Managing small IT projects and Maintenance tasks

IT project management

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1. Introduction

1.1 Foreword

I am product manager and project manager. I and many of my colleagues have been encouraged to get a challenge in relation to use some tools that can help us to manage small IT projects and maintenance tasks.

Despite great efforts by management to implement a standard method for managing smaller IT projects and maintenance tasks, it is not yet succeeded. We have all been trained in PRINCE2 (Projects in Controlled Environments) and later in various introductory courses in CMMI (Capability Maturity Model Integration), but without the success that we wanted.

PRINCE2 is used in many companies. It is a structured approach to effectively manage projects to deliver a product, simultaneously uses many companies CMMI, which is a maturity model that establishes a set of requirements for an organization's development processes to achieve a certain maturity level. Maturity levels assessed CMMI on a scale of 1 to 5

We have tried to apply PRINCE2 part, and often with CMMI. The result did not meet our expectations and was not satisfactory. The consequence of that was that many of us have given up trying, and as we used our own models for managing those type of tasks.

This problem is why I want to examine whether there are some companies that have good experience in using PRINCE2 or CMMI to manage their small IT projects. The challenge seems to be high, since I have not found existing Danish literature on the subject.

The intention of this project is to answer the challenges many companies faces by using PRINCE2 and CMMI in order to managing of small IT projects, and provide any suggestions for improvement regarding which tools can be used and when, a kind of roadmap.

1.2 Audience

The primary target audiences are all companies involved in managing IT projects, whether it is large or small, whether it deals with maintenance tasks, or a new system. Companies could use this report as an inspiration to adjustments.

The secondary target audience is IT professionals (IT project managers, IT product manager, IT management, etc..) That has an interest in gaining an insight into both technical and business challenges by implementing CMMI and /PRINCE2 and their interactions, even in compared to the control of small IT projects.

1.3 Assumptions

It is assumed that the reader has some knowledge about PRINCE2 and CMMI as a concept, but also readers without that could benefit from the report, since it describes the relevant theory, where it is relevant to the investigations.

1.4 Motivation

My motivation to do this job about the management of small IT projects and maintenance tasks using the CMMI and PRINCE2, arising out of that I know of no standard approach to managing this type of IT projects. Once we have directly tried to use CMMI and PRINCE2, the result has not been satisfactory. The causes are addressed in Section 6

What I have reached will be interesting to explore and examine some of these tools in some selected Danish companies, the following matters:

• The need for management of small IT projects and maintenance tasks
• The tools used (if they are using CMMI, PRINCE2 or anything else)
• The strengths and weaknesses of the tools that businesses use

I will task [Section 6] address the above points.

1.5 Problem formulation

Initially, I discussed the claim that businesses and especially Post Denmark is experiencing challenges, both in connection with implementation of PRINCE2 and / or CMMI compared to the control of small IT projects. What I want to get to is whether the above two frame works are also suitable for controlling small projects, including maintenance projects.

My question is about CMMI and PRINCE2 framework works can be used to manage small IT projects, so that small projects do not become so expensive in relation to the purpose, while they must be steerable relative to the estimate, delivery and quality. This means that it will be possible to follow up the development process.

The above issues have led to the following postulate, which will be my primary focus during the task. The claim will be definitively answered in sections 5 and 6

1.5.1 Postulate

My claim is based on experiences in relation to my work. Also, I have throughout my education and work experience, the basis for selecting relevant theories that can substantiate my premise is:

CMMI and PRINCE2 framework works cannot be used for managing small projects.

This I will in the subsequent attempt to confirm or deny.

1.6 Limitations

Described below are areas that will not be covered in this Thesis and the choices I have made and the reasons.

These limits are part of the project resources to do when I'm alone on the task, and partly with my daily work experience with the use of PRINCE2 and CMMI.
The survey covers only CMMI project management level 2 and not Level 3 and 4, since there are few companies in Denmark, which is at those levels.
I will not focus on other project management methods and tools, including XP, SCRUM, iterative and Agile, in this context, due to lack of resources.

I have chosen to minimize coverage of theory about the two subjects; therefore, my focus will be directed to areas where I think theory is relevant to the investigation.
Since I have only completed the study with a limited number of companies focusing on PRINCE2 and CMMI, it cannot be excluded that an even broader study would give deviations in relation to my study.

My study does not address the cost of standard systems, since the topic is not treated here. And it only deals with the large and medium enterprises. Small businesses are not included, since it will not pay for them to invest the learning of a method to be used a few employees.

The project focuses basically on only three companies, Post Denmark, KMD and PBS, and based on the use of CMMI and PRINCE2 for managing small projects. These companies are among the major in Denmark I would therefore emphasize here that when I mention the implementation of PRINCE2 and CMMI in companies, I would probably think big and medium sized companies in Denmark, who can afford to implement and they have also small projects / tasks and maintenance projects enough to consider investing in some frame work to control it.

To classify firms into large, medium and small firms, I choose to use hiring criteria and their employment as described in a report from the Swedish Institute for Regional Research [SIR - The Institute for Regional Research, Report 98, 1996].
And acc. the definition of SMEs according to the adopted EU classification as follows:
• Micro Enterprises: 0-9 employees
• small enterprises: 10-99 employees
• medium-sized enterprises: 100-499 employees (split into 100-199 and 200-499)
• big business: more than 500 employees

I opted to transcribe interviews were due to lack of resources.

2. Method

This section describes the method which I have chosen to use for this task. The aim is to support my studies while enabling answering the questions I asked in the assignment problem formulation.

2.1 Method Considerations

2.1.1 Theoretical Considerations

In science there are two relevant principal directions, positivism and hermeneutics (the science of interpreting texts sense) to this topic:

Positivism : based on facts and not perceptions. Things should be measured and weighed and there are strict requirements for evidence. Thus, positivism characterized by the use of quantitative methods, such as can be questionnaires.
According to the positivist direction, people have two ways to recognize the fact - that we can observe with our senses and we can calculate using our logic.
The information we receive through the senses, is the basis of the empirical cognition. It is through this that we can establish what the facts are.

Hermeneutics: used in the humanities and social sciences. It is a hermeneutics in which interpretation of others' experiences from their own memories and experiences.
Hermeneutics is characterized by using qualitative methods such as interviews, observations or historical studies.

The table below shows some of the advantages and disadvantages which are respectively the qualitative - and quantitative method, and to make it out of the analysis I have undertaken in this area. Based on the form, do I then decide which method I think is most suited for my job.

	Qualitative methodology - Hermeneutics	**Quantitative method- Positivism**
Benefits	The interview is open, there may be broad question and it is comparable to a conversation. I see it as an advantage because the dialogue is two-way communication. This means that I can, for example. Substantiate the first question with additional questions, and thereby gain a deeper understanding of any subject.	Answer quantitative questions.
	Qualitative interviews are suitable when the purpose is to describe and understand the interviewee's world.	Interviewing many people in a short time.
		anonymity
	Strength is the ability to have a depth and detailed understanding of the problem / phenomenon is studied.	There can be compiled statistics on data collection, and quantitative research methods are the aim to generalize.
Disadvantages	Data from the few respondents would not provide a representative result which by quantitative methods.	Can be hard to get people to answer questionnaires. They may choose to dodge some of the questions or answer them in a

		way that they are not usable.
	The quality of data collection is very dependent on the individual interviews and makes great demands on interviewers' skills.	
	Systematization and analysis of the collected data is very laborious.	

Table 1: Method Consideration **Source:** Self – developed specifically for this task

2.1.2 My reflections and methodological choices

I have chosen to do a study based on interviews [Annex 2] of selected employees in the three companies. For this purpose I have prepared a questionnaire. I will initially hold personal interviews with those officers also use tape recorder, where I note their answers into the forms and find it on tape. I will re write respondents were also using the tapes and then I send the form to them so they are able to check the contents.

I will, in other words, choose to take advantage of both the qualitative method and quantitative method, for through it to create a dialogue that is based on 2-way communication. This is important in light of that I hereby given an opportunity to ask further questions, if not answers to specific questions from the questionnaire is sufficiently justified.

I also get the opportunity to "dig" deeper into a topic where, for example. proves that the company has made some exciting initiatives that I have not covered in the first survey question.
By simultaneously applying the quantitative method, I support myself to the facts that in all likelihood can be considered safe. Then, the facts are analyzed logical for there to draw inferences.

