it be wise to spend four hours on planning such projects. If such a project were to take place in a company where changes are an integral part of the corporate culture, maybe drawing up exception reports for every change and asking the management for a decision on these changes would not be a good idea either. This methodology is meant to facilitate such projects as well as projects where complex systems are built, for instance large institutions such as banks or hospitals, where changes have to be documented and risk have to be managed extensively.

The third feature of the methodology is that it is designed to be easy to use. The model shown in the next section is not an entirely accurate description of reality, but the thought behind this is to Keep It Simple (Stupid) or in project management terms: *Lean and Mean*. The model is meant as a graphical display of the reality surrounding project management. When looking at the model, a project manager should be able to determine how this new methodology is constructed and how he or she can proceed to use this methodology.

Underlying ideas:  
- Client focus  
- Links between processes

Aside from the features of this model, the underlying thoughts are equally important. These underlying ideas form basis for how projects are managed by managers of Ordina VisionWorks. The most important is *client focus*. What the client wants and how the client wants it, is not only important in almost every component of project management, but it lies at the heart of this methodology. Before project managers choose their management components on the basis of project types, they first need to asses what sort of ideas the client or contractor has about how the project should be managed. Some clients have their own standards for managing projects. Prince 2 for instance is a commonly used standard at many organizations.

When clients want their own project management methodologies used, it should be clear that the methodology should not be used as a whole, but that it should be replaced with the methodology the client wants to use. Parts of this methodology can, however, still be used. Particularly the Prince 2 methodology only defines processes and it defines no means for how to manage the processes, it only provides guidelines. The components of this methodology can still be used in this case, only the processes shown in the model on the next page need to be replaced by the Prince 2 processes. In the case of SDM or DSDM, using this methodology on the side might prove a bit too much. DSDM particularly defines ways for using specific components such as planning, risk management etc. These might conflict with the way components are defined in this methodology. Management documents are also often defined by a client organization. Documents that a client wants to use should be used. The use of documents and components defined by the client should in fact be evaluated. The components of this methodology should always be *updated* by better practices. The next chapter will describe how to improve the methodology in more detail.

Another important underlying idea is that of the *links between processes*. Processes in a project influence each other and projects can influence other projects as well especially when a larger project is divided into several smaller projects. [12] This system of processes and projects and the way they influence each other is comparable to the value chain as Porter describes it: "...To analyze specific activities through which firms can create competitive advantage, the firm is modeled as a chain of value creating advantages. These primary activities are logistics, marketing and sales, operations and service. All these activities can create value to exceed the cost of production. Linkages between these activities exist when the performance or cost of one activity affects that of another. Competitive advantage may be gained by coordinating these linkages...." [39] Primary activities also apply to projects. Each project has its own logistics, operations and sales activities, but these activities also supercede projects. Many projects are part of another project and therefore linked. These projects don't even have to take place at the same client organization. How these linkages work is not described in this paragraph. They are an integral part of specific management components such as planning, organization structure and managing changes. Therefore the impact of these links and influences will be described for every component concerned.

Scope

The methodology is specific to project management for Ordina VisionWorks. This means this methodology is limited in its *scope*. Not every project conceivable can be managed with this methodology. The scope of the project is defined by the following factors:

- Only a means for managing **BI** and **PM** projects are provided.
- Only project management is covered. This is not an information systems design methodology.
- The methodology covers project management, not programme management.
- The methodology does provide means for dividing large projects into an array of smaller projects.
- The methodology is intended as a toolkit, not as a project management bible.

## 6.2.1 The model

The model:  
a bookcase

The main problem stated for this research was 'how to create a unified project management methodology at Ordina VisionWorks'. In these paragraphs the actual methodology that is created as a part of solving this problem is drawn up. Since a picture is worth a thousand words, [52] the methodology is preceded by a model that depicts the methodology. The model that is used is previously described in paragraph 3.3. The model is meant to resemble a *bookcase*. The bookcase model is meant as a means of ordering all the components of project management and as a guide for how to use what component and when to use it. A

The casing

picture of the model is shown on the next page. The case itself stands for the *underlying thoughts* of the model, or the way projects are managed by VisionWorks. This encompasses project management culture, but also the strategies of the management of VisionWorks (see: 5.4). These underlying thoughts or ideas are a part of the way project managers perform their work and how they perform it. The strategy of the management is also a part of this project management culture. The strategies are more than just culture however. Besides a way of doing things, the strategy defines strict guidelines for how the work should be performed and for what is important in managing a project and what isn't. This is explained in the previous paragraph.

The shelves

The shelves of the bookcase represent the *processes* that can be found in projects. Processes are specific groups of activities that are ongoing during a project and that provide project management with some form of structure in the whole range of management components. These processes here are taken from the Prince 2 process model. Not all processes Prince 2 describes are used however. Only the top-level processes are defined, similar to the way the OCG does this in their manual. [54] As stated in the beginning of this section, the model has to be kept simple. The model therefore can not be overly complicated by defining all sorts of processes that can possibly be defined. Most lower-level processes are mentioned however in the description of the top-level processes.

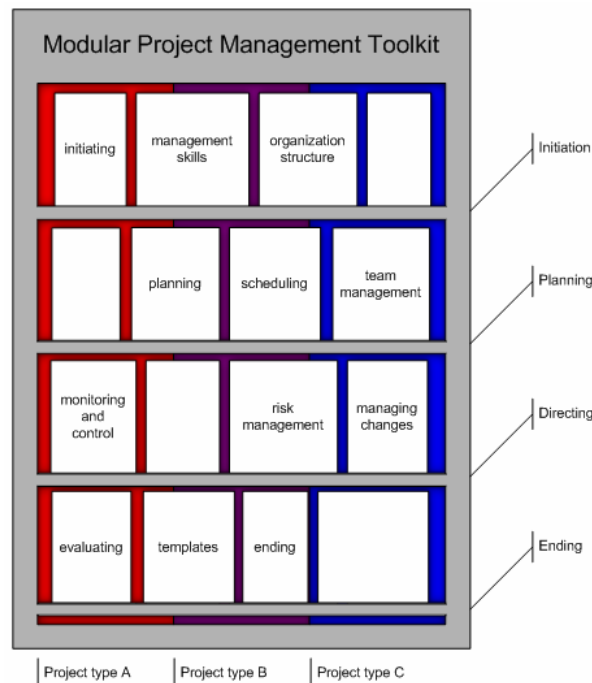
The sections

The sections of the bookcase, represented by the colored rectangles in the picture, are a metaphor for the different *types of projects* that Ordina VisionWorks does. In the previous chapter, dimensions of a project were discussed. A combination of these project dimensions forms the type of project. Project types are used in this model the same way sections are used in a bookcase. When one wants to find a specific book, one looks up the section in which it can be found before searching the whole bookcase. The same goes for project types. When a project manager wants to determine how he should or could manage a project, he looks up the use of components specified for the specific type of project he wants to do. Project types will be discussed further in the paragraphs about choosing project components.

The books

The books form the heart of the bookcase. They represent the project management *components*. During the research, various components were used, again combined and left out for the purpose of the research. The components found in the book case are all the components that have been mentioned in this research. The way components are used is a combination of practices found amongst the project managers of VisionWorks. How these components are shaped exactly is described in the paragraph about components.

Figure 16: the new project management model



## 6.3 The processes

The project processes are described in this methodology, to provide a better insight in how a project works and to provide an insight in how and when to use the components of project management. The processes defined in this model are: initiation, planning, directing and ending. These processes are global processes; the ‘initiation’ and ‘ending’ processes do not only take place at the start and end of a project. Initiating and ending a phase or initiating and ending a sub-project are also implied by these processes. The same goes for the planning and directing processes. These are however also continuous processes. They take place throughout a project. In the following paragraphs these four processes will be explained in more detail.



Why processes and not phases

Instead of processes phases could have been chosen to represent the shelves of the bookcase in the model. However project managers all have different ideas about the phasing of projects. As can be seen in figure 15, the phases of the BI methodology overlap. They are also quite different from phases found in Performance Management projects as can be seen in figure 12. Processes are defined here to give a quite rough overview of what is to be done in project management and what project management is mostly about (see: figure 5). They provide a better insight in what important factors are in project management than phases would, because although some processes are phased themselves, the processes mentioned here recur during a project. Representing recurring elements in phases would again make the model more complex than necessary. The same rough overview could be given by defining phases, but since they are somewhat subjected to debate, and do not provide the insight in project management processes do, a choice has been made to use processes here instead.

### 6.3.1 Initiation



Every project has a beginning. Where a project begins is not always clear. It can be said that a project begins the moment the first contact is made between someone selling the project and a contractor acquiring the project. Another opinion is that a project begins the moment the contract is signed and the work can begin. This methodology describes the beginning of a project as the moment a project manager is called to the job and his or her work begins. At Ordina VisionWorks this is usually after the acquisition on a project. Programme managers are usually involved in the sales process, prior to the project start. This process however is beyond the domain of this research and will be covered by other documents.

Goals  
Problems  
Products

*Initiating a project* starts at the very beginning of a project. In initiating a project, the project goals and deliverables or end-products are determined. It has to be made clear what has to be done to start the project, what is necessary for executing the project and what is needed in order to successfully end the project. This process requires a lot of interaction with the client. Sometimes a client has already drawn up a business case and knows what it wants. This does not always seem to be the case. Therefore determining what exactly has to be done by the project and determining what a client expects and requires from the project are important parts of this process. This happens in a way similar to how this document was written. First the goals of all the stakeholders involved are determined, and then their problems are made clear. The problems are then analyzed and solutions to the problems are drawn up. The solutions provide the project with its deliverables. How these sub- and end- products are to be delivered is also determined globally. The time such a process takes can vary from an hour to weeks.

Organizational structure

Another important part of the initiation process is determining the project’s organizational structure. Organizational structures can differ a great deal per project. In projects where arrays of systems are developed, for organizations that run their projects in a very formal way, organizational structures can be rather large. They can consist of multiple project teams, a team of project managers which coordinates the projects, a board of directors which monitors and controls the project and a reference group to monitor the quality of the products. On the other end of the scale an organization can consist of only a project team. Organizational structures also differ per methodology used in designing the products. A project that delivers BI products is sometimes divided into smaller projects, where every team member works on his own project. Research at Ordina VisionWorks has shown that such an organization works best for delivering Business Intelligence products on time. [60]

### Stakeholders & Responsibilities

How ever the structure is set up, the most important part of structuring a project is identifying stakeholders and responsibilities of everyone involved. The stakeholders are the people who want something from the project, or in other words have a stake in the project. All these stakeholders have different needs. These needs have to be satisfied as good as is possible. A good tool for doing this is prioritizing the stakeholders and their needs. Aside from who wants what, it is necessary to recognize who needs to do what, or in other words who is responsible for which part of the project and who is responsible for the successful outcome of the project or delivery of sub-products.

### Dependencies

*Initiating a phase* is similar to initiating a project. At the start of a phase goals and problems addressed in the phase and deliverables to solve these problems are identified as far as they haven't been identified in initiating the project. The deliverables are worked out in more detail. How to proceed with a phase will have been determined by previous phases to some extent. Outcomes of previous phases must be taken into account when initiating the next phase. How activities of a phase will influence activities in the next or previous phase will have to be made clear. Dependencies between phases must be identified. One way of doing this is to picture the phase as a black box and determining what goes in and what comes out and then seeing how these inputs and outputs are dependent.

An organizational structure will be in place at the start of a new phase. The organizational structure for the phase does however have to be defined. It is important to note that organizational structures change. New people are attached to a project and people who have worked on specific parts of a project will go to other projects. This influences the existing organizational structure, the stakeholders as well as the responsibilities.

## 6.3.2 Planning

### A project plan

Planning a project is a continuous process. Projects are planned at the start of the project and during the whole project plans are refined and changed. The picture to the right illustrates this: a planning is initially drafted and re-drafted after changes take place. Planning begins with determining how a project is planned, what information and tools are used for the planning and on what levels a planning is made. At the top level a project planning can consist of a wide variety of things, but a few things are nearly always present in a project planning.

These are the project's objectives, the phases and milestone activities of a project and a planning of whom does what and when.

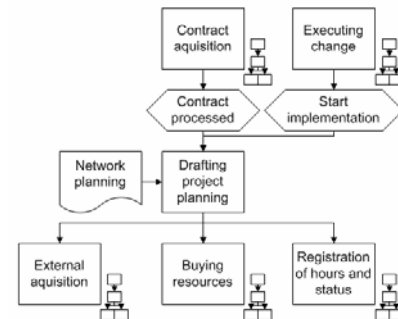


Figure 17: the planning process (source: Ordina project procedure)

### Changing the planning

The *objectives* of the project are usually determined at the beginning. They present the 'big picture' of a project. The project objectives provide an overall direction for the project and help in defining the deliverables and milestone products. They are rarely changed and are mostly used to fall back on during the project if the project's focus blurs. They also provide the client with a basis of agreement. The objectives should therefore be agreed upon by the stakeholders involved at the start of the project. That way when the outcome of a project changes or when stakeholders want the outcome to change, there is a basis for negotiating these changes.

The planning of *phases and milestone products* is also done at the beginning of the project. Whether this planning changes a lot depends on the client's culture, the type of contract and the nature of the project manager. In some projects change is a good thing and delivering what the clients wants is essential. In most projects it is essential that a client gets what it pays for. In those types of project a 'design freeze' is often built in. This is the moment a design for a product is frozen and can not be changed later. This freeze is built in so that at a certain point in time everyone involved is committed to a product and its specifications. How to cope with changes and changing milestones has to be clear before the project starts and before changes start occurring.

The planning of *activities and people* is usually planned only globally at the beginning of a project. This part of the planning tends to change most during a project, when resources become available or unavailable

and when the needs of a project's stakeholders change. It is a law of nature – quantum mechanics in particular – that things change. The same laws of nature state that changes cause other changes. The activities that are dependent on other activities have to be identified so that the changes in one activity do not unexpectedly change other activities. This needs to be planned for. Change is the main reason why projects are initially only planned globally. When the uncertainty surrounding the project diminishes as the project goes along activities and resources can be planned in more detail.

**Sense of urgency**

The detail of the planning on lower levels differs per project and per project manager. Some project managers plan all the tasks their project team has to perform, other project managers only define the products and let the project teams define their own work planning. Yet another form is that of a project manager planning the objectives and milestone products and then planning the work together with the project team. Such a form of planning takes up a bit more time, but one of the advantages is that it provides the project team members with a view of the big picture and the place where they fit in that picture. From the interviews with project managers it became clear that when a project team member sees his or her place in the whole and sees the linkages of his or her work, usually their 'sense of urgency' improves. They see how their products and activities can be critical to other activities and tend to act upon it, since no one wants to be the weakest link: people tend to feel uncomfortable when they are the one others are waiting for.

**Planning the end**

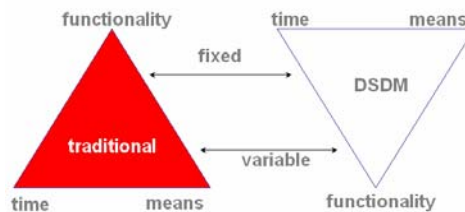
In the project phase diagrams, starting with figure 9, there always is a phase called ending, closing or implementation and maintenance. Planning for the other phases such as execution seems natural enough but it is important in project planning that the last phase is also planned for. In most projects where management information systems are designed implementation is not seen as part of the project, because it is usually not done by the same people that design and build the system. For products that a project produces to work properly once the project team has left, the implementation and use of the products has to be planned. This means setting up a plan for implementation and designing a plan for training the people who will later work with the system. Maintenance is also an important part of the implementation of the system. Planning for maintenance is something that has to be a part of the project and integrated in the design and creation of the systems that a project delivers. It is therefore something that has to be done at an early stage in the project and not something that is quickly done once the work is finished.

**6.3.3 Directing**

Directing a project is what a project manager does during the project. This entails monitoring the project and controlling it. It also includes managing the risks of a project and managing changes in the project. Kerzner defined three elements of project management. These are cost, time and performance or quality. Scope was later added to these three by the PMBOK. [24|49] These four elements are the things that project managers monitor and try to control in projects and they direct the project by doing so. The DSDM methodology states more rigorously that two of the three elements need to be fixed and that the other element can vary and is subjected to the direction of the project manager. The elements that are fixed are time and cost. In traditional projects usually only quality is fixed and the time and cost of a project tend to vary and need therefore to be monitored and controlled. [63]

**Monitoring and control**

Figure 18: fixing project elements (Source: Kuipers 2000)





On which element is focused most is up to the project manager to decide. Contract type however is a project dimension that influences this focus a great deal. Fixed price projects are directed with a focus on mostly cost and cost calculation projects are directed with a focus on performance or product quality.

A theory which was found to be used in the projects that VisionWorks does is the Theory of Constraints. [53] This theory states that the most important bottleneck in the project needs to be identified. The outputs of all other activities related to this bottleneck are then fixed. Those activities do not output more than a bottleneck can handle. Then the problems and issues in the bottleneck activity are solved. Automatically a new activity will then become the bottleneck in the project. By directing the project only with a focus on solving the problems in a bottleneck activity, the monitoring and control elements become much easier to manage.

#### Managing risks

Managing risks is another important component of directing a project. Risks are usually determined at the beginning of a project. There are several ways to determine risks. These vary from naming only the two most important risks to creating a document on risk analysis in which all conceivable risks are identified, listed per domain of the risk, such as for instance political risks, technical risks etc., and then prioritized. How ever risks were conceived, they need to be managed during the project. Risks become areas of special attention for the management of projects. Besides monitoring risks project management must also try to solve problems that arise out of these risks. A good analysis of risks helps identify problems before they actually happen. When risks do become problems it is important that they are communicated throughout the project organization at the earliest possible time. It is necessary to be open about risks and problems. The document in which risks are identified is updated during the project, usually at the beginning of a phase. This way the risks and their impacts are tracked.

The policy of the project buro is for a project manager not to be risk averse. Risks are on one hand seen as causes for problems and should therefore be managed. But risks should not be over-managed. There are two reasons for this attitude towards risks. The first one is that risks do not only pose threats but can also present opportunities. Another reason is that when a project manager identifies all the risks that could possibly be identified, the project team reacts to this. They tend to become risk averse as well and tend to calculate a surplus on their own work based on these risks. This can make a project very expensive.

#### Managing order

The last part of directing a project is managing changes. In the paragraph about the planning process changes have briefly been discussed. As is stated in the inventory of project management practices, there are *two paradigms* concerning change. In one paradigm people see the world as a place of order and changes affect this world. In the other paradigm people see the world as a whole of changes. Both these paradigms are found in projects that are done by VisionWorks. Financial or governmental institutions usually tend to see the world as an ordered one. Changes are not seen as a good or natural thing. Every time something in the project changes, an exception report is drawn up in which the change is documented. These changes then need to be approved by a rather large part of the project organization before they can be executed.

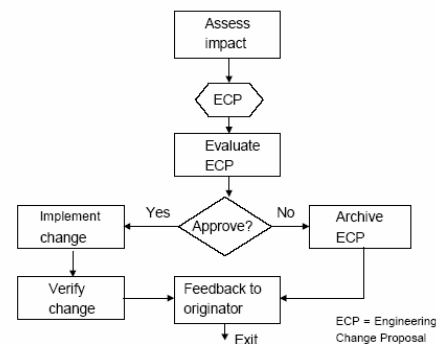


Figure 19: Change control (source: Jurison 1999)

#### Managing change

The other paradigm is found in the industrial and trade sectors. Changes in projects done in those sectors are not seen as good nor bad, they are seen as something that has to be coped with and planned for. If for instance the needs of the clients change and they end up not wanting the products that are being made by the project team, the products or the whole project is done away with and new product specifications are drawn up or new projects are started up. This is easy to cope with when a strong relation exists between Ordina and the client organization. Convincing stakeholders of the necessity of changes usually proves more difficult when these relationships do not exist. When a project fails when nothing is changed however and the product ends up being useless because the needs for it have ceased to exist, the damage could be much worse than the costs a change would have incurred.

### Escalating issues

As is the case for changes in a rigorously structured project, the project organization also is involved – under both paradigms – when risk or changes occur and are beyond the control of a project manager. Usually a problem is then ‘escalated’. This means that the whole project organization is made aware of the problem and the help of a project board is called in to resolve the problem and make the necessary decisions for doing so. These decisions are backed up by the authority a project board has. This is a bottom-up form of escalation. Another form of escalation is escalating a problem top-down. This happens when a problem exists high in the hierarchy of the project organization, usually in the project board. In such cases the expertise of a project team can be called in to help resolve such issues. An example of an organization structure depicting the lines of authority and escalation is shown in figure 21.

### 6.3.4 Ending

Ending a project is seen as a very important process by both the project management of Ordina VisionWorks as well as several project management methodologies such as Prince 2 and DSDM. This is probably caused by the fact that most of VisionWorks’ project managers feel ending is never properly done. Ending a project can be divided into two parts just as initiation. *Ending a project* is one and *ending a phase* is the other. Ending a project or ending a phase is done after all the work is completed. Once the work is done, resources tend to automatically become unavailable and people tend to move on to other projects or return to their daily work. This is the main reason for the ending process not to be executed or to be executed incompletely and is something that has to be taken into account when a phase or a project is ended.

### Implementation

In *ending a project* there are several things to be done. The first thing is managing the end of a project. At the end of a project the products and systems that are created by the project team have to be transferred to the client organization. Before products are transferred they are accepted formally or sometimes rather informally, depending on the wants and needs of the stakeholder, by the client organization. Once products are accepted they usually have to be implemented. Implementation of a product can consist of many things of which the most important ones are for the client to learn and want to work with the product and to learn how to maintain a product or system.

### Evaluation

Before the project is closed project evaluation must take place. This is done to be able to learn from the project in order to handle projects in the future more successfully and this is also done in order to see whether the client is satisfied with the end-products and the performance of the project team. To evaluate a project internally in order to learn from it the project team is debriefed and the issues that arose during the project are discussed. To evaluate a project externally in order to see whether the client is satisfied the client’s thoughts and attitude towards the project and products have to be identified and documented. The client needs to be actively involved in this process, especially when there are unfulfilled expectations.

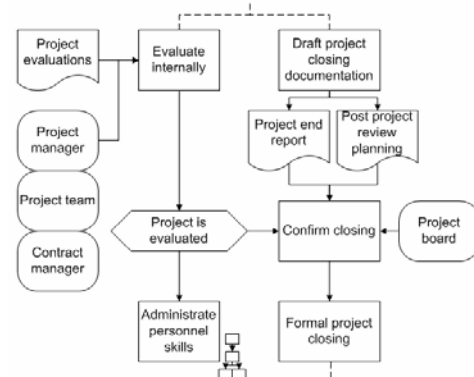


Figure 20: the ending process (source: Ordina project procedure)

### Dissemination

A project organization must then be built down. Project boards, user groups and project teams are disseminated and resources are freed in a controlled manner, in order for the project evaluation to be successful. Follow-up actions are identified and any ‘unfinished business’ that those responsible for the contract need to be aware of is documented. Such actions can include remaining risks and issues, deferred change requests, functionality that is to be delivered late and ongoing problems with the systems or products. The project documentation has to be closed and filed so that it will be accessible when issues arise or when new projects of the same type are done in the future.

### Documents

Management documents and project templates play an important part in the ending of a project. Reports such as issue logs and exception reports are used in evaluating the project. Initial plans are used to see whether the project delivered the things that were planned to be delivered at the beginning of a project. A

modified version of the initial planning often becomes the acceptance report which the client signs when accepting the end-products. In *ending a phase* products are delivered and sometimes implemented the same way as in ending a project. On a smaller scale resources are disseminated and phases are evaluated as well. The management documents are the project management's outputs of a phase. Besides the issue logs and the exception reports this is also the case for status and progress reports. They represent the project's state in terms of scope, time, cost and quality, in relation to the budget the schedule and the requirements and specifications. These measures are used as an input for the next phase.

## 6.4 The project's dimensions

As mentioned previously, how to manage a project is decided on the basis of the type of project. The bookcase model houses many books which represent the components of project management. These books stand on the shelves made up of the project processes. Theoretically speaking every component is part of one of the four project management processes mentioned in the previous chapter. In practice these components can be a part or more than one process. The processes define the placement of the books on the basis of the books themselves and the names of the books, but just as in a real bookcase the sections provide an insight in where the book belongs based on the contents of the books. These sections are in the model made up out of the project types. Those will be described next on the basis of dimensions of projects. In chapter 5 of this research the project dimensions were defined. The project dimensions are:

### The dimensions

1. The client's business or sector
2. The client's culture
3. Project and product scope
4. Product technology
5. The client's success measures
6. Information Systems Design methodology
7. Available skills or resources

#### Sector or business

The first dimension is the sector or business the client is in. Examples of such sectors that have been mentioned before are finance, government, trade, transport and industry. The business units of Ordina VisionWorks are categorized according to these sectors. The clients of VisionWorks are further categorized in VisionWorks's [client sheet](#).

#### Client's culture

According to Hofstede culture is how people are 'programmed' to act and think. [17] According to Hellriegel corporate culture is made up out of shared beliefs and assumptions, norms and symbols. [16] The client's culture can thus be summarized as the way the people in an organization behave and work based on the a shared set of beliefs about what is good or bad and based on a set of values explaining what the management of the client thinks is good or bad for the company.

#### Product scope

Project and product scope say something about the size and complexity of a project. The scope was earlier defined as a product or a subsystem, a system of products and an array of products or systems. Projects that deliver just one product or subsystem can be said to be the least complex projects. Projects that deliver an array of products or systems are usually very complex projects. They can however in the case of Business Intelligence projects be broken down in several smaller projects that only deliver one product each.

#### Technology

The technology used in projects ranges from very high tech to low tech. The level of technology determines a great part of the uncertainty in projects. Uncertainty has been defined as the inability to predict future outcomes or the difference in the amount of information necessary to complete a task and the amount of information already possessed. Project that are low tech use proven technologies, which are easily accessible and don't have to be implemented. Projects that are very high tech make use of technologies that have yet to be invented or are only just emerging.

#### Success measures

The client's success measures are the things that make a client decide whether a project was successful. Some of these measures a client defines clearly and beforehand. The client can for instance say that it wants a project finished within a certain time, within certain costs and in accordance with certain specifications.

Other measures of success are determined by what a client expects from a project. These are not always defined so clearly but never the less they need to be taken into account when managing a project.

**Methodology**

The information design methodology does not only specify how a product is designed, it also says something about the product itself. Business Intelligence systems and data warehouses are built with different methodologies than those used to implement a performance management system or a balanced scorecard. Besides specifying a type of product a dimension also defines the way a product is designed and created. Several of these methodologies are discussed in chapter four. They will be replaced by VisionWorks's xxx methodology.

**Resources**

Availability of resources is the extent to which resources in a project are available. These resources are the consultants that work on a project. These consultants can all have different skills or different levels of the same skill. Resources are also hardware and software that is used for the project. Hardware is for instance servers used to run databases and Business Intelligence packages on or the computer networks that are used. Software consists of these packages but also the daily used office packages. Another important resource is the client's organization. A client often has an IT-division or ambassador users with which a project team has to cooperate or it has its own consultants who work on the project.

**Using dimensions instead of defining project types**

If all these dimensions would have only one variable with two values,  $2^8 = 256$  different project types could be defined. This would be far from practical when deciding on the use of components on the basis of project types, especially because this number will more than double since some dimensions have a lot more variables. As discussed in paragraph 5.2 defining project types on the basis of intuition is very hard to do, since many of those typologies actually say very little about the project. Project types will therefore not be defined as such. The term project type will be used throughout the methodology since, once a project's dimensions are clear they do define a certain type of project.

In the following description of the management components the dimensions that influence a decision on how to make use of the component or whether to use the component at all will be listed. Per management component the most influential dimensions will be selected on the basis of how project managers think dimensions influence a choice and the use of project management components. These influences are listed in figure 14. How to decide on the use of a component based on the influence of project dimensions will be listed as well.

## 6.5 The components



Over the next paragraphs all the components of project management – identified in this research – are described. The components of project management are elements represented by the books in the bookcase model. These contain procedures for managing and doing specific things in projects, management documents and a description of how and when to use the component. For the content of these books, the interviews with the project managers are used. They are complemented by project management literature and project management manuals when necessary. No new procedures or ways of doing things will be introduced. The 'books' are written using only the current project management practices of Ordina VisionWorks's project managers.

### 6.5.1 Initiating

**Information gathering**

When initiating a project, there are several things to be done. The first of these is information gathering. The problem a client has and the solution that is provided by the project have to be made clear and have to be understood by all parties involved. Such information is usually obtained by meetings between the contracting and the contracted parties. Such meetings can also include members of the client's workforce and project teams. Another form of getting all the necessary information out from the client is by doing workshops. In workshops problems are analyzed and projects can be planned globally in such that all parties involved can reach a mutual agreement on the problems and plans.

## The business case

The client usually defines a *business case* before acquiring a project. The OCG [54] defines a business case as follows: “The Business Case is used to obtain management commitment and approval for investment in business change, through rationale for the investment.” In other words the legitimacy of the project is described. It then goes on to describe the business case: “The Business Case provides a framework for planning and management of the business change.” As described earlier in this chapter, projects cause changes. How these changes affect the organization is managed by the client organization itself. More specifically: projects impact organization processes. A project is a tool to facilitate such a change rather than only the creation of an information system. And finally: “The ongoing viability of the project will be monitored against the Business Case.” This is something that when taken into account can be useful in identifying the needs of the client’s stakeholders in the project.

## Project proposal or PID:

- Outcomes,
- Scope, Roles,
- Requirements
- Dependencies

On the side of Ordina almost all projects start with a *project proposal* or a project initiation document. A project proposal or a *PID* is a document that contains information on several things. Overall the proposal describes what has to be done, how this is to be done and what is needed to do this. More specifically it is a global project planning, it states the goals of the project, the scope of the project, the requirements and it states the things that the delivering and the client organizations have agreed upon. A project proposal is written by the project manager and sometimes a business unit manager responsible for the project. A PID contains roughly the same items as a proposal. It is more often used in Business Intelligence projects, whereas a proposal is traditionally used in Performance Management projects.

Because most things that have to be done in order to initiate a project are documented in a proposal or a PID, how to initiate a project is therefore described by how to write such a document. In order to write a project proposal several things have to be known.

First of all the *outcomes* of the project have to be made clear. The outcomes of a project are the deliverables or sub- and end-products of a project. At various stages in the project, the project will deliver predefined products. The deliverables are to be defined only globally. They in turn define the phases of the project. The phases and deliverables of a project should be defined in such a way that a client can monitor the progress of the project by receiving deliverables. To keep a client committed to a project the delivery of products should therefore not be planned too far apart in time. The deliverables also say something about the *scope* of the project. What is not directly clear from the deliverables in terms of scope should also be described in the proposal. The scope of a project states how a project is a part of other projects and whether the products produced are part of larger products or systems. Also the parts of the organization which are affected and the business processes which are involved are described by the project’s scope.

*Dependencies* between projects and between activities in projects are to be identified and committed to paper. How one project depends on outcomes of another project and how these inputs and outputs can be critical to the progress of a project is described.

The next part of writing a project proposal is defining who will produce which deliverables. In order to do this there has to be clarity about who is available to work on the project and who will take on what *role* in the project. Project team members and the deliverables they will work on are again only defined globally. How people are assigned to tasks will be described in planning the project. Based on how much each team member costs a global cost framing is done as well. Aside from the project team there are others involved in the project. The business unit manager is one, the client or contractor is another. How the *project organization* is defined and who else will be a part of this organization also has to be defined for the project proposal. How this is done is described under organization structure.

Which have to be determined also in the proposal are the *requirements*. They state what is absolutely necessary in order to do the project for Ordina VisionWorks as well as for the client organization. Requirements for PM and BI projects usually include items such as the limits of information systems, necessary training and testing, performance of the system, acceptance of the project and necessary resources.

Acquiring resources and other means

Once the resources and roles are determined and documented in a project proposal they have to be acquired. This means that a project manager must acquire consultants who will perform the necessary roles from VisionWorks as well as from the client organization and external organizations. This will be explained in more detail in ‘team management’. Other resources that have to be acquired are things such as necessary work space, access to rooms and systems that will be used during a project and other arrangements that have to be made in preparation for the work of the project.

Other documents

In traditional DSDM projects a feasibility study was made. Such a study determined whether the project would be feasible. In this document the roles of everyone involved were determined as well as the dependencies of these roles. Alternative solutions to the problem a project was meant to solve were also identified and described in this document. Overall this document contains a lot of similarities to the PID and the project proposal. Because the DSDM methodology will be replaced in the future by the new Business Intelligence methodology, this document won’t be used anymore. It is replaced by the PID. It is therefore not described in detail.

A special case of Business Intelligence projects is extreme data warehousing or xDWH. In short extreme data warehousing means that pre-designed and pre-produced business intelligence products are implemented in an organization, instead of being developed during a project. In extreme data warehousing before the project is started first an assessment is made in order to see whether the client organization is ready for such an approach. More information on this assessment and the workings of this approach can be found in the extreme data warehousing documentation.

Initiating: Tips ‘n Tricks

To illustrate project initiation the project proposal can be a good guide. Another help can be tips and tricks of project managers:

- Start planning globally in the initiation phase
- Get clarity about the project’s domain: what to do and what not to do
- Give the client clarity about the project: manage expectancies
- Set goals on the basis of a client’s deadlines
- Help the client make the business case
- More roles can be fulfilled by one person; make sure they don’t conflict

**Templates that are used for initiating a project:**  
Assessment, Proposal, Small Proposal, PID

*Impact of Dimensions:*

The project dimensions that influence initiation most are: design methodology used and the client’s culture and scope.

6. Methodology

When using the ‘Management Information’ methodology in Performance Management projects a small project proposal is always used, or when the scope of the project requires it the large version is used. When there is not much clarity at the beginning of a project about the costs or deliverables and a proposal just can not be filled in to a desirable extent, a PID can be used. When using the new BI methodology a PID is always used. The project initiation document is part of the official templates used in this methodology. A project proposal can be used if either the scope or the client require it.

2. Client’s culture

To what extent things are described in a project proposal depends entirely on the client and contractor and off course on what is known about the project after information gathering. Usually in the beginning of a project it can be difficult to determine exact products and costs. The proposal is therefore usually only filled in globally and refined during the project. When a client requires a proposal on which it can formally agree, it goes without saying that such a document will have to be drafted.

## 6.5.2 Organization structure

One of the items that are described in the project proposal is the organization structure. This paragraph will present a few of the possible organization structures and it will discuss some of the issues concerning organization structures.

Simple structure:  
 - Project manager  
 - B. U. Mgr.  
 - Sponsor

The *simplest version* of an organization structure is a structure which only entails a few people. The project manager is one. In a simple structure the project manager is often part of the project team and works on the deliverables as well. The team members are also part of this structure. How they are organized is discussed later. Other important people in a simple organization structure are the ones representing the client organization. This is usually the person who contracted the project and the one who is the one responsible for the project for the client. This person is usually called the *Project Sponsor*. Communication lines are short and in such a structure communication is usually informal. The project manager communicates the needs of the client to the project team and reports the status of the project to both a business unit manager of Ordina VisionWorks and the person responsible for the project for the client organization.