The two types of data, qualitative and quantitative, will often complement each other so that together they illustrate and cover a larger part of the problem formulation than a study that uses only one form of data.

2.1.3 Data collection and analysis of interview data

I choose to avail myself of interviews with selected employees in the selected companies, and I will illustrate how I will choose to analyze my data.

The article "Qualitative research interview" has the following views on the analysis of audio tapes:

"Data processing can be done by analyzing the audio or you can choose to print the interviews in full length. Method choice will depend on how the data material to be analyzed "[2].

The article "Assessment of qualitative articles" describing such as follows:

"In qualitative research should explain clearly and completely the methods used for data analysis, since part of the study's validity rests on this description," [1].

For that using the above recommendations from the two articles, I will make the following selections:

• I will use sound recordings in connection with the holding of my interviews.

The advantage of using tape recordings is that I want the whole interview on tape. I can return to the tapes to listen to the interview again, and thus have worked my interview thoroughly.

To support my compilation, I choose to write down the answers from my interview in a template with the background of my recordings from the audio guide. This template will also be my interview guide (Appendix 2).

The article "Assessment of qualitative articles" describing such as follows:

"It's an absolute criterion of quality that made a systematic data analysis so that results are not generated randomly based on what the researcher by a quick perusal found interesting" [1].

I will choose to relate myself to this; I have systematically worked with the answers and information I have gained from the interviews. If I find out I'm missing a clarification on some of my questions, I will return to my contacts in the selected companies

I will work iteratively with my analysis of interview data, and know I can always return to my tapes and my contact person in the selected companies, I have the best opportunities for a good working of the data.

2.1.4 Selection of participants

The articles "Qualitative research interview" and "Assessment of qualitative articles" describing such following some qualitative studies and participants for these studies:

"The purpose of selecting participants for a qualitative interview study is that the researcher will have such an information-rich material as possible, which illuminates the problem of sufficient width and depth. One should aim at getting such a nuanced and varied picture of the problem as possible "[2]

"In qualitative studies aimed Mon qualitative representation; it means that the researcher considers the causal field. Participants will, through their various qualitative characteristics provide an opportunity to look at different aspects and nuances of the subject field "[1]

"Important that participants represent the qualities that are important in relation to the problem. And it is likely that participants can illustrate the problem "[1]

"The number of participants is not crucial for the study
quality, but depends on the research question "[1]

In the selection of individuals within companies to my interviews, I will try and reply to the above recommendations.

I will arrange an interview meeting with my chosen interviewee in the selected companies.
I would choose to limit the interviews to address the respective management of small IT projects and maintenance tasks in respect of the interviewees' busy schedules.

I held interviews with:

these companies' IT department, Post Denmark (PDK), KMD & PBS.

That companies the project manager, responsible approach.

2.1.5 Reliability and validity

2.1.5.1 Reliability

Reliability is based on the survey methodology, including data base, is trustworthy, so that coincidences do not affect the result. I.e. the same measurement can be repeated with the same result by different researchers, and they still could categorize the result the same.

In the book Theory for Beginners:
"If you count right, if it fairly successfully eliminate ti1fæ1digheder if several investigators using the same method to get the same result, so the study has high reliability.
[2]

As mentioned in Section 1.6 Boundaries, build my data based on interviews of selected employees in these companies. I want to address that there is some uncertainty over whether it is credible information that I have to work with. I must assume that there is an uncertainty over the credibility of the data relative to the interviewees in these companies. In the table below, I will elaborate on this.

The book "Theory for Beginners" describes among other things as follows:

"Interview form may affect reliability if you ask leading questions or openly express their own views in relation to questioning, interviews requiring routine. In interviews, you can get out that there is a lack of trust from the interviewed person to the questioner. It may be that the person is equivalent crazy, or what he thinks questioner even think about the subject. It may also be that the interviewee is trying to impress the questioner "[3].

I think the above is also important to have in the overall assessment of my data base is credible. You can never be quite sure whether the emergence of the necessary confidence, and if I get the right answer. I will strive to earn the trust of the people interviewed and also make them aware that the information I obtain will not be communicated further if they choose not to.

2.1.5.2 Validity

Validity implies that the measurement provides comprehensive and valid information about what we want to investigate and to empiricism (observation) is adequate for the theory (concepts) content, and that measurement is representative and can be used generally over similar objects.

The book "Theory for Beginners" describes among other things as follows:
Validity implies that one has really studied what one would look and nothing else. [2]

The article "Qualitative research interview" describes among other things as follows:

*"Validity means that 'whether a study investigates it, or the phenomena it was meant to explore."
Validity generally cannot be measured but can be argued and discussed "[2].*

The concept of validity has various aspects:

"For example. to be mentioned relevance. - The methods are for example relevant to the project's problem? Is the theoretical framework appropriate to describe the study's key concepts? Pragmatic validity should also be noted that cuts to what extent the developed knowledge can be used by others "[2].

Emne	Credibility	Alternative
Case:	I have chosen to gather information about the management of small IT projects in the three selected companies.	I could have chosen to include some more of this through to get a more comprehensive and nuanced view of the project, but this would also have increased the time and resource pressures in the company.
Interviews	I chose to interview a limited number of persons engaged in the processes of the aforementioned companies. The interviewees have all been working directly with project management for a long time. They have built up here through the skills and experience which in itself provides a certain level of credibility in relation to having to interview them. This choice is made based on a desire to limit the scope of the assignment, of a purely temporal reasons This means that in my information gathering will be a risk that I do not get the really correct information, maybe better write that you are risking the information is not as wide and varied representation, as in a larger and broader range of interviewees, however offset by the elect skills	If I should have had a more accurate picture, I could have chosen to interview people in some other companies where similar IT management also takes place. It had to be some companies where their work with maintenance tasks or small IT projects were of a certain size to be comparable as possible with this selected case. Had I chosen this angle of attack, I'd be able to compare the interviews with each other. This could be all things being equal, have achieved a greater credibility in the analysis of data from the study.

Table 2: Validation **Source:** Self – developed specifically for this task

I have chosen to relate myself to the above claims / definitions from the literature. To work with validity in my study, I have chosen to compare and discuss these companies case study against the theory says about the topics. I have been based on three literary books that relate to management of small IT projects and maintenance projects.

2.3 An approach to the Matrix

In an attempt to find answers to my problem formulation FAQs in section [1.5], I ask the following questions:

Why does not the formalized methods for all kinds of projects, large or small, when we know that it will reduce the risk of project failure?

Any project management objective is to have control of costs. They are working on having the lowest possible cost and less overhead.
If we take the PRINCE2 as an example, acc. Larry Webber & Frederick Webber of the book "IT project management essentials," "PRINCE2 kill excessive overhead for small and medium-sized efforts".

It makes no sense economically to use the full version of the formalized approach to managing smaller IT projects. Even in those organizations where there is a degree of tolerance and acceptance to have overhead, sees such organizations, however, that this is only appropriate for a transitional period.

In the context of the problem may be very difficult to find the appropriate version of a formalized method to be used to control any small IT tasks. This is because it is a huge challenge to find a balance between the use of the formalized methods while avoiding or minimizing the overhead that goes with it.

In an attempt to find the above balance, we should seek answers to following questions:
"Which elements of the formal methods can be reduced or omitted in relation to small projects?"
There is no simple answer to this. Even small projects vary greatly in type and style, and have the same characteristics or requirements.
When the overall purpose of the formal methods can be considered to reduce the risk that the project fails, it will be regarded as taking a risk when any element of these methods would be relaxed or removed.

One can prepare a PRINCE light or mini CMMI that can be used to control any small IT projects. This will not be optimal, since, as I have mentioned before, even small projects vary greatly in type and style. That is a mini CMMI or PRINCE light would be suitable for a small IT project but maybe not for another project.

This also applies to other methods, with a full version of these methods are also intended for larger projects where there is room for overhead, because application of the full version outweighs the overhead that may follow.

I have therefore chosen the following matrix approach as a solution from the book "PRINCE2 Revealed" by Colin Bentley [7]. Matrix is flexible so that it can be applied to any kind of small IT

projects.

Elements in the matrix can be adapted for all small projects. In this way the solution can be used as an essential part of a comprehensive standardized procedure consisting of the matrix, and workflows that are designed to find the optimal alignment method for the formalized methodologies (CMMI / PRINCE2, etc.). Thus it becomes possible to reduce overhead while that one can observe the three existing requirements (delivery within budget delivery within the deadline and delivery of the agreed quality).

2.3.1 How does the matrix works?

"The matrix can be a very useful guide for what levels of PRINCE2 controls are necessary for a project that does not" deserve "full work". [7]

The assumptions in order to use this method is that we know the customer's requirements and project characteristics. At the same time you must decide which inspections and follow-up items that are seen to be necessary. Within the matrix marks the project's properties (duration, deadline to be met, and / or budget to be respected, quality, project organization, estimate / resources, etc.), and by defining the controls that are needed for the project (if to be steering, Product Breakdowns, Gantt, etc.)

You get a list of the elements / processes of the method's full version as the supervisor and the customer must approve. The matrix can be changed so that other project properties added / removed, and other project processes are removed and added.

Conditions/Features of Proposed Project													
Complex Dependencies?	Y												
Critical Deadlines?		Y											
Culture Change?			Y										
Duration up to 5 weeks?				Y									
Duration between 5 weeks and 3 months?					Y								
Duration greater than 3 months?						Y							
Effort greater than 180 days?							Y						
Management spread over two or more sites?								Y					
More than 2 User Teams?									Y				
More than 20 major end products?										Y			
Resource Intensive?											Y		
Estimated Spend > £5000?												Y	
Estimated Spend > £50 000?													Y
Control Elements Required													
Business Case													
Statement of Benefits	✓	[✓]	[✓]	✓	✓	[✓]	✓		✓	[✓]	[✓]		
Full Business Case			✓		✓		✓	✓	✓			✓	[✓]
Organization													

Project Board			[✓]		✓	[✓]	✓	✓	✓	[✓]			[✓]
Delegation of Executive's Project Assurance role						✓		✓		✓		✓	[✓]
Delegation of Senior Supplier's Project Assurance role	✓	✓			✓	✓	✓			[✓]			✓
Delegation of Senior User's Project Assurance role		✓	[✓]				✓	✓	✓			✓	[✓]
Use of Team Manager(s)					✓					✓			
Planning													
Stage Plans, ESA's &Highlight Reports				✓	[✓]	✓			✓	[✓]			
Product Descriptions	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]
Product Breakdowns & Product Flows	[✓]	✓	✓	✓	✓	[✓]	[✓]		[✓]				[✓]
Network Analysis (Critical Path Analysis)	[✓]	✓								✓			
Gant Charts	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	✓	✓
Controls													
Statement of Tolerances	✓	[✓]	✓	✓	✓	✓	✓			✓			
Highlight Reports	✓	[✓]	✓	✓	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	✓	✓	✓
Use of Checkpoints		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓
Full Project Change Control	[✓]	[✓]	✓		✓	[✓]	✓		✓	[✓]	✓	✓	[✓]
Risk Assessment Checklist		✓						✓	✓				[✓]
End Project Report	[✓]	[✓]	✓	✓	✓	[✓]	✓	✓	✓	[✓]	✓	[✓]	[✓]
Post-Project Review			✓			✓			✓	✓	✓	✓	✓
Lessons Learned Report	[✓]	[✓]	✓	✓	✓	[✓]	✓	✓	✓	[✓]	✓	[✓]	[✓]

Table 3: Matrix approach Source: [7]

For example, if you have a project with critical deadlines, so is the use of the Gantt chart, a truly "must have".

2.3.2 The matrix works as follow
First you have to consider whether a particular condition is applicable to the project you are working on. Certain conditions, such as policies on the project's approval is based on certain financial thresholds may be necessary for your organization to define.

When one condition applies, you must then follow the row to 'Y', and then follow the column down to the bottom half of Table 3, labeled "control elements that are necessary." Here you will find the control elements that will complement even the smallest management environment.
The matrix indicates the '   ✓' that the use condition.
A '[✓]' indicate do not use it for your project.

2.3.3 An example from the book
One project, for example, 'Two critical requirements / the first are a total effort (estimate) greater than 180 days' and the second is that changes will result in a change in culture. If we follow the two colons all the way down and combine the results, it will result in the recommended mix of controls in the table below.

Note that with the new conditions, some of the elements have been promoted to "highly desirable" status (e.g. Project board), plus some new ones introduced (e.g. a full business case).
Note: The mode 'More than 20 major products' means that more than twenty products are large enough to be identified in the project plan, and there will be a report about them to the steering committee.

Desirable	Highly desirable
Phase Plan	Steering committee
Statement of Tolerance	Gantt charts, project plan
	Product Description.
Resource plan	PBW product break downs
Business case	
	Gantt Report Project Plan
Participation of the supplier	Status report
Project assurance role	Statement of benefits purposes of the
Change management	assignment
Completion Report	User assurance
Post-project review	

Table 4: Matrix approach Source: [7]

3. Concepts

The structure of how I want to work with the analysis of my collected data is reflected in the following sections:

Section 3 is built up of several tracks. In track, where I give definitions of a project [Section 3.1], characteristics of small IT projects [Section 3.2], Categorization and differentiation of projects [Section 3.3] Differentiating Criterion for project types [section 3.3.1], Characteristics of maintenance projects (simple projects) [section 3.3.2], the definition of additional development projects [section 3.3.3], definition of new development projects - small projects [section 3.3.4], and a section dealing with management tools [section 3.4].
This section will help us to create a similar structure to the analysis of these areas.

3.1 What is a project?

• A project is temporary
• A project is unique
• Characterized by progressive development i.e. developed incrementally, and grows in detail
A management environment that is created with the purpose of delivering one or more business products according to a specified business case.

3.2 What are the characteristics of small IT projects?

When is a small project?
Does it cost that determines the - one million kr.?
Or body size, which determines it?

Perhaps the project's temporal length, which determines it - less than 6 months?

The following are my suggestions for the definition of small projects:
- A project that takes less than 6 months
- Has less than 3 team members
- Involve limited areas
- Have a single goal and solutions that are achievable
- With a narrow scope & definition
- Does a single business units and has a simple decision maker
- Costs less than 300 hours

This is described further below.

3.3 Categorization and differentiation of projects
This is a simple assessment tool that I use to categorize and differentiate between the newly developed and maintenance projects (simple).

Similarly, to differentiate between maintenance projects and further development (part delivery) focusing attention on some of the important areas of these.

3.3.1 Differentiation criteria for project types
There are several other ways to differentiate IT projects, for example user "Cadle & Yates 'projects' purpose as differentiation factor. On the way they categorize IT projects for nine types including:

- Software development
- Package implementation
- System enhancements
- System Migration
- Disaster recovery
- Infrastructural projects
- Small project.

And Biering-Sorensen differentiates projects like the following:

- Long term - a few years
- routine and predictable
- Outcome unknown
- Short term - a few weeks.

While divides KMD projects A, B and C projects - based on project complexity.
The following model is another way to differentiate projects at:

	Differentiatingsparameter	New developed		*further developed projects*	*maintenance projects*
		Large projects	**Small projects**		
1	Time limited	>6 months	Max. 6 months	Max 6 months.	Max. 6 months
2	Project organization (the nr. of the participants)	>=10	Max. 10	Max 10.	Max. 5
3	Subject areas	Several	Minor business area	Less	One business area
4	Interfaces to other systems	Can be multiple systems	Limited	Limited	Very limited
5	How many business area will be affected	Can be several	Simple	Simple	Simple
6	How many decision-taking, the project has?	Can be several	Simple	Simple	Simple
7	Cost in hours	>2500	Max. 2500	Max 2500	Max. 2500

Table 5: Source: Self – developed specifically for this task

3.3.2 What are the characteristics of maintenance projects (simple projects)?

With this headline, I think error correction of the existing system. Since, there is full documentation and an existing base organization that undertakes the operation of the application. Errors in the system are treated during maintenance task and business budgets every year for this kind of tasks. Normally we are not dealing this kind of tasks as projects even if they produce a unique product because of their size, and duration. That's because they do not require the same formalities as large projects require. To treat this type of tasks as projects gives you as a project opportunity for a better definition of expectation, better resource management and more effective use of these resources. There is another argument for this type of task to be treated as projects. It is that such tasks as large projects must also achieve the three goals, delivering on time and with the right quality, and adherence to budget. That is, you do not wish violation of the estimate for a small project, delivering something the customer did not order or delivery much later than has been agreed.