Large structure:  
 - Project board  
 - Project Buro  
 - Reference group  
 - Project managers  
 - Project leaders

A picture of the most *elaborate* organization structure is shown here to the right. This structure is composed of several groups. They will all be discussed briefly. The lines in an organization chart as the one shown here represent responsibilities. In clearly defined structures those responsibilities are made clear as a part of the process of defining the organization structure.

The project board is a group that is found in many project organization structures. This group is made up of managers or other high ranking people of both the supplying and the client organizations as well as future users of the products. This group is in the end responsible for the project. It monitors and controls the project and takes decisions that need the backing of authority.

The project buro is mentioned previously in this research. The project buro is responsible for the success of the project for Ordina, when projects have large budgets – over 150.000 euro. It also monitors projects and tries to asses and minimize the project risks for projects over 50.000 euro. It has the authority to close the project when the costs grow out of control.

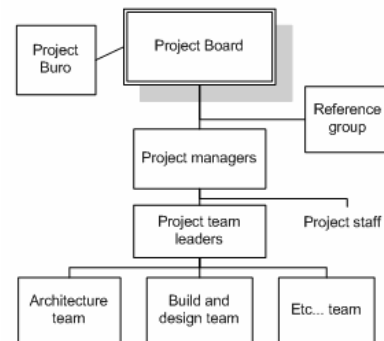


Figure 21: An elaborate project organization structure

The reference group consists of people with knowledge of or experience in the business. Performance Management and Business Intelligence projects require a lot of knowledge of the business where management information is concerned. They are used to secure the quality of the products that a project produces.

The group of project managers is set up to coordinate the linkages and exchange of information between projects. They discuss the progress of the projects and the issues and bottlenecks that arise during the course of the projects.

Project team leaders coordinate work in the project teams. They coordinate the activities create inputs and outputs that are used between the teams. They are also the main reference and coordination points for the project managers.

The project staff has a supporting role in planning and coordinating the projects. They handle much of the project's administration as well as the secretarial and accounting activities.

Team structure:  
 - Parallel  
 - Functional  
 - Business area

In the projects that VisionWorks does there are several different team structures to be found. The first and most simple is the *functional team structure*. As is shown in figure 15 a Business Intelligence project has several different activities. These are analysis and study activities and modeling and realization activities. These are represented by the circles and squares in the BI-model. In a functional structure each team member only performs several function related activities. These sorts of teams are usually structured

around a lead architect. This is the person responsible for the design of the end products. For the content of their work, the team members are under the direct supervision of the lead architect rather than the project leader's. The project manager communicates with the lead architect about the project status and product progress rather than with the team members.

When these activities are performed at the same time, which is usually the case in an iterative process, the teams or consultants are structured parallel. In a *parallel structure* as shown in the figure to the right, team members perform several related activities, much the same as in a functional structure, only the timing differs. When activities are not performed at the same time, consultants can switch between activities when necessary.

	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2
consultant 1				A&I			RTI															
consultant 2			AI				FOA					TOA										RFE
consultant 3				BA						DM												RBE

Figure 22: parallel team planning (source: Hobo 2002)

The third form way of organizing a team is *structuring it to business areas*. In such a structure teams are often called specialty teams. A team member applies his or her expertise in a certain business area such as for instance finance or marketing to several deliverables of the project and works on the project from analysis to the realization of the deliverables. For this structure to work, team members must have sufficient knowledge of a specific business area as well as knowledge of all the processes involved in creating a BI or PM system.

**Organization:  
Tips 'n Tricks**

Some guidelines from project managers in setting up an organization structure are:

- An elaborate structure gives a client a feeling of control, decision making however is not optimal
- When setting up a project board, make sure the client knows of the responsibilities this imposes
- The business departments provide the demand, the IT department the solution: unify these two
- A project board is not a project leader, make sure the board knows this as well
- Have the client work on the project team to gain commitment; an ambassador user

**Templates that are used for organizing a project:**

Organization chart

*Impact of dimensions:*

The project dimensions that influence the organization structure most are: the client's culture, project scope, the client's success measures and the availability of resources.

**2. Client's culture** The main influence on the organization structure is the client's culture. Structures that are most often used in the projects that VisionWorks does are structures that contain only project teams and a steering group of project board. How the structure is formed depends on the client. Some clients feel that an elaborate structure provides them with more control over the project. [41] Organizations which are hierarchically structured might also work better with an elaborate project organization structure as described previously than network organizations which are not used to lines of authority. [8]

**3. Scope** Project scope is second important determinant of organization structure. The organization of projects in sub projects on one hand and a programme on the other almost automatically determines the structuring of the ones responsible for those projects.

**5. Success factors** Every project has *stakeholders*. How successful the project is depends on how every stakeholder views the success of a project. [42] For a project to be successfully completed all the success factors of all the stakeholders must be satisfied. In reality this is almost never possible. Stakeholders that are important to the project therefore have to be identified and their success factors therefore have to be identified as well. An organization structure can help in identifying the stakeholders. One type of stakeholders that does not show



up in the organization charts is formed by the people that determine behavior and opinions by their status in a group or because of the trust put in their opinions by authoritative figures in an organization. Although easily overlooked these people do have a great influence in determining the opinions of the stakeholders and thus the success of a project. Once the importance of a stakeholder to a project is determined and the success factors are analyzed, the success factors can be prioritized.

7. Resources

How to structure the team depends on several factors. The most important one is the available resources: the consultants that make up the teams. When a lead architect who is solely responsible for the design of the products for instance is available for a project, teams are structured functionally around this lead architect. When team members with special knowledge of business areas and all-round knowledge of Business Intelligence or Performance Management are available teams can be planned to business areas. When those team members are flexible and experienced enough to work on several products (3/4 of all the project's products) and are available for the whole duration of the project, teams can be structured parallel.

6.5.3 Communication

As previously stated in the questionnaire that was presented to the project managers of VisionWorks, the management skill that the project managers found most important is communication. Communication and several aspects of communication are therefore highlighted in this methodology.

A bridge between client and project team

One aspect of communication is shown in the figure below. What this figure is meant to illustrate is the bridge that a project manager forms between the client and the project team. In business intelligence and performance management projects the client has a management information problem that is described in business terms. The solution that VisionWorks provides is of a technical nature. This is perhaps illustrated best by the two examples of BI and PM projects used in the beginning of this research to describe both types of projects. In the data warehousing (BI) example the cause for the project is clearly described in business terms and the results that are described are of a technical nature. The same goes for the cause of the project and the deliverables described in the balanced scorecard (PM) example. A project manager has to translate the client's problems into solutions that the project team creates. All of VisionWorks's project managers find that to be able to form a bridge between the two knowledge area's and between the solution and the problem, both an understanding of the business related problem the client has and an understanding of the technology used to provide a solution for this problem is required.

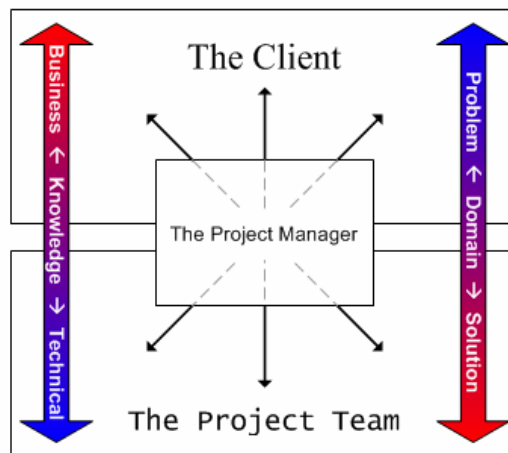


Figure 23: Communication between Project manager, client and project team

All lines go through the project manager

An advantage of having some expertise in both business and technical area's is that a project manager can communicate directly with the client as well as the project team, without the need for a third party interpreter. This is another thing that figure 30 is meant to illustrate. All lines of communication should go through the project manager. To be able to effectively monitor and control a project and a project

organization it is necessary for the project manager to know what goes on with the project. An example of this is stated in managing changes. For instance when a client request a change, a project manager needs to know about this change in order to evaluate the effect of the change on the scope, duration and budget of the project. Another example is that when issues and problems occur with the design or creation of a product. It is also necessary for a project manager to know about these, in order to inform the client when these issues and problems are critical to the delivery of products.

#### Communicating with different groups

As shown in figure 21 a project organization is formed out of many different groups of people. All these groups of people have different ways off interacting with each other. For instance a project board that is made up out of managers will interact differently than a project team that is made up out of programmers. For one the subjects of conversation and jargon used will differ. [16] Their rituals – the kinds of meetings these groups have and the way people behave in these meetings – differ as well. [17] For a project manager to form a bridge between the different groups within the project organization, a project manager will have to know about and understand the jargon and rituals used by all groups. More over most of VisionWorks’s project managers find that they have to believably adopt the jargon and rituals of all groups in order to effectively communicate with these groups. In figure 30 these differences are depicted by the fonts used to display the client and the project team: a traditional font for the client, a technical font for the project team and a neutral font for the project manager.

#### Tips ‘n tricks

Finally some tips of project managers on communication:

- Make sure you are the one explaining the project to a client, not one of your consultants
- Try to be comfortable communicating with both management as well as technicians
- Be tactful in communicating; the goal of communicating is to bring across your views
- Be sensitive to the positions and beliefs of the parties you communicate with
- Communication is about contact with people. Make sure you establish that contact.

#### Templates that are used in communicating:

Reports – see the components: ending and monitoring and control

#### Impact of dimensions:

#### 5. Success factors

The first dimension that impacts communication is success measures set by the client. They impact the subject of communication. What the clients finds most important is also that what is communicated about most. If for instance a client wants the project to finish on time above all else, communication with the client is bound to be mostly about the progress of the project. If a client cares only for the quality of the products that are produced, the subject of communication will be the products and how they perform or how they can be improved to perform even better.

#### 2. Culture

The client’s culture determines how communicating takes place. Project managers of VisionWorks distinguish two types of communication: formal communication and informal communication. *Formal communication* means communicating through formal meetings and formal reports. The points in time for these meetings are usually pre-determined. A meeting will for instance take place after a milestone product is delivered or after a planning is made. This means that when a client’s culture requires a project manager to formally communicate, a project manager has to determine the points in time for these meetings and agree upon them with the client. Formal reports can be progress or status reports, exception reports, acceptance documents or story boards. Formal reports, aside from taking some time to draw up, can have a negative impact on a project schedule. When for instance formal acceptance of deliverables is required, a project usually cannot move on until these documents are signed by all parties. This is something that should be taken into account when a client wants a project manager to formally meet and report. Examples of these reports are given in the section about monitoring and control.

*Informal communication* means reports and meetings between the project manager, the business unit manager and the project sponsor take place when it is felt by one of these parties that they are needed. Some meetings even take place by coincidence rather than by agreement. A requirement for informal communication is that there is a certain level of trust between a client and VisionWorks. How trust works will be explained in more detail in the section about team management. A drawback of informal communication is that there is little documentation of meetings and agreements. This can pose a problem when changing products, when the relation between the client and VisionWorks changes or when evaluating a project.

3. Scope  
4. Technology

How complex the project is or how uncertain the outcome of the project is also determines the way communication takes place. In projects that are complex or uncertain communication is often more formal. Formal communication in complex or uncertain projects takes place by the request of project managers as much as it does by the request of the client. Both parties have a mutual interest in documenting and formally agreeing on the production of products when the outcomes of a project are unsure. For instance a client's support or agreement can help a project manager, when a it is not certain that a product will actually do what it is supposed to do in the greater scheme of products. Having a client agree that the project manager should go ahead with the production of such a product can prevent a lot of discussion down the road.

### 6.5.4 Planning

The first planning activities are done in initiating a project and writing a project proposal or a PID: The project outcomes, the resources needed and the activities and their dependencies are elements used in planning a project. The plans made when initiating a project are refined in planning a project. The things that will be planned for are the products a project delivers and the time it will take to deliver these products. The planning of people, costs and resources is done when scheduling a project. These will be discussed later. Project planning deals with products and the delivery of products.

Planning for product delivery

What is determined first is the rough outlining of the time periods in which products will be delivered. This is done through defining the *phases* of a project. A project phase is a period of time in which several related sub-products are created. At the ending of a phase the products that are formed by the sub products are delivered. These products are called *milestone products*. The phases are planned in such a way that over set periods of time the client organization or the project board will receive a sub product. This is what Prince 2 calls a product oriented planning. The advantage of a product oriented planning is that a client can see the projects results early on in the project and monitor the project by the products that are periodically delivered. The advantage for the project manager is that early on in a project it will become clear whether there will be results and what these results will be.

Gantt Chart, Project: "Creating a project management methodology"  
Wednesday 23 June 2004

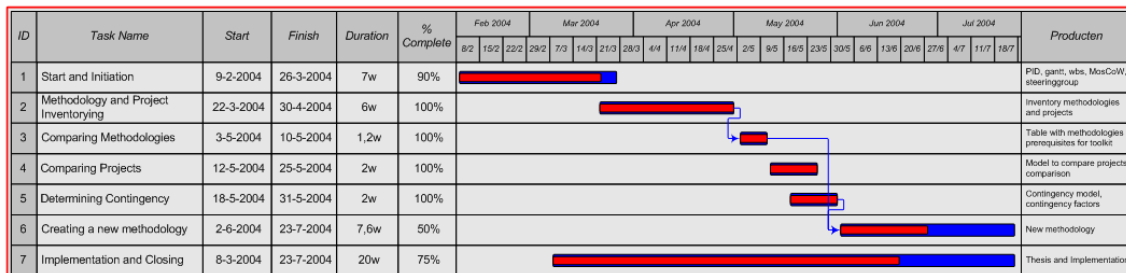


Figure 24: Gantt chart used to plan this research

Sub-projects instead of phases

Especially BI projects have a tendency to fail when they are too large. [55] Phasing splits a project into several smaller more manageable parts. Aside from being split into phases, projects can also be split into smaller projects. A division in projects differs from a division in phases not only in terminology. Projects that are split into small projects have their own project plans made by the ones producing the products, they

have their own budgets and they usually also have a distinct group of people who receive the milestone products and with whom the project team members communicate directly. These ‘clients’ are the end users rather than a project board. The sub-projects are managed by a project manager in a way that a programme manager would manage projects. This means less direct supervision and division of responsibilities to the lowest level of production. Such a planning is often used in combination with a parallel or business area team structure.

Tools used in planning: Gantt, WBS, MoSCoW

A phase planning with sub-products and milestone products is graphically represented by a *Gantt chart* or a bar-chart. An example of the chart used to plan this research is shown below. In this chart the major tasks or phases are identified, along with the times they start and end. Sub-products and milestone products are identified as well. The blue bars represent the duration of the phases and the red bars show the completion of the milestone products that are produced during a phase. In this type of chart the dependencies between the products within the project are also made clear. Some phases can’t be started until parts of other phases or products are completed. These dependencies are represented by the arrows.

Other documents used in planning a project are the *WBS* and a MoSCoW plan. In a Work Breakdown Structure the sub-products that are defined in a Gantt chart are broken down to lower level products of which the sub-products are comprised. The purpose of a WBS is to show all the products that are needed in order to complete sub-products, milestone products and phases. In the work breakdown structure shown on page 18 all the products define in the Gantt chart are depicted by the gray boxes and all the products or activities that are needed for these products are shown in white. Relations and dependencies between products are shown in more detail than is possible in a Gantt chart.

A *MoSCoW* plan is used to prioritize product design, creation and delivery. In such a plan products are listed in the categories Must have, Should have, Could have and Would have (but not in this release). The Must have products are products that are essential to the completion of the project. The Should have products are products that are needed but are not critical to the project. The Could have products are products that a project could deliver in case the project would finish with time to spare. These products are usually products that stakeholders think they should have but a project manager knows are not going to be made. The Would have products are products that usually are never going to be delivered.

In project management many more management documents used for planning a project are described. Examples of these are PERT charts, Critical Path Method charts and many others. [45] In the projects that VisionWorks does, bar-charts and MoSCoW plans are often used to plan projects; WBS-charts are sometimes used. To keep the overhead of planning to a minimum other charts and methods are seldom – usually never – used.

How to plan for product delivery

Planning the project’s products is usually done in several ways at the same time. Planning products is done by on one had determining the needs of the end users of the system or products that a project produces. These needs are translated into end-products and the products are translated into milestones and so on. Such a way of planning is called planning “*Top-Down*” At the same time projects are planned “*Bottom-Up*”. The architecture of the systems that are designed is determined on the basis of the information systems, databases, knowledge etc. that are present in a client’s organization. On the basis of this architecture the products that a project produces are then determined.

Planning the project’s phases is also done in a dyadic manner. The time needed to complete products is calculated on the basis of how long it takes to design and produce these products in accordance with the specifications of a product. The production time is usually based on experience with similar products made in previous projects. At the same time phases are planned on the basis of the deadlines set by a client or by the intervals in which a project has to produce deliverables. These times are taken as a starting point and usually Pareto’s rule (80/20) is used in planning crucial and less important products to be created in this time frame.

Considerations

There are some considerations that have to be made when planning a project. Four of these are described here. The first consideration is the depth or detail of the planning (1). The planning as shown on the previous page is a very global planning with only milestone products and phases. A WBS provides a more

detailed planning. *Product descriptions* provide the detail for a WBS. These are not discussed here because they are not used for most projects. When they are used they are used to provide the project manager with a better ‘feel’ of the project and the products and how these are produced. Products descriptions are used to plan a project internally. The client and the project board only see the outlines of a planning. An example of a product description can be found in the [appendix](#).