For this kind of jobs there is less focus example. to:

• Stakeholder analysis
• Security
• Communication framework is already established
• Configuration management - application exists and is managed today.
• Business case
• Project contract - there is a maintenance agreement

But on the other hand, there is much focus on Change Management.

3.3.3 What are the characteristics of further developing projects?

By this I mean when you add extra functionality / new interface with other systems to an existing system. But here I am talking about an addition of one single or a few new features to the existing application.

3.3.4 What are the features of the new development - small projects?

It would create a project organization dedicated to creating a new application that supports the customer's business purpose. If you have not already, everything should be constructed from project organization to the completed application.

Small IT projects, some companies will not be regarded as a project because of their size, duration and focus. It is a problem, because you risk that the process will fail if the supervisor does not manage it via general project management processes.

Others try to fit small IT projects into the process and the tools that are designed for large projects. This is also problematic since it is likely to be redundant and a waste of time and resources if this option is selected.

I choose the above categorizations because they suit the purpose of this project, namely to deal with small IT projects, i.e. it refers to projects where estimates, timing and number of participants is crucial for the project, while "Cadle & Yates categorizations projects generally focus on areas in which implementation of these projects.

3.4 Management tools

During this I will describe only CMMI Level 2-3 and PRINCE2, because project management practices are common between these two methods. [Annex 3].

When there are not many companies in Denmark have been certified to level 3, I will deal with PRINCE 2 and CMMI level 2.

I have chosen these formal methods, partly because I use them in my work both when I manage major projects as project manager and / or when I manage small IT projects such as product manager at Post Denmark, and secondly I could get in touch with some companies that also using CMMI.

I have chosen to describe these two formal methods only to give an idea about them.

3.4.1 CMMI – as an Application Development Model

3.4.1.1 Theory about CMMI

CMM is a model for developing processes and identifying the key practices required to increase the maturity needed for the software improvement process, but does not give CMM processes themselves or process descriptions. The model can be used to define process improvement lenses (objectives) and priorities, improve processes and provide guidance for ensuring stable, capable and mature processes.

3.4.1.1.1 General information about CMMI maturity level 2

Why do I restrict myself to CMMI Level 2 & PRINCE2?
     because:

1) There are not many companies in Denmark have been certified to level 3 -5
2) CMMI Level 2 & 3 and PRINCE2 project management have in common [See Annex 3 B]

These include the following elements:
- CM - Configuration Management
- REQM - Requirements Management
- MA - Measurement and Analysis
- PPQA - Process and Product Quality Assurance
- PMC - Project Monitoring and Control
- PP - Project Planning
- SAM - Supplier Management Agreement

As is detailed in [Annex 5].

3.4.2 PRINCE2

I, along with a mate tried to prepare a mini version of PRINCE2 to manage small IT projects, but without success. We have named the PRINCE Light. [Appendix 6]
We did not get the endorsement of our other colleagues and managers about our trials, and the idea died, but I always believed that you can do PRINCE 2 scalable at some ways. I got a confirmation of my thoughts about the PRINCE 2 can be scalable, since I had been approached by my supervisor about the book "PRINCE2 Revealed" by Colin Bentley.

3.4.2.1 Theory about PRINCE2

PRINCE2 is a process-based project management methodology that is scalable to meet organizations' requirements, depending on project complexity and risk.
A central concept in the PRINCE2 method is that the projects are broken down into manageable phases so that the effective management of resources and regular progress monitoring throughout the project. The project manager has control of a project on a day-to-day basis in a phase, so long as the projects are kept within tolerances defined by the project steering committee.
Project planning using PRINCE2 is product-based which means that the project plans are focused on delivering results and not simply about planning when the various activities in the project will be performed.
PRINCE2s process model consists of eight different management processes, from getting the project off on the right track through to control and manage the project development to completion of the project. The common Planning (PL) process is used by four of the other processes. The eight processes in PRINCE2 process model are:

1. Starting a Project (SU) is the first process in PRINCE2. It is a pre-project process to ensure that the prerequisites for initiating the project are in place. The process expects the existence of a project mandate that defines a large extent as the basis for the project and what the product is required. The process should be very short.

2. Manage a Project (DP). Taking aim at the project board, a group of senior decision makers representing industry, users and suppliers. The project board trustee of the exception, monitors via reports and controls through a series of decision points.

3. Initiating a Project (IP). Target planning and costing projects, audit and certify business cases, and if a baseline for decision making, once approved by the project board. The main products of this

process is the project initiation document that defines what, why, whom, when and how the project.

4. Management of the phase transition. Managing Stage Boundaries (SB) produces the information that the project board will make important decisions about whether to proceed with the project or not. Activities in this process should verify that all products are planned in the current plan has been implemented as required, provide the project board and other information necessary to approve the current phase is completed, allow the beginning of the next phase, and record any measurements or lessons which can help later stages of this and / or other projects. The main product of this process is completed phase report provided by the project manager for the project board, which contains information on the stage results, a revised project plan and a plan for the next phase.

5. Control of a phase. Controlling a Stage (CS) are the activities that should be implemented by a project manager to manage the work, react to events and report to the project steering committee

6. Management of product supply. Managing Product Delivery (MP) consists of those processes in connection with the establishment and delivery of products. This involves the specification and acceptance of work packages and team management activities in defining, delivering and accepting work packages.

7. Closing a project. Closing a Project (CP) are the processes required by the project manager's work to wrap up the project either at its end or at an early close. Most of the work is to prepare input to the project board to get confirmation that the project can be completed.

8. Planning (PL), the processes required for development plans at various stages in the project lifecycle.

All projects must address each of these processes in one form or another. But the key to a successful application of the model is to tailor it to the needs of the individual project. Each process should be approached with this question: How should this process is extensively used for this project?
In addition, PRINCE2 describes a number of components used for the relevant activities. PRINCE2 provides guidance on how each affects the project and provides guidance on when and how to solve the problems that are part of the various processes. The components include a business case, organization (project team, responsibilities and relationships), plans (project plan, stage plan, team plan, quality plans, except plan) and control (e.g. to monitor progress, detect problems), risk management, quality of project management, configuration management and change control.

3.5 Maturity

3.5.1 Maturity
Ability to develop software is measured as efficiency, effectiveness, accountability at some designated areas. That is what is called the organization's maturity. Implicit in this is that with maturity comes the ability to develop software effectively. That maturity is a high probability to implement IT-enabled business projects, so they give the expected value - with such a low level of risk as possible.

Acc. IT and Telecom Agency under the Ministry of Science:

1) When work is ripe for a project?
  • When all the key stakeholders are working mature
  • Ensure that you always work mature
  • As maturity is something you must work with the entire organization, not only for the
individual project.
2) The mature project organization
  • Ability to ensure optimal IT support of business / management
  • Ability to manage and implement IT-based business / management projects
  • Ability to manage relationships with suppliers of development / adaptation / implementation of
IT systems.

Why is maturity important?
1. For even as the most efficient and maximize the benefits of IT projects
2. In order to visualize their own maturity and expectations align with the other party
3. In order to work best with a mature customer / vendor to implement a good project
4. It could serve as a label for supply capacity and thus create competition on supply security.

New the possibility of measuring the maturity
IT and Telecom Agency has built a maturity model that can be used both for project organization,
supplier, and that something new customer:

The structure of the models
  • Each model consists of 30 points / topics
  • For each item there are 3 maturity issues
  • Based on the responses thereto may be placed at a maturity level 1-3
  • Supplier-maturity levels match CMMI (Level 4-5 is not included)
  • The provider model is a requirement for the supplier to enclose proof of his reply

3.5.2 Other maturity models
When I mention the CMMI maturity model, there are also other maturity models that can be used for
maturity measurements, which is essential for software development and project management.

There are, for example. BOOTSTRAP, which had been developed by the European research (Kuvaja
et al., 1994). CMM was tailored to European conditions in an EU-funded Esprit project in the early
90s under the name of Bootstrap, and it is the method that combined features of both ISO 9000 and
CMM. Furthermore, the BOOTSTRAP model extended with guidance from the European Space
Agency (ESA) 's PSS-05 software development standards (ESA PSS-05-0, 1991).

The primary difference between BOOTSTRAP and CMM - besides having other key areas in the
model - was that the incremental improvement model, which was prescribed by CMM was replaced
by a continuous improvement model of BOOTSTRAP.
Incremental means that you must have all the key areas in place at level X before you even have
think of improving key areas at level X +1. Continuous means that all the model's key areas
measured, and that allowing a commercial assessment for individual companies determine where
process improvements are to happen.

Later they worked with an international standard for software process improvement called
SPICE ("Software Process Improvement and Capability determination"). Today known SPICE

as a series of technical reports, which are recognized by ISO with the number the 15504th
SPICE is compared with the CMM extending in two ways. First of all, there is assigned a level 0, which means that a given key process is carried out not at all. Next, SPICE taken the continuous improvement model for him.

3.5.3 Maturity Forms

There are several forms of maturity among these areas: Process Maturity, organizational maturity, project maturity, test, quality assurance and employee competence.
- Process maturity: Does the company have well defined processes? Using these?
- Organizational Maturity: Is the organization "geared" to the projects?
- Project maturity: Has the firm a project organization and a project methodology?
- Testing and Quality Assurance: Is the company willing to assure the quality of supplies?
- If a company can measure and learn from previous projects?
- Are resources "dressed" in terms of expertise?

4. The Cases: Post Denmark, KMD and PBS

4.1Target

The overall goal of this project is to develop a standard method that can be used to manage small projects and maintenance tasks in one way that it becomes cheaper to maintaining and managing small IT projects, thus allowing all driving small tasks as projects rather than simultaneously to make the method so attractive that it is used to manage small IT practices of all companies including the companies I used in my case ie. Post Denmark, KMD, and PBS.

4.2 Background

4.2.1 Post Denmark (PDK)

Post Denmark A / S provides a basic postal service to all customers in Denmark - both senders and receivers.
PDK has universal, ensuring people's access to postal services on specified terms. PDK has exclusive rights for distribution of all letters in Denmark less than 50 grams.
Post Denmark A / S is a Danish government-owned postal company. The current business model was born in 2002 when Post Denmark became a limited company. The state is the majority shareholder in the company, while CVC Capital Partners owns 22% and employees 3%.
PDI is Post Denmark's information technology, which has overall strategic responsibility for the use of ICT in Post Denmark and it is a responsibility that obliges. They provide development, operation and support of IT throughout the Post Denmark, and their customers is why all the other business units in Post Denmark.

PDI cooperate with other business units in Post Denmark are based on contracts and close relationships, and we are in daily rely heavily on a close contact with them.

4.2.2 KMD

KMD A / S (former Municipal Data) develops IT solutions for among others the Danish municipalities. "Kommunedata KMD" was established in 1972 by an amalgamation of municipal computer centers. KMD was until December 2008 owned by Municipality Holding A / S, which in turn is owned by Local Government Association (KL). Today the company is owned by private equity fund EQT and ATP.

With more than 3,000 employees and annual sales of over three billion, KMD is the largest Danish-based IT company.
KMD has for 35 years worked with the development, operation and maintenance of some of the largest IT systems. They must effectively support citizen and the administrative processes and adapted in line with developments in the law ..
KMD customers are municipal, government and commercial customers who receive help from KMD to manage their IT operating environment
KMD develops solutions BPO (Business Process Outsourcing), where they take over the organization's administrative procedures - particularly payroll. KMD also manages today the total payroll and personnel task for approx. 100,000 employees.

A growing business in KMD on government and corporate market, inside the application management, where they help with the management and maintenance of IT systems, portfolio management, system development and modernization.

4.2.3 (Payment Business Services) PBS

PBS, Payment Business Services (originally banks PayingsSystems) develops and operates solutions for payment cards and payment systems, and is today one of the leading suppliers of payment and related services to financial institutions, private and public companies.
PBS operates, among other things:
- Dankort system
- Payment Services
- e Invoice
- Net-ID.

PBS's purpose is to develop, sell and execute operational systems and services in the market for payment cards, payment systems and information exchange. In addition, PBS is a subcontractor to the banks' common infrastructure.

PBS operates in a challenging and dynamic market; therefore we constantly renew our work.

One of PBS many projects have been to clarify the payment infrastructure in Denmark for chip-based debit cards. Close to 100 PBS employees has for several years worked regularly with this project.

4.3 How do the companies in this case uses the methods in relation to management of small IT projects and maintenance projects?

How the questionnaire will be formed?

It is necessary that before you begin to shape its form, one must clarify what is really want to know. In my project's problem statement, I had a purpose to find what a representative upluk of Danish companies use to manage IT projects

Users at all some of the formalized methods? It's one thing I'd need to examine l, and the other if they use the formalized methods, they will live with the overhead that involves using these methods on some small tasks?

I've built the questionnaire so that it covers all the processes found in the familiar formalized methods - with two purposes.

1) to see whether all methods used for managing smaller IT projects in order to find some kind of standardized.

2) Second, to get their experiences and attitudes described on these methods, etc.

I asked the following question in my problem statement from Section 1.5:

This simple self-assessment tool focuses attention on some of the important elements of management tools.

Below you will find statements describing "the way I do things around here"

I have collected data from three different companies' employees.

With small IT projects, we believe the projects;

• A project that takes less than 6 months
• Has less than 3 team members
• involve small numbers of subjects
• Have a simple goal and solutions that are achievable
• With a narrow scope & definition
• Influence a simple business units and has a simple decision maker
• Costs less than 300 hours

I have used the following questionnaire:

I have interviewed key people in my business case, which I had arranged my second supervisor (Diego). I was aware that the companies use CMMI for large projects, but had no idea what they use for managing smaller IT projects:

	Managing the small – and / or the maintenance Projects	
	Questions	**The answers**
1	**Requirements Management** 1.1 How do I understand your requirements? 1.2 How do I connect to the requirements? 1.3 Manage changes to requirements?	

	1.4 Creating the traceability between the requirements? 1.5 How to recognize the match between supplies and demands?	
2	**Project planning and monitoring** 2.1 Which flow has dropped the - from customer to development? **2.2 Development of ideas - management decision** 2.2.1 Who decides project start? **2.3 Project initering** 2.3.1 Project organization establishment 2.3.2 Risk Management 2.3.3 Gantt - Project Plan 2.3.4 Resource allocating 2.3.5 Subcontractor Management **2.4 Estimation** 2.4.1 WBS project breakdown 2.4.2 Estimation per. profession; **2.5 Planning** 2.5.1 Project Contract 2.5.2.Faseopdelt project plan 2.5.3 Quality Plan 2.5.4.Konfigurationsplan 2.5.5 Risk Analysis 2.5.6 Communication Plan 2.5.7 Stakeholder Analysis 2.5.8 Establish meeting structure 2.5.9 Subject log / change log **2.6 Negotiation, Review and approval** 2.6.1 Establishment of review log **2.7 Ongoing monitoring** 2.7.1 Follow up activities through milestone 2.7.2 Do you make status? 2.7.3 Do you identifies any deviation?	
3	**Follow-up Project (Project Monitoring and Control)** 3.1 Who will report to? 3.2 How do you follow up on progress? 3.3 Users In Progress?	
4	**Supplier Agreement Management**	
5	**Measurement and Analysis (MA)** 5.1 How do I set up the measurement for the project 5.2 How to carry out the measurements on your projects and analyze?	

	5.3Hvilke items do you collect data about? 5.4 How to analyze this data? 5.5 Reporting of these data	
6	**Process & Product Quality Assurance** 6.1 How do you ensure that customers get what they ordered?	
7	**Configuration Manager** 7.1 Do you use CVS or something similar? 7.2 How much will I up in the configuration management? 7.3 Establish the baseline? 7.4 How much control I change? 7.5 Establishes I and / or maintains the integrity of CI?	
8	**Organization:** 8.1 IT department's position in the organization? 8.2 How to organize yourself in relation to the business? 8.3 Who initiates IT projects? 8.4 Who manages IT projects with you? 8.5 Is the program manager, competence managers or Team Leaders? 8.6 Using the steering committee?	
9	**The compliance of deadlines** 9.1 How important is it that you deliver on time?	
10	**Budget compliance** 10.1 What important is it for you that you comply with the budget?	
11	**Audit:** 11.1 Does your small / maintenance tasks are audited? If yes By whom?	
General: What do you use CMMI for managing small projects? **Are you happy with it? When your goal is to use it for small projects + etc.**		

5. Analysis and messages

5.1 The challenges of managing small projects

Before I begin the inquiry, some sets of factors that are associated with managing smaller IT projects should be mentioned.
In working with the management of small IT projects, project managers have a number of challenges:

• **Low priority**
Among the challenges that the project get is a low priority in relation to major projects. And so the project manager must fight hard to get focused on his project, and it can only do by connecting project goals with corporate goals.