Another consideration is whether or not to involve the project team in the planning process (2). As mentioned earlier, planning the outlines of a project and letting the team members fill in the details can install a *sense of urgency* in the project team members. A consideration related to the sense of urgency is the *commitment* to the planning that is necessary for the whole project organization. (3) Means to getting commitment to a planning is letting people participate in the planning of the project. When people feel that they have contributed to the planning and that a planning words their expertise and ideas they tend to commit to a planning. Another way to attain the commitment of the project team is to make the planning a challenging one in respect to time needed and time provide to complete products. A consideration related to how challenging a project planning is, is the *float* planned for the phases. (4) Float is in phases is the surplus of time that is calculated extra to the time that is needed to complete products in order to account for risks.

**Templates that are used for planning a project:**

Gantt chart, WBS, MoSCoW, Product descriptions, project plan (see scheduling)

*Impact of dimensions:*

The project dimensions that influence planning most are: project scope and the client’s success measures. How much is focused on timely delivery of products depends on whether a client deems the cost and duration of a project most important or whether the client prefers a high quality product.

**3. Scope** The project’s scope is the main influence on the project planning. The scope of a project determines the systems and products that a project produces. A project that produces an array of systems is more *complex* than a project that produces only one product. Complex projects are planned more extensively and a wider range of management documents is used to document a complex structure. Complex projects are divided into smaller projects when necessary and when the team structure and resources allow it (see the component: organization structure).

**7. Resources** To some extent the availability of resources also has an influence on planning. The products that can be produced and the time they can be produced in are determined by the production capacity. This capacity is provided by the consultants that are available. The skills of the resources usually determine the detail of the planning. Senior consultants or programmers are usually more comfortable with planning the details of the production of products they deliver themselves. The influence of resources however has a greater impact on scheduling than that is has on planning. It will therefore be discussed in more detail when describing the scheduling of a project.

### 6.5.5 Scheduling

In the previous paragraphs planning products, product configuration and the delivery of products have been discussed. A project plan contains more than just the products. In order for the products to be delivered they first have to be produced. How production of products – or in the case of BI and PM the design and building of information systems – is planned and how the resources for production are scheduled is discussed over the next few paragraphs.

**Forming a project team**

Even before a project planning can be made, a project team has to be formed since a project team is part of the planning process, but also because a planning is made on the basis of the skills and in the case of consultancy thus production capacity of the team members. To form a project team, team members have to be acquired. The most common way of acquiring team members is discussing the project with the business unit manager on the basis of which the business unit manager will decide on the basis of availability and necessity which consultants will be available for the project. A project manager can of course state a preference for specific consultants. Some client organizations also want a say in the process of selecting team members and some clients even want to select all of the team members themselves. In this case VisionWorks will let the client decide on who will be a part of the project team. Candidates for the project team will be provided by VisionWorks and will be selected by the client on the basis of an intake conversation which is rather similar to a job interview.

**Estimating costs**

The costs of BI and PM projects are normally only determined by the consultants who work on the project. Costs of other resources are to be taken into account but usually do not present a major challenge to the project budget. Therefore once the team is formed and the availability of the consultants is known, an estimate of the cost of a project can be made on the basis of the hours worked on a project times the fees of the individual consultants. In a project plan usually only a rough estimate is made. When the project is scheduled and all the available resources have been assigned to specific tasks a more specific estimate of the costs can be made.

**Several ways to schedule a project**  
 - Matrix  
 - Time box  
 - Waterfall  
 - Parallel

There are several ways to schedule a project. The ones discussed next are all currently used in projects done by VisionWorks. The most common way of scheduling a project is by using *timeboxes*. A graphical representation of a timebox schedule is shown on the next page. A timebox schedule or planning consists of several levels of detail. The first level is always the whole project. The second level are the phases used in the information systems design (BI, PM, etc.) methodology. On the third level the same phases or tasks as shown in the Gantt chart are defined. These are comparable with e.g. the processes of the xxx BI-methodology. For every task deliverables, resources, costs and other necessary elements can be defined. When a project is scheduled by means of timeboxes, the most important factor is time. This might seem trivial but this has a great impact on the project and the way products are delivered. Each task has a set duration. Within this period of time the products that are produced have to be finished. When products are not finished in the set period of time they are wrapped up and delivered as they are. Finishing the products will be rescheduled for another project or for a new version of a product. For some projects such a form of scheduling might seem odd. When constructing a bridge for instance 95% completion simply won't do. Early versions of BI and PM products do however work even though they are incomplete.

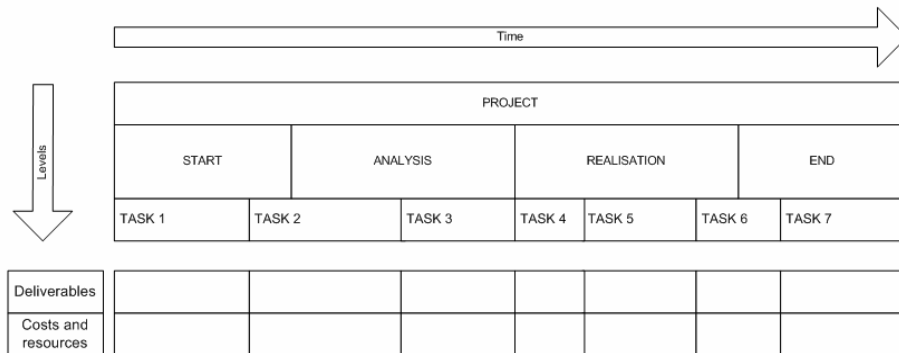


Figure 25: Timeboxes

The second way to schedule a project is by using the *matrix framework*. In a matrix framework the project is divided into three major phases. These are planning, execution and closure. An example of what such a framework looks like is shown in the [appendix](#).

**Planning**

For the planning phase the tasks that have to be done are identified, or taken from previous documents such as the Gantt chart. The time each task will take and the start and end dates are then defined, or again documents from the global planning are reused and refined. For each tasks the necessary skills are

Execution

determined. Then resources or consultants are matched to these skills. Also the level of experience of every resource is determined. On the basis of this the time each consultant is needed for a task is planned.

Once it is clear what is needed, the execution phase is planned. The availability of every consultant is determined for every task. This can be directly related to the planned time a consultant is needed. Next for every task stakeholders are identified. The deliverables produced by every task are defined for every stakeholder and those are matched with the expectancies of the particular stakeholder.

Ending

Finally the matrix framework plans for the end and evaluation of a project. Space is left in the planning to note the performance of every resource and this is then matched to the proper appraisal for this performance.

The third way of scheduling a project is by using the traditional *waterfall* method. This method is not nearly as dynamic as the name implies. In a waterfall schedule products produced by a project are planned sequentially. This means that once the global project planning is drawn up, the production of the first deliverable is planned in detail and then that planning is executed. When the product is delivered, accordance on the delivery is required, before planning the production of the next deliverable in more detail and then executing that production.

A form of scheduling that is the direct opposite of sequential scheduling is scheduling projects *parallel*. An illustration of parallel project planning is made by figure 22. It is characterized by the following trademarks: [55]

1. Projects are small and take little time to complete
2. Projects are divided into sub-projects
3. The sub-projects overlap
4. The tasks and phases overlap
5. One person performs multiple tasks in multiple projects
6. End-users are involved in the sub-projects

In scheduling projects parallel, larger projects are divided into smaller ones. For large BI projects for instance the smaller projects could be divided as to the business the management information system serves such as for instance financial intelligence systems or marketing intelligence systems.

As earlier stated in describing organization structures and project planning, when projects are planned parallel authority is delegated to the production level. Consultants are assigned to the smaller projects based on their knowledge of the business the particular project is for. The consultants are empowered to plan their projects as they see fit, based on how they know their project fits into the timeframe of the global project planning. They are also empowered to attain extra resources, in the form of consultants working on parallel projects, when they are needed.

Parallel in practice  
= semi-parallel

The parallel form of scheduling is not truly parallel. In practice two projects at most are done parallel, because doing all of the sub projects would require too much manpower and would prevent team members interchanging between projects, since all the same skills would be needed at the same time. Doing all the projects truly parallel would also be too much of a drain on the client's resources, since every project would require the same type of resource at the same time. A database would for instance be accessed by five designers at the same time when the data modeling phase starts, or the people who would have to train user would all be needed to perform several different trainings at once. And when dividing the design of information systems to the business they are going to serve, projects would never have the same size, since information systems for different businesses don't have the same size.

Dividing projects into smaller ones does however has its advantages. The first one is perhaps the most obvious one. The project's scope is diminished for every sub project. This makes projects more flexible to manage with respect to planning. Budgets can also be moved between projects. This makes managing risks and changes easier as well. A less elaborate organization structure is required 'on top of the project' since the risks and effects of changes of a sub project are smaller and thus can be managed by only the project manager.

The project plan is the document formed by all the previously mentioned planning and scheduling charts, models and frameworks. This document is a further specification and graphical representation of the planning elements that are in a project proposal. A project plan can be used in communication the project's planning throughout the organization. It is also something for all members of the organization to fall back on when they feel the project loses focus. A centralized and accessible project plan with all the documents used for planning and scheduling is used to 'anchor' the project.

Some more tips and tricks to help schedule a project:

- Have the project team do the scheduling: empower team members to schedule their own activities
- Estimate the unknowns before scheduling: time to completion, costs and manpower, end result
- Project scope is not a set dimension; it can be altered by creating sub-projects
- Communicate the schedule and communicate how you are going to deviate from it

**Templates that are used for scheduling a project:**  
Timeboxes, Matrix framework, Project plan

*Impact of dimensions:*

The project dimensions that influence scheduling most is: the client's culture.

How the availability of resources influences scheduling is discussed previously when discussing the impact of dimensions on project planning. One extra note: the only form of scheduling that deals with the availability of resources explicitly is the matrix framework.

The main difference between the various forms of scheduling is in the way products are delivered. When timeboxes or parallel project scheduling are used, project phases are started sometimes well before products of the previous phase are 100% completed. When using the waterfall method products have to be completed in order for the next phase to be started. Business Intelligence products as well as Performance Management products do work even if they are not fully functional. The type of product has therefore little impact on the type of scheduling that should be used. All the design methodologies used by VisionWorks (DSDM, Guide, Management Information, etc.) support timeboxes and can support other forms of scheduling as well with little alteration. The culture of a client organization however does have a great impact on the form of scheduling used. Some organizations want to see products finished and accorded before other phases are started. Other clients prefer to have products delivered timely so that their end users can make use of the new technology before their needs change. Which is the case for a client depends on the way an organization deals with change and control issues.

### 6.5.6 Team management

In the description of the management component organization structure setting up a team based on the competencies of the team members is discussed. Team members are selected primarily on the basis of their skills and availability. They are usually selected by the business unit manager, or when the client so desires it, by a recruiter from the client organization. The team, regardless of their competencies, has to work together, sometimes for a long period of time. It is the project manager's job to let the team function properly and to let the team members work together.

As stated in the end of the chapter leading up to this description of the new project management methodology (5.4.2), VisionWorks is a company that consists of several companies merged together. These companies all had different cultures and different ideas on how project teams should work and on how they should work together. At the time of writing this document a new project culture is still emerging. Section 5.4.2 also discusses some of the cultural elements shared by these former companies. This section will first explain on the basis of the current project management culture, how teams are to be managed and what the policies and practices should be regarding team management within VisionWorks. Then the limitations to



what a project leader can do to manage a team are discussed. When discussing the dimensions that influence team management a scientific model used in many large corporations – and clients of VisionWorks – for managing individual team members is discussed. This is the situational leadership model. Currently no models or pre-defined practices regarding team management are used. This model is introduced to provide project managers with some grip on how teams can be managed.

Atmosphere:  
Open culture

One of the things that are managed with regard to teams is the atmosphere within the team or the teams working environment. The atmosphere is defined here as the way team members feel about their duties and the way they feel about working together and the behavior this results in. In order to create a good atmosphere, the team should have an open culture. This means that team members must feel that they are able to ventilate their opinions and that their opinions are listened to. In order to create an open culture, a project manager should lead by example and should be open to the team about all matters concerning the project. Such matters include the project's goals, the project's time to completion, the project's budget and the issues that arise. An open culture, according to VisionWorks's project managers, not only creates a certain atmosphere within the team; an open culture also helps in the identification of issues and facilitates team members reporting problems and issues promptly. It also helps in the identification of change requests and execution of changes that are made in the project or to the product, based on these issues and change requests.

Atmosphere:  
Trust

Trust also plays an important role in the team atmosphere. It is commonly experienced by project managers that when a project manager is trusted by a client to perform his duties well, the project manager can manage a project more freely and efficiently, because he can manage the project the way it befits him and not the way it fits organizational control procedures. The interaction between trust, control and performance is shown in the figure to the right. The same is true for the way project managers trust their team to perform their duties. As discussed in chapter 5.4.2 in the projects that VisionWorks does employees are thought to be self motivated and self sufficient. They can therefore be trusted to perform their duties the best way they know how. A project team will feel to be trusted more when they feel to be controlled less. Trusting a project team therefore means giving up control and only setting the goals for the team members to reach and letting project team members handle the planning and production of products themselves.

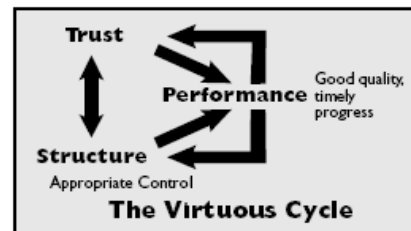


Figure 26: trust, control and performance  
(Source: Sabherwal 1999)

Types of trust

How exactly trust works is illustrated by dividing trust into four categories. [41] The first one is *calculated trust (1)*. This is rooted in the reward and punishment system. Calculated trust is facilitated through the recognition of the project manager's desire to do more projects for a client and of the team members desire to get promoted or well rewarded. The second category is *knowledge based trust (2)*. This depends on the parties involved knowing each other and each others behavior. One of the most common sources of knowledge based trust is team members and project managers having worked together on previous projects. *Identification based trust (3)* is trust that exists because parties can identify with the same goals and similar beliefs. It is developed through sharing project goals and team building. Team building is done through many activities. One of the traditional team building activities is taking the project team out of the physical project environment and creating a setting where they can discuss cooperation, communication and expectancy issues freely. *Performance based trust (4)* is the last category. While shared goals improve trust, performance issues tend to cause conflict and distrust. This is one of the reasons products are delivered in stages. Demonstrating completed portions of a project helps in getting performance based trust.

The leading  
foreman

'Management by walking around' is a practice commonly used by managers. In projects, the equivalent of this is 'project management by being a leading foreman'. Many project managers feel that when they work on the products themselves they have a better understanding of the issues and problems involved in designing and creating the products. This way they also have a better feeling of how well the team is doing. They are visible to the team members when they work with them on a collegial level. This makes a project manager easier to approach in case of problems.

#### Limitations to team management

Although project managers might not be keen on showing it, they do have limited powers. In some situations, no matter what a project manager does, team members are dissatisfied or do not reach their targets. In order for project managers to know their limitations regarding team management two categories of limits on team management are discussed here. [16] The first category is *irrelevance of leaders*. Some success factors are outside the project leader's control. Such factors can be for instance decisions made by the client or by business unit management about schedules and budgets. Secondly, not all resources that are needed to influence others are under the project manager's control. These can be means for reward or the influence a client has over the project team. The second category is *substitutes for leaders*. Team norms and group cohesiveness can be stronger than anything a project manager can do to influence a team. Team members can also be motivated by things a project manager cannot provide them with such as a promotion within the company. Thirdly a client's organizational rules and policies that a team has to work by are an influence a project manager usually has little say over. Important to note is that a project manager can influence some of the substitutes. A project manager can work on the norms and cohesiveness of a team and a project manager can help a client by setting up rules and policies for the way a team conducts itself. A project manager can manage a team not only by managing the team itself but also by managing the substitutes.

#### Tips 'n tricks

Some tips from VisionWorks's project managers on team management:

- In selecting team members, competencies come first, personality is a distant second
- If you want a team to be open, lead by example: be open yourself
- Working together solves problems more easily
- The leading foreman must keep his priorities straight: project comes before team
- A high degree of freedom for team members helps their creativity

### Templates that are used in team management:

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#### 7. Resources: Situational leadership

##### *Impact of dimensions:*

A model commonly used throughout large organizations is the situational leadership model designed by Hersey and Blanchard. The use of the model is to assess the behavior of employees and to devise a way of managing employees on the basis of their behavior. The model describes two dimensions of the development level of team members. The first one is employee competence and the other is employee commitment. These are both rated high and low.

#### Team member development levels

High commitment and low competence is described as: "May have some relevant skills, but won't be able to do the job without help. The task or the situation may be new to them." (D1)

Low commitment and low competence is described as: "Generally lacking the specific skills required for the job in hand, and lacks any confidence and / or motivation to tackle it." (D2)

Low commitment and high competence is described as: "Experienced and capable, but may lack the confidence to go it alone, or the motivation to do it well / quickly" (D3)

High commitment and high competence is described as: "Experienced at the job, and comfortable with their own ability to do it well. May even be more skilled than the leader" (D4) [59]

Based on these development levels of employees a management style is proposed. This is done by defining the behavior of the manager in two similar dimensions: task behavior and relationship behavior and rating them high and low as well. The following is a description of the management styles:

#### Management style

*Telling:* Leaders define the roles and tasks of the 'follower', and supervise them closely. Decisions are made by the leader and announced, so communication is largely one-way. (S1)

*Selling*: Leaders still define roles and tasks, but seeks ideas and suggestions from the follower. Decisions remain the leader's prerogative, but communication is much more two-way. (S2)

*Participating*: Leaders pass day-to-day decisions, such as task allocation and processes, to the follower. The leader facilitates and takes part in decisions, but control is with the follower. (S3)

*Delegating*: Leaders are still involved in decisions and problem-solving, but control is with the follower. The follower decides when and how the leader will be involved. (S4) [45]

These management styles correspond with the development levels of the employees. The following figure illustrates this. The dimensions of the development levels are rated together with the preferred behavior of a manager.