• **Inexperienced resources**
And the other challenge is that as a project of small IT projects always get the least experienced resources in the business to his project, and this means that it becomes very difficult to achieve the goal within budget, time period and with agreed quality .

• **Small projects for inexperienced project managers**
In some organizations use management of small IT projects as a kind of training or learning of their new and inexperienced project managers that will eventually manage large projects. This is also fine, but there may be requirements for their success be slightly relaxed.

Those who have started a project for the first time, do not have to reinvent the wheel each time, and they should be able to build on lessons learned from previous project managers.

It will be much easier for those new inexperienced project if their company already has a formalized / standardized approach also for managing small projects.

• **Several projects running together**
The third challenge for the project manager of small IT projects (PDK is called the product manager) is that they will be responsible for multiple co pending small IT projects. Since these projects have different requirements, deadlines and customers and customer expectations, etc., it requires a whole different focus and a different kind of skills.

If you combine the top challenges with the lack of a standard methodology for managing small projects, the work of the project much more difficult than managing a big project.
They will surely appreciate a flexible, simple and effective method that can be used to control various small IT projects.

• **Customers can be very different**
The tasks usually are unique in relation to a number of factors including client, application, platform, development team and quality team, etc., and this is another challenge related to the first.

The customer may be technically well-equipped and will therefore participate in both the specification and quality assurance of supply, but in other cases, the client focuses only on business matters related to the application, i.e. requirements specification and quality assurance is completed with the IT Department.

• Maintenance Requirements may also be different
Applications may have different maintenance requirements. Some applications in case of error requires correction immediately (PBS) while in case of other applications, there is room to collect small maintenance tasks in a release (of Post and KMD and maintenance of PBS).

5.2 Managing the small IT- projects

In the survey combined with interviews with the use of bands I've interviewed a member of KMD and one from PBS, using questionnaire plus PDK, where I and a colleague have filled it.

I transcript the responses from both KMD and PBS, which I later sent to quality assurance of the interviewees. By having collected these qualitative data we have summarized the essence, to be used for further analysis. [Qualitative study]

The analysis starts with a simple question, namely whether there is something called small IT projects. Around this, companies have far different views not only about the name, but certainly also the way they deal with small projects.

Theoretically, the subject has been treated very central among them by Rowe, Sandra F "Project Management for Small Projects"

"Because we do not think of assignments as projects, we do not treat them as projects. Assignments, because of their size and duration, do not need all the formality required by projects; however, they can still benefit from a simplified form of project management. Treating assignments as projects provides you with the opportunity to clearly define expectations, better use resources, and eliminate the frustration of wasted effort and unnecessary rework." [5]

And the risk that the project underestimate small IT projects are large.

"Planning for a small project is even more of a challenge. The project is already perceived as being easy to deliver because of its size. Small equals easy. Because of that perception, adequate time is not set aside for detailed planning. (Why waste time planning when you could be creating project deliverables?) The first reaction after receiving the small project is to jump right in and start performing the project activities without planning. Even the most experienced project manager has fallen into this trap at least once. By not planning, you start out thinking the project is small and then end up hoping that the project really is small. Also, by not planning you may overlook a critical component of the project." [5]

5.3 Analysis of the data collected

5.3.1 Qualitative study

Let us turn to the case study to see how the PDK, KMD or PBS perceive it.
In Post Denmark there is no such thing as small IT projects. It was either the projects or tasks, and number of development hours is the parameter that separates an IT project from an IT job. A limit of 1500 hours to decide whether it is a project or a maintenance task.
There is no such thing as further development or new development or new development.

At KMD will be together a release for some small tasks together.

In PB, a number of maintenance tasks together and performed as a project, but they implement any new development task also as a project.

They say that the name is not as important, but treatment of the tasks, and I'm not quite so agree with this thought. For me to call a task for a project means that you focus on all aspects related to a project estimation, risk analysis, requirements management, configuration management, change management etc.

I have chosen to retain the main headings of the questionnaire in order to preserve clarity. The titles we have highlighted in bold.

There is one thing that is important to mention here in relation to CMMI certification - that PDK is certified for level 2, KMD is not yet certified for level 2, PBS is not yet certified for level Second.

1. **Requirements Management:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Requirements Management 1.1 How do I understand your requirements?	1.1 In relation to major projects done by holding clarification meetings with the stakeholders, especially customers. Ift. small IT projects, there is a permanent forum between product manager and the client.	1.1 Business Specialists are responsible for gathering requirements task description. % A system for requirements management	1.1 This is done in collaboration with business
1.2 How do I connect to the requirements?	1.2 By involving all stakeholders	1.2 Requirements are controlled via error handling system (POB), or in quality center also their modification.	1.2 The requirements are specified in collaborations with business and the group that develops it.
1.3 Managing the chnage requist	1.3 Yes, only in relation to major projects	1.3 Change management is not implemented completely .	1.3 Yes, it's done, but there are different starting point for each type.
1.4 Creating the traceability between the requirements?	1.4 Yes, as a rule are Quality Center spent.	1.4 Establish traceability is controlled via a POB No.	1.4 limited - Qaulity Center will be used - there is scope for traceability between test cases and requirements
1.5 How to recognize the discrepancy between supplies and demands?	1.5 boats (large and small IT projects) is done by keeping quality test, involving the client.	1.5 Tester approves test, customer service (KFO) often participate in testing. Management leadership	1.5 this is done by testing, which sometimes involved with the business.

In relation to the requirements management process concerning. Understanding and adherence to requirements, it seems that there are reasonable controls of the three companies, but it is difficult for all three companies a little with change management and requirements traceability. Things are going better over identification of any discrepancy between supplies and demands, with the three

companies follow CMMI Process.

Generally, it appears relative to this process, some of the processes used, while others are not being used for control of small IT projects.

2.   **Project planning and follow-up:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Project planning and follow-up: 2.1 Which flow has dropped the - from customer to development?	2.1 see appendix 2.2.1	2.1 Use portfolio management to prioritize major projects that enrollment from 10 business units, used for maintenance release management where major changes must be approved by 2 boards.	2.1 Whatever the nature of tasks (acute failure, release or project) will be recorded tasks in task management system (Para Green).
2.2 Development of ideas - management decision 2.2.1 Who decides project start?	2.2.1 A body of competent managers and staff with technical knowledge is called the Monday meeting.	2.2.1 In principle, the portfolio - small maintenance project manager who has overall responsibility	2.2.1 It is dependent on the nature of tasks (acute failure, release or project). For acute failure and release is developing leadership that decides the assignment start, but ifm. A project is a board that decides it.
2.3 Project initiating 2.3.1 Project organization establishment	2.3.1 Yes, at start of the project in relation to major projects and fixed management group (product manager, customer and in some cases develop plus tester)	2.3.1. There are permanent organizations to manage small IT systems. It is highly recommended to bundle many small IT systems - but there is opposition to it.	2.3.1 The project organization is established by developing leadership (almost solid)
2.3.2 Risk Management	2.3.2 Yes, in case of large projects, but rare in relation to small IT projects.	2.3.2 Overall risk management takes place at project manager level	2.3.2 Yes, it is done regardless of the task type, but the scale is different from a release and a project.
2.3.3 Gantt Project Plan	2.3.3 Yes, in relation to large projects, but rare in relation to small IT projects.	2.3.3 It is a total release of some small task together - be prepared a project plan	2.3.3 This is done differently in some places you use the MS Project other uses SAP.
2.3.4 Resource allocating	2.3.4 Yes, done both in relation to large and small IT projects.	2.3.4 There are established resource allocations for systems mostly based on keeping the system alive.	2.3.4 This is controlled by developing leadership
2.3.5 Subcontractor Management	2.3.5 Yes, will be done	2.3.5 Must be made agreements internally, external agreements are made through our legal department	2.3.5 This management is not similar

In relation to project planning - and follow-up processes, the three companies a little trouble following some of the processes. There is deviation from the use of project contract for small projects / tasks in the PDK, while in both KMD and PBS is a form of contract, because they are running releases as projects.

With regard to the subjected sub processes such as quality level, configuration level, phased project plan, milestone management, review and approval, and risk analysis has some of the companies fared better, but in general, companies have some problems with having established a process to manage it.

1.   **Estimation:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
2.4 Estimation: 2.4.1 WBS project breakdown	2.4.1 Only ft large projects	2.4.1 Yes, there - It's new – they uses WBS	2.4.1 Yes
2.4.2 Estimation by. profession;	2.4.2 Yes, done both in relation to large and small IT projects.	2.4.2 Available - all involved estimates	2.4.2 The fixed frame relative to releases and function points to projects

Based on the qualitative data, it shows that is not a requirement of PDK to use the WBS under the control of small IT projects and the estimation in PBS, the fixed frame, which may seem a little rigid.

2.   **A   Planning:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
2.5 Planning 2.5.1 Project contract	2.5.1 Only in relation to major projects	2.5.1 - For product labeling, and the supply agreement in principle covers the project contract.	2.5.1 done differently - using job description in relation Releases and a project definition in relation to a project
2.5.2 Phased project plan	2.5.1 Only in relation to major projects	2.5.2 Use release level, and in most cases it will be phased.	2.5.2 Yes, if needed
2.5.3 Quality plan	2.5.1 Only in relation to major projects	2.5.3 Available - several have taken it into use. In some administrations are sometimes quality managers.	2.5.3 is not so much in relation to releases that exist in relation to projects.
2.5.4 Configuration plan	2.5.1 Only in relation to major projects	2.5.4 Available-some have taken it into use. They use different CM tools depending on the source. % Not common	2.5.4 Not started
2.5.5 Risk analysis	2.5.5 Only in relation to major projects not necessary in relation to small IT projects	2.5.5 required for all	2.5.5 be used
2.5.6 Communication plan	2.5.1 Only in relation to major projects	2.5.6 is running appliances in relation to existing systems	2.5.6 be used

2.5.7 Stakeholder Analysis	2.5.1 Only in relation to major projects	2.5.7 Required for all. You know who the customer who is interested in.	2.5.7 be used
2.5.8 Establish meeting structure	2.5.8 Yes	2.5.8 It is agreed a fixed frequency of meetings	2.5.8 be used
2.5.9 Subject log / change log	2.5.9 Yes, in some form	2.5.9 Change log exists but is used differently in different documents (in some cases simply enter into the release plan) and not used anywhere	2.5.9 be used

Based on the qualitative data it shows that the three companies are some of the processes of making and depart from following the others.

B. Negotiation, Review and Approval:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
2.6 Negotiation, Review and Approval: 2.6.1 Establishment of review log	2.6.1 Only in relation to major projects	2.6.1 Management Agreement review column	2.6.1 Be used
2.7 Ongoing monitoring 2.7.1 Follow up activities through milestone	2.7.1 Only in relation to major projects	2.7.1 There are milestone management but not for the small tasks, unless they are part of larger release plan which is set milestones	2.7.1 Be used
2.7.2 Do you make status?	2.7.2 Yes, relative to small projects are the status to the customer. But in relation to major projects on the status to the Steering Committee and the competence manager	2.7.2 There is a requirement for status reporting also on small tasks - currently at least 4 times a year. Content is fixed, but it may depend on the person what you agree.	2.7.2 Be used
2.7.3 Identifies deviation	2.7.3 Only in relation to major projects, and made less formally on small projects.	2.7.3 The process can be found and used. A critical incident must be escalated to the Project Manager	2.7.3 Yes

Based on the qualitative data it shows that the three companies are some of the processes of making and depart from following the others.

Generally, it appears relative to project planning and monitoring process, some of the processes used, while others are not being used for control of small IT projects.

3. Project monitoring and control:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Project monitoring and control:	3.1 in relation to small projects reported only to	3.1 Project /program manager	3.1 Yes, to developing leadership

3.1 Who will report to?	the customer, but in relation to major projects steering		
3.2 How do you follow up on progress?	3.2 Only in relation to major projects - through various audit & review. Ift. small projects use informal monitoring	3.2 There is a status report with the required content (propulsion, resourceful, deadline)	3.2 There is a project graph
3.3 Users In Progress?	3.3 Yes. Only in relation to major projects ift small IT projects using other types (mail, call, etc.)	3.3 Yes	3.3 Be used

Of the collected data we can deduce that it goes better relation status reporting under the control of small IT projects. All three have some kind of status reporting.

Generally, it appears relative to project follow-up (Project Monitoring and Control) process will be followed for control of small IT projects of the three companies.

4. Supplier Agreement Management:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Supplier Agreement Management:	4. Yes, there is always a deal	4. There is always an agreement on most existing systems, but most often is no written agreement, but a verbal agreement that works. The new deliveries are always made new agreement on the new stuff. The distinction between external and internal	4. not the supplier for the releases, but it's supplier agreement (ODC) for the development

Of the collected data we can deduce that it goes better over supplier contract management under the control of small IT projects. All three have some form of control of the .. agreement

Ift. Supplier Agreement Management process is also being followed by the three companies for management of small IT projects.

5. Measurement and Analysis:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Measurement and Analysis (MA) 5.1 How do I set up the measurement for the project?	5.1 Only in relation to major projects in collaboration with the customer.	5.1 Must be performed measurements - reports via spreadsheets.	**Not started**
5.2 How to carry out the measurements on your projects and analyze?	5.2 Only in relation to major projects - done by using of A variety of	5.2 There are metrics consultants who assess whether a task should be	**Not started**

	methods.	measured - from project to project. Administrations (small projects - can also be measured)	
5.3 What elements do you collect data about?	5.3 Only in relation to major projects - the ones we have defined in our measurements.	5.3 Among other budgeted time consumed time.	**Not started**
5.4 How do I analyze this data?	5.4 By comparing it with our task values.	5.4 I cannot answer	**Not started**
5.5 Reporting of these data	5.5 Yes only in relation to major projects for competence manager	5.5 Used blah. in progress and management information and management reporting	**Not started**

We can look at the respondents' answers to some of the part processes of Measurement and Analysis (MA) process is followed, while other sub-processes are not followed.
Although PBS has not yet started on CMMI implementation, but it uses other processes for this purpose (it can be seen more clearly in the quantitative survey).

6. **Process & Product Quality Assurance:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Process & Product Quality Assurance: 6.1 How do you ensure that customers get what they ordered?	6.1 By involving them throughout the process	6.1 Cooperation with business specialists and customer service organization, it is those who participate in quality assurance. There are no authentication purposes. Customers purchasing a solution that was developed after general demand. It developed as a general solution and can then be ordered by municipalities. The approval procedure has been running for many years, often has been the Customer Service organization approves; it is often an internal approval which is based on a pilot test of a municipality / several municipalities.	**Not started**

Of the collected data, we can infer that respondents follow this process in some way.
Although PBS has not yet started on CMMI implementation, but it uses other processes for this purpose (it can be seen more clearly in the quantitative survey).

7. **Configuration Management:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Configuration Management:	7.1 Yes, both large and small IT projects	7.1 used platform-dependent configuration management	**Not started**

7.1 Do you use CVS or something similar?		tools. There is Only requirement to manage the configuration code. Other elements will be CM at the end of the year.	
7.2 How much will I up in the configuration management?	7.2 Only in relation to major projects	7.2 P.T. little	**Not started**
7.3 Establish the baseline?	7.3 Only in relation to major projects	7.3 Is established baseline of software, some units include more elements than just code, i.e. Documentation mm.	**Not started**
7.4 How much control I change?	7.4 Very, both large and small IT projects	7.4 it depends on how critical the individual product is	**Not started**
7.5 Establishes I and / or maintains the integrity of CI?	7.5 Only in relation to major projects	7.5 For most platform-dependent CM tools is this automatically, so there is much focus on the actual formal audits. In most cases, audits, and ensuring the integrity of the subject in a developer role.	**Not started**

Of the collected data we can deduce that the three companies are generally not quite follow some of the process, but they use other sub-processes in a way or another.

Although PBS has not yet started on CMMI implementation, but it uses other processes for this purpose (it can be seen more clearly in the quantitative survey).