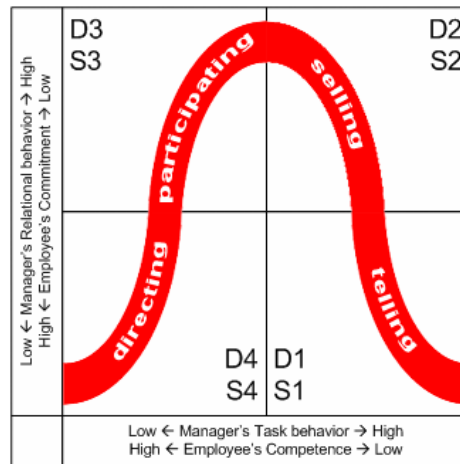


Figure 27: Situational Leadership (Source: Slack 1984 and Chimera Consulting)

**The model's limitations**

The leadership model should be easy to understand and its implications are straight forward. The model does have several limitations however. The first one is that the model defines development levels of employees for a singular employee. In a team situation there are multiple team members with different development levels. The leader, when using this model must choose between choosing an average level and basing his management style on this, or a project leader can choose to manage each individual differently. The second limitation is that the model only addresses people and not other contingency factors such as time and work pressures. Thirdly a leader usually cannot adapt his management style to every situation at will. Despite the limitations the model has, it does however provide the manager with some insight in how a management style and behavior can be adapted in several situations.

**6.5.7 Managing risks**

The way risks are managed for different types of projects varies – not surprisingly – widely. In the next paragraphs a few examples will be given of how to assess risks. First two types of risk assessment from methodologies previously used at VisionWorks will be provided. These are followed by a schematic way of identifying and assessing risks. This last assessment method is comprised of the best practices of the project managers of Ordina VisionWorks as well as elements from methodologies. When discussing the impact of project dimensions how and when to use which assessment will be discussed.

**Risks according to DBIM**

The most extensive way of assessing risks this research has encountered was found in the DSDM and DBIM methodologies. In these methodologies for every phase or activity risks are identified and prioritized. At the beginning of a project a document is drawn up, listing all the risks to be found for every consecutive phase. This risks assessment document is then updated after every phase is completed. An example of a DBIM risk assessment can be found in the appendix.

**Technical risk factors**

Why especially data warehousing (the underlying technology of both BI and PM) projects are risky is described by this risk assessment: Dimensional modeling of data or creating a star or snowflake model out of the existing database structure requires a different non-traditional way of thinking about data modeling. [18|56] Data warehouses traditionally deal with different information sources. Usually these sources are different types of databases. In these databases data is stored in a format specific to the database or information system the database is a part of. A data warehouse has to be consistent with all these sources and the format the data is stored in. Such consistency can sometimes be difficult to achieve.

**Political risk factors**

One of the political risks listed in this document is the sensitivity of data. In a data warehouse management information is made public and is distributed. Data warehouse projects have a low priority for client organizations since the processes are usually never critical to the operations of an organization. Another risk factor is provided by the threat management information can provide. Managers are not used to making decisions on the basis of management information, odd as this may seem. Most decisions are based on ‘gut’ feelings and instinct and not on clear data. Changing this requires more than technical skills; it requires political skills as well. A more complete list of risk factors can be found in the DBIM risk assessment documentation.

**Risks according to Guide**

In direct contrast to the DBIM way of assessing risks is the Guide risk assessment. In the Guide PID only the two most important risks are mentioned. This does not mean that no risk assessment is made. Risks are assessed but not formally written down in documents used in communication with the client or the project team. The philosophy behind this is that when someone thinks long enough, every occurrence in a project can be seen as a risk. Listing risks scares off clients who invest in projects and it also makes team members risk conscious and aversive. This impacts the project’s efficiency. The other thought behind this form of assessing risks is to make the project organization aware of the fact that there are risks and that they have to be managed in order to successfully complete the project, but that risk assessment and risk management is to be handled by the project manager and not the whole organization.

**Risks according to Practice**

A way of assessing risks that was found in VisionWorks’s project management practice, is to assess risks schematically at the start of a project and to keep monitoring them and to update them during the project when issues arise. To schematically assess risks a table is drawn up, listing the risk, the impact of the risk in euros, the probability that a risk will occur and a priority based on these factors. Items can be added to this table when necessary. Such items include the cost of insurance against risks, the certainty with which the risk is assessed and the owner of the risk. An example of such an assessment is shown below:

Risk	Impact	Probability	Insurance	Certainty	Owner	Priority	Priority #
Database X will be unavailable	5000 €	75%	5000 €	99%	Project Team Y (priority 0,8)	$((5000 \cdot 0.75) - 5000) \cdot 99 \cdot 0,8 = -990$	2
Absence of consultant Z	2000 €	25%	500 €	50%	Project Sponsor (priority 1)	$((2000 \cdot 0.75) - 500) \cdot 0.50 \cdot 1 = 500$	1

Table 4: risk assessment by calculating risks

Assessing risks by a simple calculation as shown above is an easy way to gain insight in risks and how risks are structured. It is however not meant as a fool proof method, but rather as a tool that can help a project manager in clarifying and prioritizing risks.

**Managing risks: Tips ‘n Tricks**

Thus far three methods of assessing risks have been discussed. Managing risks although done on the basis of the assessment is something else. In order to provide an insight in how to manage risks some ‘tips and tricks’ of how project managers deal with risks are listed:

- o Be open about risks and problems
- o Communicate risks early; before they become problems
- o Do only communicate essential risks: risks scare clients
- o Involve the client in managing risks
- o Only manage risks that you are sure that are really risks
- o Know how to escalate problems

- Keep inventorying new risks
- Only manage risks that you know can be managed
- Mention risks unambiguously in a project planning
- Keep an eye on dependencies of risky activities

**Templates that are used for managing risks:**  
DBIM risks assessment, PID, Risk Analysis

*Impact of Dimensions:*

The dimensions that impact the management of risk are: critical success factors, and scope and technology

5. Success factors

As stated previously in 5.3.2 risks of critical products and the delivery of those products tend to be managed more extensive than non-critical products. In order to find out which products both a client and a project team think are critical there are several options. The first one is to conduct a workshop with the client and the client’s users of the products that are to be created. During such a workshop the expectancies of a client can be identified and a client can then be made aware of the risks involved in producing these products. Another way of inventorying risks is looking at the requirements and specifications in the project proposal. Most risk assessments are an in depth specification on these. Yet another way of finding out how the client rates success is to see whether the client views the project as a ‘necessary evil’ project or a ‘strategic opportunity’ project. [57] In both type of projects risks have to be managed. However clients tend to be more risks averse in ‘necessary evil’ projects.

3. Scope  
4. Technology

Both the project’s scope and the technology used in projects are found to have an impact on managing risks in projects. Of these two project managers found the project’s scope to have the highest impact. Although rarely used in managing risks in projects, the framework McFarlan proposed can provide a project manager with a quick insight in how risky the project is, based on ‘hard’ factors such as technology and scope rather than on beliefs. [33] A classification of the project according to the framework of McFarlan is proposed to decide on how to proceed with a risk assessment. If a project were to fall in the ‘highest risk’ category risk assessment as provided by the DBIM methodology would perhaps be necessary. If a project were to end up in the low risk category, an assessment using the risk analysis table as proposed earlier might suffice. An advantage of using the risk assessment table is that it takes little time to make a somewhat in depth risk assessment and to be able to prioritize risks with lengthy papers on project risks. Although the DBIM risks assessment method take more time and certainly more paper, the advantage of using this method is that risks are assessed over and over. Besides this providing means for monitoring the emergence of new risks it provides a means for monitoring progression of existing risks.

	Project Size	High Structure	Low Structure
Familiar Technology	Small	lowest risk	very low risk (susceptible to mismanagement)
	Large	<b>low risk</b>	low risk (susceptible to mismanagement)
Unfamiliar Technology	Small	medium-low risk	high risk
	Large	medium risk	<b>highest risk</b>

Source: Applegate, McFarlan, McKenney, 1996, p. 627

Figure 28: A risk assessment framework (Source: Gogan 1999)

The McFarlan framework is illustrated on the previous page. For technology there are two categories: familiar technology or unfamiliar technology. The project's size is divided into large and small. These sizes can be estimated relative to the sizes of the projects that VisionWorks does. Size is measured in cost, time and organizations involved in the project. The projects structure is determined by whether the inputs and outputs of the project are clear and whether procedural and structural changes in the project expected to be many.

### 6.5.8 Managing changes

Things change. Most changes happen without every being noticed, authorized or managed. They are a result of informal conversations between users and members of the project organization in which changes are requested and informal requests are honored by the members of the project team. Some projects however do have very formal change control processes. This does not mean that every change follows this process. Changes happen *informally* mostly as long as the change doesn't cause a change in the *project's budget or time to completion*. When changes do affect the budget or timeframe, someone who can authorize those deviations has to be involved. This can be the project manager or sponsor, but more often this includes members of the project board. Change control processes are used as a way of getting support for the deviations in budget and time and documenting those changes so that they are not a cause for disagreement later on in the project.

A short anecdote to illustrate an informal change:

Change control

Informal

An ambassador user wants to make some idle small talk because he has not much else to do at the time. He sees a consultant designing a report and thinks back of the time when he used to create the exact same report. He remembers moments of desperately trying to stay focused when staring at the numbers in his Excel sheets. Thinking out loud he reminisces: "...and then to think that my manager used to want a graph next to every row." On which the consultant says: "He wants graphs? Easy, let me show you" and in a few clicks every row of the report has a graph next to the numbers. "Good stuff" says the idle team member walking back to his desk.

... A couple of hours later the consultant runs into his project manager and in trying to provide a status report the consultant remarks: "I don't know whether our dear manager still wants those graphs but I can put them in just in case." "Graphs? Sounds ok, I'll ask him the next time I see him" Replies the project manager, knowing that giving the manager his old graphs back might be the one thing he needed to actually get his project implemented. When the consultant is back at his desk, the last thing he does before he closes his laptop for the day is quickly 'drag and drop' the graphs in the report and check his e-mail.

Formal

From this story a process for implementing changes can be distilled as follows: First seemingly a *request for a change* is made when the ambassador user starts to talk about graphs. That it is not an actual request for change will be discussed below. Next the *impact of the change is assessed* when the consultant starts to play with the report. Then an *authorization request* for the change is made, when the consultant asks the project manager whether he should implement the change. A *decision* on the change is made by the project manager and albeit mentally, the change is *documented* by the project manager. The change is then *implemented* by the consultant. Finally the result of the change is *fed back* to the client when the project manager will try to implement his project.

Although the process looks a very informal one, this story follows the guidelines of the process illustrated by the figure 19 to the letter. The change control process is meant to model project management reality and provide a procedure for the process to control it and to make it go without incident, since not all informally executed changes do follow proper procedure.

Scope creep

In the beginning of anecdote the ambassador user mentioned graphs to the consultant. The consultant interpreted this as a request for change. This is an example of what is called '*scope creep*'. Even though no formal request for change is made, the product that is produced is altered. Altering the products and adding features causes the scope of the project to widen or at least alter; the product becomes more complicated and more often than not more of the client's organizational processes are involved. The initial objectives of

the project can be jeopardized by a gradual increase in the overall objectives. Project managers should be cautious about this because of the impact scope has on the initial planning, budget and schedule and because of the resources and production capacity that is taken up by the need to achieve new objectives.

#### Prototyping & Storyboarding

Another way of managing changes is by using *prototyping* and *storyboarding*. A prototype is a premature version of a product which is presented to the project organization and to future users. It is meant to test features and functionality. It is also made in order to get feed back on the design of the end-product from the end-users and to check whether the end-products that were defined and agreed upon in the initiating and planning phase match the ideas of the design team as well as those of the end-users. A non-working version of a prototype is called a storyboard. Advantages of a storyboard are low costs and short design time. A disadvantage is reduced functionality. This is a graphical representation of what the end product will look like, accompanied by texts and explanations of what it will do. Once the prototype is tested, the design of the product is frozen and the actual designing of the end product can begin. Important features of prototyping are client feed back early on in the project and the clients involvement in the design of the end-product. Another important feature is the design freeze. Once the prototype is tested, the design will not be altered. In such a way the project can be executed without many changes to the projects planning.

#### Versioning and reviews

Yet another method of managing change is project is by using *versioning*. Using this method, first a version of an end-product is made. This version is a usable version of the product. The product is formally received and accorded by the client organization. This first version is then used by a group of end users or test users. The performance of the product is then evaluated by means of reviews: A project manager and usually a product designer have a meeting or workshop with the test-users in which the performance is talked about and suggestions for improvement are made. Changes and improvements on the first version are made on the basis of the evaluation and a second version is created.

#### Not changing

The final way of looking at changes is to make what is agreed on in the project proposal and nothing else. This might seem strange at first since a lot of focus is on client satisfaction and delivering what the client wants. In some projects however clients don't know what they want and in other projects clients want more than they want to pay for and in yet other projects a client does want to be satisfied, but only wants a product delivered. In such cases sticking to the project proposal and delivering what is agreed upon is usually the best way of managing changes.

#### Exception report

A document used to document changes is the *exception report*. In this report the situation surrounding the change is explained shortly. The cause of the change that is needed is given. Alternatives to the change are also presented in this report. The results of the change once it is implemented are illustrated as well. This document is drafted by the project manager and then provided to the project board or to a project sponsor when their authorization is needed to decide on the change. All changes are also summed up in *exception logs*. These logs are internally used by the project manager to keep track of all the changes.

#### Tips 'n Tricks

Finally some concluding tips and remarks of the project managers on managing changes:

- Make clear and deliberate choices: a changing project can still be focused on goals and 'in control'
- Make sure that those who need to know, know
- Monitor dependencies: changes can produce chain reactions
- Document changes

### Templates that are used for managing changes:

Exception report, exception log

#### *Impact of dimensions:*

The dimensions that impact the management of changes most are: the success factors the client has with respect to time, cost and product quality, the culture of the client organization and the scope of the project.

2. Client culture

The most important factor influencing the formality of with which changes are executed is the client’s culture. Clients who have a formal company culture and a hierarchical organization usually also have the need to control a project and to control the changes in a project. The change control process is very formally used in such organizations. The drawback of formal change procedures is that project manager is the one who feels control is lost; when changes have to be communicated and agreed upon extensively, changes happen slowly and are out of the project manager’s hands. The role of trust also plays an important part in how formal changes are executed. Project managers that are trusted by their clients have more freedom to enact changes without needing to require the authority of a project board. [41]

5. Success factors

Prototyping takes time. Although prototyping is a good means of settling on the design of a product, designing and building a prototype takes time and thus resources. When resources and time are scarce storyboarding is can be used instead. Versioning requires an even longer time to completion than prototypes do. A client organization must also want to work with an unfinished product that is still being improved. Product quality is usually best ensured by using versioning as a method of managing changes.

3. Scope

When projects are dependent on other projects and have to deliver inputs for other projects, changes do not only affect the products that are changed but also the products that are made on the basis of these changed products. This is the reason that change in complex projects is managed more formally. The degree of documenting changes and having accords on changes is therefore also greater in complex projects.

### 6.5.9 Monitoring and control

According to project management literature time, cost, quality, organization and project scope are the five things that should be monitored and managed by the project managers. [23|24] They are the main status indicators of projects. The importance of each of these indicators of a project’s performance depends on the project and on the client’s or contractor’s wishes. The five control elements are also strongly interrelated. When a project takes longer, resources are needed for a longer period of time and the project’s cost go up. When the product quality is to be improved, costs go up and projects take longer. Issues within the project organization are monitored and have to be solved before they become problems and pose a threat to the other four elements. In order to get a good project outcome these five factors are balanced. In the following paragraphs time, cost, quality and organization will be discussed. Since scope was earlier defined as a project dimension it will be discussed when addressing the impact of dimensions on monitoring and control.

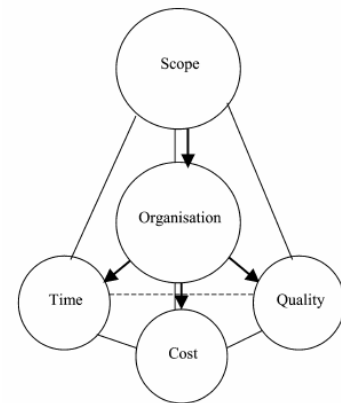


Figure 29: Turner’s five functions (Source: Kelley 2003)

Time

The time that is monitored in projects is the time it takes to design and create sub-products which in the end make up the time to completion of the whole project. The sub-products also have to be delivered on time. This is also monitored and controlled. In order to monitor the time products take to be delivered the performance of individual team members and the hours they spend working on their products or activities, is monitored. Every week the members of the project team write down the hours they have worked on the project for every activity they have worked on. By comparing the hours worked on a project to the hours scheduled for a project, the project’s status can be monitored.

Cost

The bulk of the project’s costs are made up by the consultants and managers who work on the project. Costs of hardware are usually only 5 to 10% of a project’s total costs. Therefore when monitoring and trying to control the costs of a project, the resources – consultants – that are taken up by activities and products are monitored and controlled. These are monitored per activity. The costs are related to the project’s budgeted costs.

Cost-wise dividing projects into several smaller projects has its advantages. When a sub-project or an activity takes up more of the budget than it should, extra resources can be allocated to this activity in order to solve problems or issues that are causing the increase in the activity’s costs. This means that other



activities off course have smaller budgets, but a project's budget should allow for a certain degree of re-allocation.

**Time and cost**

With a method such as the *earned value control* method the variances of costs relative to the budgeted costs can be easily calculated for a quick insight in the project costs. [45] This method is also used by Ordina's project bureau for monitoring and control. In this method the actual and scheduled expenditure of a project are measured against the value of work that is completed, as shown in figure 30. The drawback of monitoring a project's costs is that normally a project's costs are never linear; they follow an S-shaped curve. The value of work that is completed however is based on the cost and time of a project taken together. In the picture below time is represented by the length of the plotted lines.

For the sort of projects that VisionWorks does, cost accounting is usually not performed by the project managers. The time it takes to calculate costs simply does not outweigh the information it provides for monitoring a project. Once the basics of the earned value approach are clear a decent insight in the project's status can be gained just by drawing a quick sketch:

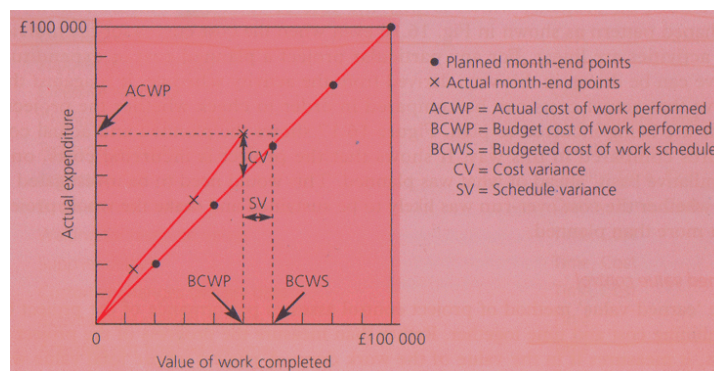


Figure 30: earned value control (Source: Slack 1984)

- (1) Draw the axis of the graph with the total budget as the end points.
- (2) Draw a diagonal line through the middle (starting at 0 ending at the total budget).
- (3) Draw the planned month-end points for the amount of the budget that should be used at the end of each month on the diagonal line.
- (4) At the end of each month draw in the actual month-end points according to the actual expenditure for the y-axis and the budgeted costs for an estimate of the work that is done (relative to the budget that was scheduled) for the x-axis.
- (5) Finally draw a line from the previous actual end point to the current one.

**Quality**

The desired product quality is determined in the information, infrastructure and architecture analyses that are done in the beginning of BI and PM projects. These studies and analyses usually form the first set of deliverables of a project. The quality of the products produced is measured relative to the quality of the products that is defined in these analyses: are products built the way they should have been built.

Assuming that the quality of products produced is up to the standard defined in the prior analyses, quality of an end product is dependent on how much of the product is completed. One means of assessing how products are coming along is the *product checklist*. A product checklist lists all the products that were earlier defined in the project planning or the product descriptions. The product checklist usually lists these products in even more detail than product descriptions do. When parts of products are finished they are checked off the checklist and in such a way the completion of products and thus the *progress* of the project are measured. The amount of work that is described in the previous paragraph can be attained from this product checklist.

**Status and progress reports**

The hours worked on a project and the hours of work scheduled for a project are registered in a so called Powercube. In a powercube the hours are listed per project, per week, per activity and per consultant. The completion of products and the scheduled completion of products can also be registered in the same cube in the same way. From these cubes reports can be created fairly easily, providing information about the status

and the progress of a project and more important an oversight of how every consultant is performing for every product. These cubes are used by the project manager to monitor and control the projects and they are also used as a means of reporting the projects status and progress to the business unit managers responsible for the project for VisionWorks. Examples of such reports can be found in the [appendix](#).

#### Organization

When the project organization structure is set up and the teams are defined, it still needs to be monitored and controlled. As briefly explained in the introduction of these paragraphs, an organization structure and the things that happen in this structure impact the time, cost and quality elements of a project. What are monitored in the organization structure by the project manager are the project team and the way it functions and the issues that arise in projects.

How a *team* functions is monitored by the behavior of the team members. The atmosphere in a team should be good or at least good enough not to have a negative impact on the performance of the individual team members. Team members are expected to be committed to a project. How to manage a project team will be discussed when describing the next component of project management: team management.

*Issues* that arise during a project are all logged in an issue log. For every issue the project team members that are involved in the particular issue are noted, along with the product they are working on. In a simple issue log only the issues are noted to keep track of so that they can be resolved before they become problems or even risks to the project. What can also be logged are the costs that are incurred when resolving the issue versus the costs of not resolving the issue. When issues are resolved this is also noted in the log.

#### The project bureau

For fixed price projects that have a price of more than 50.000 euro the project bureau monitors and controls the project. For projects above 150.000 euro the project bureau signs the contract with the client and will take full responsibility. For such projects a project manager reports the status and progress of the project every month to the project bureau. This is done by a *quantitative report* in which the hours worked on the project by the project team are listed along with 'other' costs, in which the costs of risks are also included. In this report the profit or loss of the project is calculated. Other numbers that are calculated are the project's turnover, the percentage of the project that is completed and the margins that are left with respect to the budget. These calculations should yield the same results as the earned value control method. Reporting to the project bureau is also done by a *qualitative report* in which the general progress, the use of the budget, the time to completion, the scope and the project's quality are calculated or listed as being good, a cause for concern or critical.

#### Story boards

All the reports and logs mentioned previously as well as all the decision to be taken are listed in a *storyboard*. Story boards are used to keep higher ranking members of the project organization and also the clients up to date on the project by providing them with a summation of the current issues, changes, status and progress of the project and the actions that will be taken to keep things on track. This storyboard is not to be confused with the storyboard described in managing changes.

#### Tips 'n tricks

Monitoring and control tips from project managers:

- Project managers are like the United Nations: only intervene when things go wrong
- Work with the project team on the products to get a feeling for the issues
- Monitoring and control is putting out small brushfires
- Let the client determine the priorities
- Try to only use those reports that are of use to your management of the project

#### **Templates that are used in monitoring and control:**

Quantitative report, qualitative report, Cubes with progress and status, product checklists, issue logs, story boards

### *Impact of dimensions:*

The dimensions that impact monitoring and control most are the project's scope, the available resources and the success factors for the project. This last dimension is explained easiest. Success factors are the same as the elements that are monitored and controlled in a project. A project's time to completion and a project's cost are the most important ones of these, unless a client puts quality first. In that case the product quality is also put first in monitoring and control.

#### 7. Resources

What is controlled is defined by the success measures of a project. How things are controlled depends on the things that are controlled. The control of the project's most important resources – the consultants working on the project – can be done in three ways. [13] The first two are: Results control and Action control. In *results control* the project team members are held accountable for the project's results. The performance expected of the project team members is defined in terms of results and is measured in the same dimensions. For results control to be effective a project manager must have sufficient knowledge of the desired results. In *actions control* steps are taken to insure that project team members act in the project's best interest. This means ensuring that they do their work properly. In order to control actions first good and bad actions have to be defined and then they have to be communicated to the project team members so they know what is expected of them. This form of control leaves little independence for project team members and is used only for starting consultants and consultants who can not handle the relative freedom results control provides them. The third form of controlling resources is cultural control. In *cultural control* a coherent project team is pressured socially to work efficiently and effectively. Such a form of control requires the selection of project team members with proper technical skills and personal motivation to work on a project and providing them with the proper resources to work on the project. They are trusted to act in self monitoring.

#### 3. Scope

The project's scope was earlier defined as the boundaries of a project. These include organization parts and business processes involved, an organization's resources to be used and the complexity and interdependence of the products that are produced. The project's scope is derived directly from the business' need or the purpose of the project. These determine the needs of the project in terms of skills and resources and organization. [23] The business' needs also define the project's time to completion, the project's costs and the desired product quality. If for instance a business would need a system to monitor the performance of tennis players in a tennis match and provide the viewers with this information, it would be imperative that the system is complete before the tournament starts and that it keeps functioning at least for the duration of the tennis tournament never mind the cost. Because it is the main influence on the elements time, cost, quality and organization the scope itself is also monitored and controlled: the business' needs are subject to change and those affect everything else.

### **6.5.10 Evaluating**

Evaluation means different things to different people. A definition stated in a project evaluation handbook characterizes evaluation as: "Systematic investigation of the worth or merit of an object". [58] This definition centers on the goal of using evaluation for a purpose. Evaluations should be used for action-related reasons. In most project management models, project evaluation is included as something that is done at the end of a project if it is done at all. This definition shows also that evaluation is not something to be done at a specific time but that it is something that can be done when it is needed. The office of Government Commerce, who also introduced the Prince 2 methodology, expands on the definition stated above: "The project should be evaluated to ensure that the product or change it delivered is really dealing with the issues it was designed to solve. This evaluation should be systematic and have success criteria clearly defined." And "... Thus the end project report captures how well the project performed against it's project initiation document especially planned cost, schedule, tolerances, revised business case and final project plan." [54]

#### Evaluation types according to VisionWorks

Ordina VisionWorks recognizes two types of project evaluation. The first type is the *internal* evaluation; the other is the *external* evaluation. In an internal evaluation, things such as the project team's performance, the lessons learned during the project and the issues that arose during the project are discussed and evaluated. These evaluations are used to improve the quality of projects. In the other evaluation, the

external evaluation, the project in general and the products that are produced by the project are evaluated by the client. This is done to insure the client's satisfaction with the product. Both forms of evaluation are not only done at the end of a project, they also take place *during the project* or even *before the project*.

**Evaluation types according to literature**

The form of evaluation that happens before a project starts is called planning evaluation in project management literature. In such an evaluation the understanding of the goals, objectives, strategies and timelines by all the parties involved is assessed. Aside from planning evaluation, two forms of evaluation are identified in project management literature. The first one is formative evaluation and the other is summative evaluation. An anecdote to make the distinction between the two: "When the cook tastes the soup, that's formative; when the guests taste the soup, that's summative." [58] Evaluating implementation and evaluating progress of projects is a form of formative evaluation. The purpose of an implementation evaluation is to see whether the project is going as planned. Progress evaluation's purpose is to see whether the project is attaining its goals. Both evaluations can recur several times during a project. This is comparable with VisionWorks's internal evaluation. The evaluations that are done at the end of a project are summative evaluations. The purpose of such an evaluation is to determine the project's success. This takes place after the project has delivered its products. This is comparable with VisionWorks's external evaluation.

**Planning evaluation**

In the beginning of a project a project leader or project manager sits down with a representative of the client organization, often the project sponsor, to assess the project's planning. Things in the planning that are good, bad or require action according to the client are inventoried and assessed. The outcome of such an evaluation is that both the client's organization and VisionWorks's representatives understand why the project is done and what the underlying problem is that the project is going to solve. Furthermore an assessment of the stakeholders of what they want and whether this conflicts or not is made. Other things that both parties have to be clear on after a planning evaluation are the costs of the project, the project's time to completion, and the outcomes of the project.

**Internal evaluation**

Internally evaluating a project is done in two ways. The first way of evaluating a project is through group evaluation: a final workshop, debriefing or a brown-paper session with all the team members. For these sessions a setting has to be created in which team members will not hold back their comments and experiences. A good way to create such an environment is to not make the discussion of issues a personal one and to focus on how problems can be solved for future projects instead of focusing on the problem and the problem owner. During a project team members as well as project managers log or note problems and issues and other things that catch their attention. These are the things discussed during such sessions. A result of an evaluation session is a list of lessons learned and a list of things that can be improved upon in future projects. This documentation should be stored in the organization and made accessible to future project managers.

**Intake and exit**

The second way of evaluating a project is through individual evaluation. This is done with intake and exit meetings or informal conversations with team members. In an intake meeting the skills of the consultant are determined and it is decided whether the consultant is the right person for the job based also on personality and based on whether the consultant fits in the project team or not. In an exit meeting the performance of the consultant and his or her issues during the project as well as lessons learned by the consultant are assessed and discussed.

**During the project**

Informal conversations and meetings are used for evaluation during the project. When things don't go as planned or as agreed upon in the contract it is necessary for all the parties involved to have a meeting. In such a meeting first the problem that causes things not to go as planned has to be made clear. Everyone involved has to understand the problem. Then a course is decided on how to eliminate the problem and get the project back on track. Before deciding on a course of action, opinions of all the parties involved have to be noted.

**External evaluation**

Externally projects are formally evaluated by means of a standard project evaluation form. In this form the client can fill in whether he or she is satisfied with the product or whether it needs more modifications or whether errors in the product need to be corrected. This evaluation is presented to the client during the project, again during the acceptance period and finally during the warranty period. Examples of causes for

problems with the product given by Ordina are (1) programming errors and (2) bad communication of the needs and wants of the client between the client and the project manager. Not all projects are evaluated this formally; these are guidelines for project evaluation set by Ordina. Clients sometimes have guidelines for evaluation themselves. When a client has a project evaluation procedure, evaluation of a project will be done according to this procedure, even if it is a very informal procedure without proper documentation. The goal of evaluating a project externally is client satisfaction and using the client's means of evaluating serves this goal best.

Tips 'n tricks

Some tips and tricks for evaluating projects from the project managers of VisionWorks:

- When necessary evaluate formally, else evaluate informally
- Use past evaluations in the planning of your project
- Evaluate your own performance and learn about how you function yourself as a project manager
- Make sure team members learn about themselves; ensure that they feel evaluating has been useful
- Listen to what team members and clients have to say

**Templates that are used in evaluating a project:**

Evaluation report, evaluation form

*Impact of dimensions:*

5. Success factors

The dimension that impacts evaluation most is the client's success factors and in line with this the way a client wants the project to be evaluated. Currently projects are evaluated externally the way a client wants this done, if projects are evaluated at all. Evaluation is something a client has to ask for in order for it to happen. When it does happen the things that are evaluated are the things that the client measures the project's success by. Although they might vary per client traditionally these are the costs of the project, the time it has take for the project to be completed and the quality of the product that is delivered.

The following table lists success measures projects should be evaluated by, according to Shenhar et al [44]. These success measures are derived from extensive research into project success. They are depicted here to illustrate the things that clients find important when they measure the success of the product that is delivered by Ordina VisionWorks. The first group of success measures, 'meeting design goals' refers to the contract that was signed with the client. The second group of measures the 'benefits to the customer' refers to the project's end-products.

Success dimensions	Success Measures
<b>Meeting design goals</b>	Functional specifications Technical specifications Schedule goals Budget goals
<b>Benefits to the customer</b>	Meeting acquisition goals Meeting the operational requirements Product entered into service Reached the end-user on time Product used over a substantial period of time Product yields substantial improvement in user's operational level User is satisfied with product

Table 5: A project's success measures (Source: Shenhar 1998)

7. Resources

Another dimension that influences the quality of an evaluation is the availability of resources. This is especially the case for the evaluations that happen at the end of a project. When a project is ended, resources tend to become unavailable fast, because keeping resources available after a project simply costs

too much. Consultants are usually needed for other projects once their current project is finished and team members from the client organization tend to be needed for their original duties or jobs. External consultants will have to be paid to stay on for the project's evaluation. Evaluation of a project however can still be profitable. Mistakes in future projects and planning these projects badly costs money too. Learning from past projects as an organization that earns 50% of its revenues by doing projects and thereby preventing problems from occurring in new projects should be considered because it could make more than it costs.

## 6.5.11 Ending

Ending a project does not necessarily have to take place at the end of a project. Several projects are ended before they reach their completion dates. Reasons for prematurely ending a project are various. A project can have overrun its budget or schedule by an unacceptable margin, or have encountered technical, political or other difficulties why it cannot continue. Closing a project prematurely does not mean the project was unsuccessful. A project can have been useful for its duration, without delivering the end product. A reason for ending a project for instance can be that the needs of a client have changed so much during a project that the products that are produced have become obsolete before they are even implemented. In such a case knowledge about products can have been gained and clients in any case will have their wants and needs made clear to them because of the project. However the end comes about, a project organization can't just get up and leave; projects have to be ended properly.

As stated in the description of the ending process, aside from ending a project there is also ending a phase. The activities necessary for ending a phase overlap for the greatest part with the activities needed to end a project. They are therefore not described separately. When in the next few paragraphs ending a project is mentioned, this can also be interpreted as ending a phase. To end a project several activities are required. These will all be discussed next.

### End statement

(1) A clear statement about the reason for closing the project has to be made and when problems were encountered, it must be ensured that the organization will learn from the experience. [54] If no problems were encountered it would be good to learn from the experience as well and see what has gone right in the project and how this can be duplicated in future projects.

### Evaluating

Although rarely done in practice, (2) projects should be evaluated. The purpose of evaluating a project is not only for all parties involved to see whether the products that have been delivered actually solve the business case, for VisionWorks it is also necessary to evaluate the performance of consultants and to learn from mistakes for future projects. In administrating the performance of consultants currently only the resumes of consultants are centrally updated. Formally parties involved in evaluating a project internally are the project team, the project manager and the contract manager. In practice the involved parties vary. Parties involved for external evaluation are the project manager and the project sponsor or the person that drew up the business case.

### Arrangements for implementation and maintenance

(3) Thirdly arrangements will have to be made for the implementation and maintenance of products. Implementation of products that are produced is in practice not done by the projects teams of VisionWorks. They require a completely different set of skills and knowledge. A design or roadmap for implementing the products will have been made during the planning of the project and during the design and building phases. When products are finished however, usually a new team of people comes in to train the users to use their new products.

Maintenance of management information systems is also not done by the same people that work on the design and creation of the systems. Aside from planning for maintenance and ensuring that the information system will work properly in the future, the project team has to write manuals or set up procedures to ensure that the system can be maintained. These procedures will have to be transferred to the client organization in order for them to maintain their new systems.

### Acceptance

One of the most important activities in ending a project is (4) to have the project formally accepted. When a PID was used in initiating the project, a modified version of this document will form the acceptance

document. This document is formally signed off on by the client when accepting the project. When a project proposal was written in the initiation of a project, usually this document also functions as the acceptance document. By using the initial documents or modified versions of these documents the project organization is made aware of the problem of scope creep and that what is agreed upon in the beginning of the project is actually delivered. Aside from acceptance by the client, the project board has to formally confirm the project's closing. Formal closure is done to make sure that the whole project organization knows the project is finished and to transfer responsibilities back to the client.

#### Wrap up

During a project a lot of documents are created and used by the project manager. Other members of the project organization, such as the project board, or a review team will have used documents to manage the project also. (5) These management documents have to be wrapped up. This means that a project manager must collect all these documents and store them centrally so that they can be used again when needed. Documents that are most important are documents (or templates) that can be used in the planning of future projects. Such documents include the project proposal, the project planning, the project evaluation and log files. These documents can all be used when planning new projects.

Finally unfinished business has to be taken care of. This is also described in the ending process and will be repeated to give a complete overview of the activities in ending a project. Unfinished business includes:

- Outstanding actions from acceptance and rollout, for example where functionality is to be delivered late
- Ongoing problems with the works or services, these problems will have to be solved during the warranty period
- Change requests that have been deferred and remaining risks and issues

#### **Templates that are used in ending a project:**

Acceptance document, project proposal

#### *Impact of dimensions:*

Many things can bring the end of a project about. A few have been mentioned in the beginning of this section. Examples of these things were overrun of the budget or the schedule and a client's changing needs these are all part of the success measures of the client. As stated in the previous section these are the things that are monitored and controlled. Monitoring these things should also signify a possible ending of a project.

#### 2. Culture

How to end a project however is influenced by the client's culture. More specifically it relies on how much a client relies on procedure to govern its organization. Some clients want a formal ending of a project, and have their own formal procedures in place for ending a project. These should be followed alongside the procedures that Ordina and this document propose for ending a project. For some clients however projects are ended and new projects are started without much interference on the client's part. In such a case ending a project should still be done in order to learn from a project and in order to store the knowledge gained during the project.

### **6.5.12 Templates**

In the previous paragraphs management documents were presented for every management component. These documents are all *interrelated*. In several different management documents the same or similar elements were mentioned. These elements provide the linkage between documents. This means that once an element is determined for one document, the same element is used in all the other documents it appears

in. How the elements are related can be derived from the next picture. Right below the picture, all the documents are all briefly described.

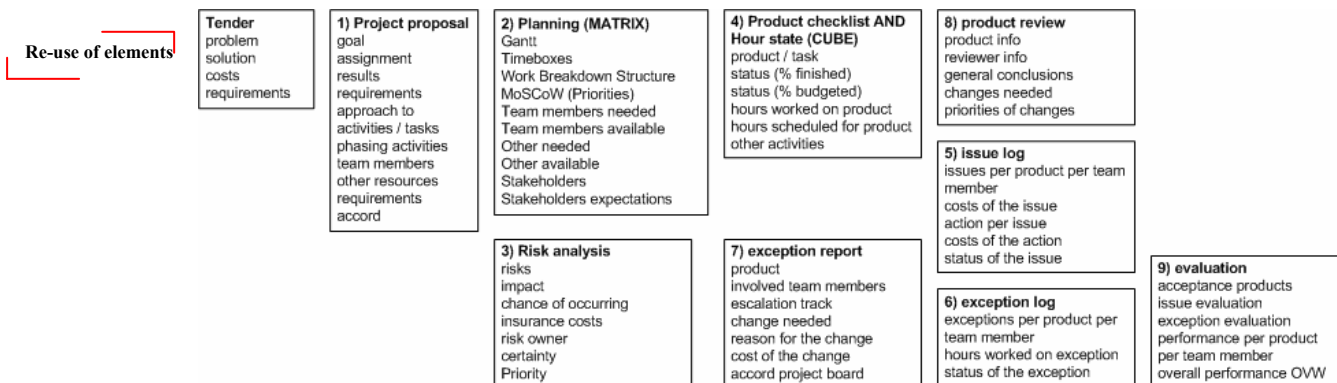


Figure 31: The integration of management documents and templates

- The tender** The first document used in a project is the tender. This document usually has the form of a letter in which the problem of a client as it is perceived by Ordina VisionWorks is described and the solution that can be provided by VisionWorks is offered. The costs and the requirements are also summarized in this document. This letter is written by one of the directors of VisionWorks.
- The proposal** The second document is written by the project manager, sometimes together with a business unit manager. This is the project proposal. In this proposal the solutions offered in the tender are worked out in detail. What else is part of a proposal is described in the first of the project management components: initiating
- The planning** The document that is created once a proposal is completed is the project planning. As mentioned earlier in describing planning as a component, the project planning is a composition of several planning documents. A project manager is free to choose what documents to use for planning a project. Only the Gantt chart and a description of the necessary resources and skills are essential elements that cannot be left out.
- The risk analysis** A risk analysis currently has many forms. A few of these have been discussed. These are the table used in risk assessment and risk prioritizing and a description of risks that is continuously updated during a project to keep track of the project's risks. Every project manager is free in determining how risks should be managed. According to many project managers as well as the project buro project managers should not be too risk averse and should not scare clients and project team members with an extensive list of all the things that can go wrong. Therefore a quick and methodic approach is chosen here to assess risks and when necessary – for instance when a client so desires it – a risk management document is described to be used along with the issue and exception logs.
- Reports** The product checklist and hour-state or report is a document with a detailed description of the tasks and resources or consultants described in the planning. In document list the hours worked on a product by every consultant are listed. This report is much the same as the Powercubes currently used by VisionWorks's business unit managers to monitor projects. Additions to the existing cubes are the comparisons of the hours worked and the hours budgeted and a comparison between the work scheduled and the work completed and the relation of these two.
- The logs** In the issue log the issues that arise during a project are also related to products that are affected by the issues and the project team members that are involved. The same goes for the exception report and the exception log. The status and progress reports and issue and exception logs can be combined in a story board to provide clients with an insight in the project and to provide the client with an explanation of why certain decisions are taken in order to manage a project.



**The evaluation**

The internal evaluation of the project team is also related to the products, since evaluations are mostly a recapitulation of the issues and exceptions. Internal evaluations of project team members and the appraisals on the basis of these evaluations should be in such a format that they can be stored in a personnel and personnel skills administration. Currently such an administration is done by centrally storing resumes.

**The Project's Powercube**

Currently all project management reports used for monitoring and control are used separately. As mentioned above, some of these documents can be integrated. One way of doing this would be to extend the Powercube currently used to monitor the hours that consultants work on projects. Reports made with this cube can be extended by listing the following:

- The hours worked on a project, listed per sub project, activities or products and per consultant
- The hours budgeted for the project
- The difference between the hours worked and the budgeted hours
  
- The completion of the project and its products in a percentage of in scheduled hours
- The planned completion of the project and the products
- The difference between the actual and the planned completion
  
- The issues and exceptions that arise listed per sub-project, product and per consultant
  
- The performance of consultants based on these issues, exceptions and differences between budget and schedule and actual work

To provide information for such reports the existing Powercube would have to be modified quite a bit. The technical details on how to do this are not mentioned here but the next table will provide an indication of how a cube could be modeled.

Project Monitoring Powercube	
<b>Dimensions:</b>	<b>Measures (summed):</b>
1) Time	A) Worked hours or budgeted hours (in €)
2) Consultants	
3) Clients	<b>Measures (Counted):</b>
4) Projects	
5) Products	B) Issues and exceptions
6) Budget	
7) Status (hours - budget)	<b>Measures (Average):</b>
8) Schedule	
9) Progress (completion - schedule)	C) Product completion (in % or else with earned value method => measure A)
10) Issues	
11) Exceptions	

Table 6: The Project's Powercube, dimensions and measures

**Benefits**

Designing a Powercube that can report on all these elements has several benefits. The first is that a project manager has a relatively simple tool to provide extensive *project management information* which can be used to monitor and control the project.

This information can be stored for every project that VisionWorks does. The advantage that this provides is for planning and budgeting new projects. Currently projects are planned on the basis of the experience a project manager has with similar projects. Storing information from the project's Powercubes provides a project manager with *historical information* on which planning and budgeting of new projects can be done.

Thirdly, the information on the *performance and skills* of the consultants can be used to evaluate the performance of consultants on the project and on the specific activities that a consultant performs. Aside from evaluation purposes, such information can later also be used when trying to find consultants with the proper skills for new projects.

## Drawbacks

The current Powercubes are created with a *'time writing' application* developed by VisionWorks. This application could be expanded with relative ease to incorporate the changes proposed to the Powercube. Currently the Powercubes are created by VisionWorks's controller and by business unit managers. This application could also be distributed to the project managers without great difficulty, so that they can create cubes themselves. Whether this is desirable remains to be seen, because the preferred way of administrating hours that are made on a project is to have it done by the controller, since there are always discrepancies between the hours that the project managers register and the hours that the consultants write on the project. The controller can find the causes for these discrepancies and even them out. This implies that when the cubes are expanded, the controller will have to do a surplus of administrative work.

Another problem for creating extensive project management Powercubes is the fact that Ordina is creating a *'shared service center'*. The complete administration of projects is to move to this shared service center. This would not pose a problem if this shared service center were to work with VisionWorks's time writing application. This however is not going to happen. Ordina's administration works with SAP software. For SAP there are many project management plug-ins. Another one could be created to incorporate project management Powercubes for monitoring and control. It would take at least a SAP-specialist and a Cognos-specialist to design and build a project management Powercube application and would be a project all on its own.

# Chapter 7: Implementation of the New Methodology



## 7 Implementation of the new methodology

The last research question is: "How is this new methodology implemented?" The first two sub questions about the strategy and the culture of Ordina VisionWorks were dealt with in chapter five. This chapter will try to answer the remainder of the last research question. First how this methodology can be implemented amongst project managers will be described. Alongside this, how this new methodology can be effectively communicated to the organization will be discussed. A few tools for communicating this methodology within the organization and to clients will be provided. Once the methodology is implemented and used in practice, it can be and probably needs to be refined and improved upon. A method for doing this will be discussed as well. The last few sections of this chapter will discuss whether this research and the new methodology will actually solve the problems posed in the problem statement.

### 7.1 Implementing the methodology in the organization

Marketing

Just as consumer products are marketed, this methodology also needs to be marketed within Ordina VisionWorks. In marketing consumer products, to communicate products to the consumers and to convince the consumers to buy the product six different levels of adaptation usually are used. [61] These are:

A consumer –

1. Knows of the product
2. Knows the contents of the product
3. Has an opinion about the product
4. Prefers the product
5. Is convinced the product is best
6. Uses the product (partly)
7. Uses the product (completely)

The last level is not part of the marketing model. It is added here because the product – the methodology – does not have to be used completely once it is adapted. Project managers can start by using parts or components of the methodology before they start using the methodology as a whole.

Why levels of adaptation

These seven levels are proposed to market the methodology within the organization. The methodology should not be forced on project managers. Project managers are used to doing things their way, sometimes because it is the only way they know how to manage projects, sometimes because their way of managing projects has proven itself during years of project management practice. Marketing the methodology using these levels, project managers can gradually explore the new methodology and get used to it and eventually start using it when they are convinced it works better than the way the manage projects themselves. By using levels, the use of the new methodology and the extent to which it is implemented within the organization can also be measured, measuring the percentage of project managers that has reached a certain level of adaptation at a certain point in time.

Speed of implementation

The speed with which the methodology is implemented can also be set by using these levels by setting a percentage of project managers that should have reached a certain level at a certain point in time. For instance if the methodology would be implemented within one year, one could state that at least 60% of the project managers should be at level 4 after six months. Determining the speed of implementation and the percentages of project managers that should reach certain levels of adaptation however will not be done in great detail by this research. Aside from the fact that there is a need for a unified project management methodology and several project managers have shown their interest in this methodology, at the time of writing this document there is too little known about the willingness of the management to implement this methodology. Based on the need for the methodology and based on the fact that project managers are interested, if a choice were to be made to implement this methodology, the suggestion is made here that at least 80% of the project managers should have reached level 6 within the year for the methodology to be implemented at all. Note that this is a ballpark number, based on logical deduction and not on experience in implementing methodologies.

#### Active user group

During this research several project managers have been interviewed and were later approached for the questionnaire. From a group of 12 project managers cooperating with the interviews of which a group of 6 project managers also filled out the questionnaire, there are a few project managers have shown special interest in the new methodology that is created. These project managers should be actively kept involved in developing this methodology further. This could be done by having them read this research and pointing out special areas of interest to them on which they can comment. Marketing wise this group would then know the contents of the methodology and should also have opinions on its contents. This equals 15% of the project managers being at level 3 within two months. Once this 'user group' prefers the methodology they could and should actively promote the methodology within the company. A good way of doing this would be for the project managers to use the methodology or to at least use parts of it and show other project managers that they use it and that it works.

#### Knowledge group

Ordina VisionWorks has so called knowledge groups. These are groups of employees who develop knowledge in a specific area such as a BI-methodology, planning and budgeting, project contracts and many other areas. Such groups usually consist of five to ten people who convene once a month and discuss the knowledge area they work on. They develop new methods of doing things and they publish information and their newfound knowledge on the intranet of Ordina VisionWorks. A knowledge group in the area of project management can be established to work with and improve upon the methodology. As stated in section 3.2 during this research an intranet website was maintained with the management documents used in this research, the results of this research and links and articles used in this research. The final version of the methodology will also be published on the intranet. The project management knowledge group should also maintain a project management intranet website with new project management articles and links and additions made to this methodology. The website that was used in during this research can be used as a basis for developing such an intranet website. Marketing wise, if the group were to consist of 5 project managers, at least 35% of the total number of project managers would be at adaptation level 5.

#### Improving

As stated in section 6.2, the new methodology should always be updated and improved upon. Currently project managers discuss their project management practices amongst themselves, but not in a structured way. Projects are also rarely evaluated. Therefore knowledge about project management is not stored in the organization and new knowledge about project management is not properly communicated to project managers. The new project management methodology should change this.

#### Updating components

The new project management methodology is built up out of (11) distinct components for project management. These components describe a best way of doing things, they list several templates or management documents and the project's dimensions which influence the component most are described for every component. All these parts of a component can be updated separately. If a project manager for instance comes across a management document or template that proves to be useful in practice, a project manager can update the project management component with that template. The template can be accompanied by a description of how to use the template if necessary. If for instance a client wants a project manager to manage a project their way and if this proves useful, a project manager can then update the body text of the component with that new way of doing things.

This updating of components is facilitated by the structure of the components themselves, but should also be facilitated by the way the methodology and thus the components are stored and presented to the organization. The intranet provides means for doing just that. The methodology can be stored and presented on the intranet as a whole; as one document. On the intranet however each component can be separately stored as well in a text document that can be updated by project managers with sufficient rights. The documents that are updated will automatically move to the top of the page so that everyone can see what document is updated last.

#### Storing Evaluations

As discussed earlier, projects should be evaluated. Even when a project does not result in the improvement of the methodology's components an evaluation should be stored on the intranet. The main reason for doing this is that project managers will always be able to fall back on a way they used to do things in a previous project. When the management components lack a description of how to do things a project evaluation could then provide means for how to proceed or how to not proceed with the management of a specific component.

In many books and articles on implementation, management support is listed as one of the main necessities for a successful implementation. To this the project management methodology forms no exception. The new unified BI-methodology that is currently implemented at Ordina VisionWorks is also supported by the management. In fact before this methodology is completely developed, the management of VisionWorks first approves the outlines of the methodology. The new project management methodology will need the same support of the management if it is going to be implemented.

One way of acquiring the support of the management is making sure that the management knows about the methodology and that the management feels that their strategies and requirements for project management are incorporated in the methodology. To do this all the managers were told that their support for this methodology was needed and that therefore they were formally and informally asked to list what they found important in a new project management methodology and what kind of elements they absolutely wanted to have in the new methodology. Their responses were translated into several elements of the new methodology. Tips and tricks is one of those elements, listing templates separately and linking to them is another.

As stated in the beginning of this section, the management cannot implore the methodology on project managers and force them to work with it. This would undoubtedly create an adverse reaction from the project managers. Once the management of VisionWorks feels comfortable with the methodology however, it should promote its use and point it out to project managers who ask them for guidance on the management of projects. Again, marketing wise this would mean skipping several levels and starting project managers at level 6, where project managers start using parts of the methodology without having to adapt to the methodology them selves.

## 7.2 Communicating the methodology: a sales kit



To implement the new project management methodology to the organization, it will have to be communicated to the organization. To help communicate the new methodology to the organization and also to client organizations, a sales kit has been developed. This sales kit consists of a Quickstart, a flyer and a presentation. The Quickstart is the same document as mentioned in the beginning of 6.2. This document gives a brief overview of the methodology and of how to work with the methodology.

In the Quickstart first the model behind the methodology is graphically presented. Then the processes defined in the model are all summarily explained. These processes provide a rough overview of when to use each specific management component and of how to use it. Then all the components of project management are listed. For every component the dimensions that influence the use of the component most are listed. In such a way a project manager can on the basis of the process that needs to be managed, choose a specific component and then check how the use of that component is influenced by the project type.

The flyer has a more commercial use. The flyer is a one page document, which list the features of the methodology and tells the reader why these features make the new methodology the ideal methodology for managing projects. The flyer is meant to advertise the methodology amongst the project managers and give them an incentive to start reading up on the methodology. The other use of the flyer is to advertise the methodology to clients. Reading the flyer, a client should see the value of the methodology and why it should be preferred to methodologies the competition uses.

The features described in the flyer are modularity, scalability and the 'lean and mean-ness' of the methodology. Modularity implies that the methodology does not have to be used as whole, but that also parts of it can be used independently. Scalability implies that the methodology can be used for small projects as well as large projects and 'Lean and Mean' implies that the methodology will not create more work for a project manager, but that using this methodology their job will become easier. The Flyer will also highlight the unique selling points of the methodology. These tell the client where this methodology differs from methodologies used by the competition and they state why this methodology should be preferred to those other methodologies.

The presentation is a mostly graphical slideshow which lists both the features and ideas presented in the flyer as well as an overview of the methodology given by the Quickstart. The methodology will first be presented to the organization using this slideshow. The slideshow then can be used to present the methodology to clients when there is a need for a client to hear and see the full story behind the way their project will be managed by Ordina VisionWorks.

**Documents used to implement the methodology (the sales kit):**  
Quickstart, Flyer, Presentation

### 7.3 Validating the research and the new methodology

In order to determine whether the research has been successful and to determine whether the main problem posed for this research has been solved, the research and the new project management methodology – that is created in order to solve the problems – are validated. First the criteria for validating the research are drawn up. These criteria will be derived from the main problem statement posed at the beginning of the research. Then the new project management methodology will be theoretically validated. This will be done on the basis of the requirements drawn up for the methodology.

#### 7.3.1 Criteria for validation

The problem statement posed at the beginning of this research is:

*Project managers at Ordina VisionWorks all manage their projects differently. This causes image, communication, efficiency and administrative issues. The research problem is how to create a unified project management methodology at Ordina VisionWorks in order to solve these issues.*

This implies two problems:

- (1) Communication, efficiency and administrative issues in daily practice
- (2) How to create a unified project management methodology

The first problem is an *action problem*. The issues that this problem addresses are problems that are experienced in daily practice and that can only be solved by changing the way people do things. Changing that can be achieved in three ways. The first one is to develop a system which makes people do things differently. The second way of doing this is changing the processes people use in order to get things done and the third way is to change the way people behave. [62] How this research will change the organization and the way things are done project management wise in the organization will be validated.

The second problem is a *knowledge problem*. Projects are all managed differently. The problem is creating a methodology on the basis of how projects are managed differently by the project managers of Ordina VisionWorks. There are different ways to go about creating a methodology. Whether this research provides a good way of creating a unified project management methodology will be validated.

Before the new methodology was created, requirements for the methodology were drawn up. These requirements were drawn up on the basis of requirements for the model to be used by the Project Management Body of Knowledge in 1987. [49] The design of the methodology has to meet these requirements and the requirements added after conversations with project managers and business unit managers about what was essential for the new methodology. Whether the new methodology actually does meet the requirements is validated.



### 7.3.2 The validation outcomes



The communication, efficiency and administrative issues mentioned in the problem statement will be partly solved by this research. How these are solved is discussed next, per issue.

#### Solving issues

With communication two things are implied (see: [2.2.3](#)). The first one is the communication within VisionWorks; the second one is communication between VisionWorks and the client. Communication within the company should improve when this methodology is adapted. As stated in [2.2.3](#) people tend to communicate better when they are talking about the same things. The unified project management methodology provides *a common language* for project managers. Because the project management methodology divides project management into separate components these can be addressed as such. It should provide clarity in what is talked about. When for instance risk management or managing changes is addressed in a conversation between project managers the same models and processes should come to mind.

#### Internal communication

The *cultural aspects* that are common to all the business units, or former companies, of VisionWorks are addressed by the methodology and were used as inputs for creating the methodology. These commonalities could provide a basis for a new culture, or the commonalities could at least provide a starting point, from where a new culture can emerge, since an important part of an organizational culture is sharing the same assumptions, values and behavior (see [5.4.2](#)).

#### External communication

External communication for project management is mainly communication that takes place with client organizations. The new methodology provides *a model for* how this form of *communication* takes place and it provides guidelines for communication as well. The model puts the project manager in the middle of all communication, so that when communication takes place between the client and VisionWorks, the project manager is involved. This way a project manager can coordinate the communication that takes place between the parties involved.

One of the communication problems that project managers have is not solved by the new unified methodology. This is the problem of *invoices*. Invoices are sent to the client by the shared service center of Ordina. Not even VisionWorks can influence this. The problem that this poses is that project managers on one hand communicate with clients through meetings and writing and that on the other hand Ordina communicates with clients through administrative processes. A project management methodology does not change this. This leaves project managers with one option. This is to take the administrative communication of Ordina with the client for granted and incorporate it in the management of projects and in the project managers' communication with clients in particular.

#### Administrative issues

The first administrative is addressed in the previous paragraph. Another administrative issue is addressed in the description of templates (see: [6.5.12](#)). Currently project managers as well as consultants provide the administration of VisionWorks with the hours that are worked on a project. The financial controller then goes over these hours and solves any discrepancies there might be. The administration of VisionWorks however will cease to exist. The shared service center will take care of the administrative duties in the near future. This means that a project manager will be responsible for the projects administration and that the project manager's administration will have to be correct. This will impose more tasks on a project manager. The new project management methodology does not solve this problem.

#### Efficiency

If two project managers would manage similar projects differently, one project would undoubtedly be managed more efficient than the other. Although the new project management methodology is kept light (Lean and Mean), it does *not* necessarily provide *the most efficient way* of managing projects. The project's dimensions, that are part of the description of every management component, do provide means of consideration for what would be an efficient way of dealing with the management of that component. They do however not dictate the most efficient way of doing things.

When a methodology is used for the management of projects, one advantage for the project managers is that they do not have to devise a way of managing a project *at the start of the project*. They won't have to think of what would be the best way of managing a project. With the new methodology a project manager

can size up the project and ‘take the necessary books out of the case’ and manage the project with these. This saves a project manager valuable time at the start of a project, since work on a project can be started almost right away. There is little time needed to devise a way of how to manage the project and consultants will not have to wait idly for a project manager to start them on the project.

#### Causing change

What is done in terms of changing the organization, is replacing different systems with a new system. The project management processes and the way project managers behave and think is not changed by this methodology. A system, or in this case a methodology, is provided for the management of projects. When this system is implemented it will change processes and ultimately behavior. Currently only the system is ready to be put in place. Project managers still manage the projects the way they always have and the hearts and minds of the project managers still need to be won.

#### Creating a methodology

The way the project management methodology is created is graphically displayed in figure 2. The way projects are currently managed is inventoried, by describing them in methodologies, phases and components. Then the way a project’s dimensions impact the use of these components is measured. On the basis of this a model to fit components and a way of how to make use of the components on the basis of the project’s dimensions is devised. Templates used in project management were inventoried and the useful templates were then added to the corresponding components. In other words, current best practices in project management were examined and modeled and then made to fit types of projects.

#### A methodology based on Prince 2

Whether this is a good way of creating a unified project management is can perhaps be explored best by comparing it to other ways project management methodologies have been created in the past. The *VisionWeb* is a partly owned subsidiary of Ordina. At this company a unified project management methodology was created too. The way that is was done at The VisionWeb, was to take the Price 2 methodology as a starting point and to map all the ways projects were managed onto this methodology. Prince 2 is a well known methodology and is rather perfectly suited for such an exercise. It only describes processes and gives pointers for how these processes should be dealt with. It does not dictate how the processes should be dealt with. This is left to project managers, or in this case The VisionWeb. This method of creating a project management methodology is however not ideal for VisionWorks. Nearly all project managers of VisionWorks have an aversity to methodologies. From early conversations with project managers it became clear that they do not want to be told how to do they job. Prince 2 especially is a methodology that encounters a lot of resistance. In this light it is better to use the ways project managers manage projects naturally and to map their own project management practices on a framework that is used subconsciously already, namely the tailoring of management practices to specific projects.

#### A methodology by quantitative research

Another way of creating a project management methodology was devised by Shenhar ea. Their research is based on over a hundred different projects. What was done in their case was to analyze how different components of project management were done in all these projects. Parallel to this a system of describing projects was devised. Shenhar ea. divided all projects into two dimensions: technology and scope. These dimensions were cross referenced and for every variation of scope and technology a best way of handling project management – and not components in particular – was described. Projects that were managed in a way that did not fit the model were all said to be unsuccessful.

This research has referenced that of Shenhar ea. multiple times. The way the new methodology was created certainly also has a basis in the research of Shenhar ea. The outcomes of their research are however not used. The goal of this research was to create a unified way of managing projects. This means unifying the way projects are currently managed by the managers of VisionWorks. Taking best practices from other projects, even if those are more than a hundred in number, does not fit this goal.

Exploring the ways project management methodologies have been created, declaring that this was the best way might still not be possible. It is however proposed that this was a good way of going about it under the circumstances. It was at least necessary to develop a new methodology since using methodologies that have been developed in the past were not ideally suited for VisionWorks. Another argument in favor of this methodology is that it works. A unified methodology has been created. The only thing left for the creation of the methodology is for the new methodology to be put to the test in order to determine whether the new methodology itself up to standard.

The theoretical test for the methodology is to examine whether the requirements set for it are met. Next for every requirement, whether the methodology meets that requirement will be discussed. The requirements for the new methodology were:

1. The project managers must be able to work with the new methodology
2. The methodology must be applicable to every project
3. Project managers have to want to work with the new methodology
4. Besides guidelines, the methodology must provide tools to work with
5. The methodology must be better than current project management practices
6. The methodology must be compatible with the current administration and templates
7. The methodology must have the support of the management

1. Whether project managers are able to work with the new methodology will have to be proven in a test of the methodology in practice. Theoretically it should be possible. The methodology provides means for every aspect of project management.

2. The methodology is theoretically applicable to every project. The inputs for the management components were taken from interviews with project managers who all did different projects. These are projects of different sizes, projects that produce different products and amongst other things are projects for very different types of clients. The components also describe ways of managing different projects, when projects are to be managed differently. Finally the methodology provides dimensions by which how to manage a specific project.

3. As stated in the beginning of this chapter, there are a few project managers who are interested in this new methodology and who will be curious to its contents. This is a great help in project managers wanting to work with the methodology. What helps as well is that the methodology is built up out of current project management practices. The methodology puts these practices in a framework. This should be an improvement on the way project managers work, which should in turn be desirable.

4. The tools that the methodology provides are the templates that are listed for every component of project management.

5. The methodology is built up out of current project management practices. What is better is that these practices are modeled. This provides a better insight in the practices. Although the modeling might be an improvement it cannot be said that the practices are better, since it are the same practices.

6. The templates that were used are all taken from the templates currently used. For this the templates currently used are modeled into the order they are used in and to the methodology they were originally found in.

7. The methodology does currently not have the support of the management. Business unit managers are very interested in having a new methodology. They were also asked what they wanted to see in this new methodology for them to be able to support it. The things that they wanted to see can be found in the new methodology. At this point in time however the management still has to review the methodology and decide whether it is going to be supported and made into a standard for project management.



# Chapter 8: Conclusions and Recommendations



## 8 Conclusions and recommendations

### 8.1 Conclusions



Different projects

The projects that are done at VisionWorks differ in their nature. All projects have the same Business Intelligence background in common however. At least a part of every project is related to BI or CPM, which itself is related to BI. Most projects only deal with a part of the whole business intelligence domain. There are for instance projects focused on data quality, projects in which only a data warehouse is built, or projects that develop specific applications based on an existing BI architecture. In some projects no technical systems are developed at all and only an analysis of a client's situation is made. Aside from the technology dimension, projects differ on many more points as is described in chapter 5.

Different ways of managing projects

These different projects are managed very differently by the project managers of the four business units. Virtually all components mentioned in chapter 6 are dealt with differently. Projects are initiated in a more or less extensive manner, projects are structured very differently, especially with respect to team structures, different systems are used to monitor projects and so on. There are however also many commonalities between the different project managers and the way they manage their projects. The behavior, beliefs and values of project managers and the way they deal with getting results and interact with clients are, although management style is specific to every individual, very similar in general.

Implications for a methodology

These differences and similarities have three basic implications for the development of a project management methodology.

(1) A project management methodology can be developed because project managers think similarly about managing projects. This makes designing an overlapping way of doing things in general a possibility. Outlines for processes can be defined. Ways of dealing with these processes, with regard to company policy and project management practice on a general level can be defined as well.

(2) Best practices can to some extent be identified, for similar projects that are managed differently. When two project managers do different things on similar projects, one of them is bound to do a better job. In the new project management methodology this is dealt with by leaving out ways of management that did not seem right. What is right is based on what majorities of project managers think on the subject or what project management literature states in case project managers have no opinion on the matter.

(3) There is however not 'one best way' of doing things for all projects. The project management methodology is designed as a modular toolkit for this very reason. The methodology provides a project manager with several options on how to manage a project. A project manager is also provided with a foundation for making a choice between options for a specific project type. The choice itself however is left to the project manager.



Added value

A point that is very important to VisionWorks, one that is part of everything that is done at the company, is the point of 'added value'. Projects such as creating a unified project management methodology must have added value to be considered of any use at all to the company. This project contributes to the value chain in several ways.

Insight

(1) A unified way of managing projects answers to the call of business unit managers and project managers alike to have a 'one way' of doing things. This one way of doing things makes projects easier to manage for business unit managers because the methodology gives them an insight in what their project managers are doing when they manage their projects.

Selling projects

(2) A unified methodology helps sell projects to clients. Many competing companies advertise with the way they manage projects. Prince 2 for instance is often used to sell projects. Using a methodology usually gives a client a feeling of security, because they know in advance that their project will be managed in a manner that has proven itself in the past. One means for selling this methodology is provided by the flyer which can be found in the appendix.

Efficiency

A unified project management methodology (3) also helps save money because it improves the efficiency with which projects are managed. Senior project managers will need little time to decide on how to manage a project. Project managers who do need a little time to think over the way they want to manage their project however are helped most in this respect. A methodology keeps them from 'reinventing the wheel' every time they are searching for a vehicle to use for the management of their projects.

Unison

Yet another point of added value is that (4) a unified project management methodology does provide a form of unison. In the different companies that VisionWorks consists of, project managers do different things in different projects. The methodology provides them with the opportunity of seeing how their colleagues perform their work. This satisfies curiosity perhaps but it also provides reference points. It provides a means for project managers to compare their activities with those of others and finding points of improvement for their own work. After a period of comparing, learning and improving unison in the work of project managers should be noticeable.

## 8.2 Recommendations



Introduce the methodology as a concept

As stated in chapter 7, the new project management methodology needs to be internally marketed if its implementation is to be successful. Project managers will not adapt a methodology if it tells them how to do their work. The project managers of VisionWorks tend to know how to perform their work the best way possible and a methodology that tells them otherwise will meet a lot of resistance. It is therefore recommended here – as is implied in chapter 7 – that the methodology is introduced as a concept. This is perhaps best illustrated by the next recommendation.

Let pm's improve the methodology

The methodology is not perfect yet. The components of the methodology can be expanded by the ideas and by the best practices of project managers. The recommendation therefore is to make project managers work on improving the methodology, by letting them add their best practices. Once the methodology is introduced as a conceptual framework, project managers can expand on that framework and make it their own by improving it modularly; by improving every project management component they have a special interest or experience in.

Create a pm knowledge group

As also previously discussed in chapter 7, there are groups of consultants and project managers that develop knowledge within VisionWorks. For project management there is currently no such group. The recommendation is made here to form such a group and use the methodology as a platform for developing project management knowledge. The knowledge groups of VisionWorks all present their work on an intranet website. Project management currently has such an intranet website. The methodology will also be modularly published there. This website can aside from being the main tool for publishing new parts of the methodology also be a basis for communicating project management knowledge developments to the organization.

Further research  
- Templates  
- Powercube

One of the components mentioned in the methodology certainly merits more research. This is the component called 'templates'. Templates are a part of every distinct project management component, but taken together the templates also form a system. This system is briefly addressed in the description of the templates as a component. Further research could be done as to how to create a workable system of project management templates. This should be combined with research as to how these templates fit the current project management systems of Ordina.

A special template is the Powercube that is currently used to register and monitor the hours worked on a project. At the end of chapter 6 a description of how such a cube can be expanded to include deviations from schedule and budget is made. It might be worthwhile to investigate the possibilities in creating such an expanded Powercube, using the administrative systems of Ordina. (In a similar way as the Ordina MIS project). The management information such a cube provides could be very useful in managing projects.



# Chapter 9: References



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# Chapter 10: The Appendix



## 10 The Appendix

The appendix of this document will not be an appendix in the traditional form and shape. With this document a CD-ROM is provided on which the appendix can be found. The appendix consists of multiple types of documents such as text documents, spreadsheets, presentations and Powercubes. In this document references to the appendix are made. This is done by hyper-linking the keywords in the text to files in the appendix. The appendix is logically structured. The following is an overview of the file structure of the appendix on the CD-ROM.

### Appendix (file structure)

#### **BI methodology**

This folder lists files that are used in creating VisionWorks's new Business Intelligence methodology. The folder contains a description of the methodology, flyer and a slideshow.

#### **Interviews**

In this folder the summaries of the interviews that were held with the project managers can be found. These are accompanied by the questions that the project managers were asked.

#### **Management documents**

This folder contains the documents that are and can be used by project managers of VisionWorks, in order to manage projects. These are the project management tools. Not all documents that are present in the company are listed. Only the ones that can be used with the new methodology from these the ones that were available are present.

#### **Managing the project**

The contents of this folder consist out of management documents similar to the ones in the previous folder. These documents however were the documents used to manage this research.

#### **Project descriptions**

The descriptions of projects that VisionWorks does are listed in this folder.

#### **Questionnaire**

The results of the questionnaire that was held amongst project managers and the questionnaire itself are to be found in this folder. The results of the questionnaire are presented in the form of a Powercube so that they can be analyzed per different business unit.

#### **Sales kit**

The sales kit consists of a flyer, a slideshow and a Quickstart. These documents can be used to help sell the methodology to the upper echelons of management as well as to clients.