8. Organization:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Organization: 8.1 IT department's position in the organization?	8.1 A department as other business units – on the vice president level	8.1 Yes	8.1 Yes
8.2 How to organize yourself in relation to the business?	8.2 We are an independent department	8.2 We have created an ordering / performing organization. Business Specialists, architects and market managers are part of final customers (municipalities) and product business KMD. The market managers who develop business idea, business specialists specifies requirements - they are product owners	8.2 The match between the product / business and IT

		(commissioners) and agreements with performing (Component owner) using supply agreement that a product is manufactured.	
8.3 Who initiates IT projects?	8.3 The business via the Monday meeting.	8.3 In principle portfolio controller	8.3 It is dependent on the nature of tasks (acute failure, release or project). For acute failure and release is developing leadership that decides the assignment starts, but ifm. A project is a board that decides it. It is also the board, which allocates hours to releases, but the task inherent in the release clarifies project managers with relevant business resources.
8.4 Who manages IT projects with you?	8.4 Project - Steering Groups	8.4 steering committee	8.5 The Development Management
8.5 Is the program manager, competence managers or Team Leaders?	8.5 Yes, there are both program manager skills managers.	8.5 Steering committee composed of leadership from the business area be it customer service organization, development and unit operations.	8.5 The Development Management
8.6 Using the steering committee?	8.6 Yes, the program manager and competence leader	8.6 Yes	8.6 Yes, i relation to . projects

Of the collected data we can deduce that the three companies generally have the necessary organization.

9. **The compliance of deadlines:**

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
The compliance of deadlines: 9.1 How important is it that you deliver on time?	9.1 Important especially in relation to major projects.	All tasks which required the deadline for example. Statutory duties. Deadline compliance on them. Quality must also be respected	It must deliver on time - in relation to releases IFT. project deadline and quality must be respected.

Of the collected data we can deduce that the three companies generally follow this control when they see it necessary.

10. Budget compliance:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Budget compliance: 10.1 What important is it for you that you comply with the budget?	10.1 Important especially in relation to major projects	Depending on the task -	Failure to comply - budget Failure to meet deadline and quality may exceed budget.

Of the collected data we can deduce that the three companies generally follows this control when they see it necessary.

11. Audit:

The Process	Filled in by PDK	Filled in by KMD	Filled in by PBS
Audit: 11.1 Does your small / maintenance tasks are audited? If yes By whom?	11.1 important especially in relation to major projects, the audit team, and in relation to small projects there will be no audit.	Yes there should be audited annually by an objective person from the organization. The fixed deadlines for resolving observations, compliance with these will not enter into force escalation.	On this way

Of the collected data we can deduce that the three companies are generally not quite follow this control when they see it necessary.

5.3.1.1 Preliminary conclusion based on the qualitative study

Following this study, I am not yet able to prove the project's postulate, because I of the collected data can deduce that some of the processes still being watched by the three companies.
In other words, I can based on the qualitative study did not prove that CMMI and PRINCE2 framework works cannot be used for managing small IT projects.
I'll try to prove the postulate under my quantitative study, if I can.

5.3.2 Quantitative study

Based on their responses [Qualitative study], I have developed yet another questionnaire scale assessing their all uses of the processes. The aim is that this will give me the opportunity to collect some quantitative data that makes it possible to compare responses. This form has also been sent to the interviewees for quality assurance. And the answer column filled with CMMI process using degree at KMD, PBS and PDK. [Quantitative study]

Below one can find statements that describe how I categorize the control parameters in these types of projects on the basis of my experience by leading large and small IT projects in Post Denmark.
For each statement simply, I try to give a score between 1 (= not used), 3 (= used to a certain extent), and 5 (= used in full scale)

New development = NUD. Large projects = STP, Small projects = SMP, Forward Development = VIP,
Maintenance Projects = VEP

Of the received quantitative data, we can see

	Styringsmekanisme	PDK NUD STP	PDK NUD SMP	PDK VIP	PDK VEP	KMD NUD STP	KMD NUD SMP	KMD VIP	KMD VEP	PBS NUD STP	PBS NUD SMP	PBS VIP	PBS VEP
1	Task Description	5		5	5	5	5- 3	5	5 - 3	5	5	5	~~5~~1
2	Risk analysis	5		3-5	3-5	5	5	3	3	5	5	~~3~~4	~~3~~2
3	Stakeholder analysis	5		1	1	5	3	1-3	1 -3	5	3	~~1~~3	~~1~~2
4	Communication	5		1	1	5 – 3	3	1	1	5	3	1	1
5	Education	5		3	3	5 – 3	3	1 -3	1 -3	5	3	~~1~~3	~~1~~3
6	Gantt – project plan	5		3	3	5	5	3	3	5	5	3	3
7	Reporting to the Steering Committee or similar	5		3	3	5	3	3	3	5	3	3	3
8	Product documentation be made	5		5	5	5 – 3	5 -3	3	3	5	5	3	3
9	Requirement management	5		3	3	5 – 3	3	3	3	5	~~3~~4	~~3~~5	3
10	Quality Management	5		5	5	5 – 3	3	5	5	5	3	5	5
11	Estimation	5		5	5	5 – 3	5 - 3	5 -3	5	5	5	5	5
12	Review	5		1	1	5 – 3	3	1 – 3	1 - 3	5	3	~~1~~4	1
13	Audit	5		1	1	5	3 - 5	1 – 5	1 - 5	5	3	1	1
14	Security	5		1	1	5	5	1 – 5	1 - 5	5	5	~~1~~5	~~1~~4
15	People management	5		1	1	5 - 3	3	3	3	5	3	3	3
16	Release mgt	1		5	5	1 – 5	1 - 3	5	5 - 3	1	1	5	5
17	Subject log	5		3	3	5 - 3	5 – 3	3	3	5	5	3	3
18	Supplier Agreement Management	5		5	5	5 - 3	5 - 3	5 - 3	5 – 3	~~5~~4	~~5~~4	~~5~~4	~~5~~4
19	Project Contract or similar	5		3-5	3-5	5 - 3	5 - 3	5 - 3	5 – 3	5	5	5	~~5~~3
20	Configuration mgt	5		3-5	3-5	5 - 3	5 -3	5 -3	5 -3	5	~~5~~3	~~5~~3	~~5~~3
21	Change mgt	5		5	5	5 – 3	5 – 3	5 - 3	5 - 3	5	5	5	5

Some companies deal with any addition of new functionality to the existing application as a new project (PBS), while others see it as further development (PDK), but what is essential to classify a job as a project or a maintenance task is size (PDK).
Generally implements the industry a release by assembling a series of small changes or bug fixes to the existing application. This is done by the company have a specific management group for the given application or group of closely related applications of predetermined budget for each application based on the expected development, expected to be completed next year.

Of the qualitative data it shows that there is little uncertainty regarding scores. application rate of the processes from a scale 1-3 or 3-5 and 1-5 time, especially in KMD and PBS.

It is a sign that there is a standard method in case companies (PDK, KMD, PBS) for control of small IT projects, and it is natural that project managers work differently, and each of them uses its way to interpret the processes of which sometimes lead to success, but other times we must recognize that it goes wrong.

(PDK) or that the tasks are so different and therefore it requires different process application.

In connection with this scoring table, I put a tick if businesses scores fifth

	Process	PDK	KMD	PBS
1	Task Description	X	X	X
2	Risk analysis		X	X
3	Stakeholder analysis			
4	Communication			
5	Education			
6	Gantt – project plan			X
7	Reporting to the Steering Committee or similar			
8	Product documentation be made	X		X
9	Requirement management			
10	Quality Management	X	X	
11	Estimation	X	X	X
12	Review			
13	Audit			
14	Security			X
15	People management			
16	Release mgt	X	X	
17	Subject log			
18	Supplier Agreement Management	X	X	X
19	Project Contract or similar		X	X
20	Configuration mgt		X	
21	Change mgt	X	X	X

Of the received quantitative data, we note that some of the processes are not always followed by two case study organizations including requirements management, reporting and communication. But there are other processes are followed at least by an organization such risk analysis, Gantt, documentation, quality assurance and configuration management.

Of the qualitative data also shows that there are at least four processes that are always being watched by all three companies: Job Description, Estimation, Supplier Agreement Management and Change Management.

What, then, as a minimum, must be present regardless of project size

	Styringsmekanisme	Scoring
1	Task Description	X
2	Risk analysis	
3	Stakeholder analysis	
4	Communication	
5	Education	
6	Gantt – project plan	
7	Reporting to the Steering Committee or similar	
8	Product documentation be made	
9	Requirement management	
10	Quality Management	
11	Estimation	X
12	Review	
13	Audit	
14	Security	
15	People management	
16	Release mgt	
17	Subject log	
18	Supplier Agreement Management	X
19	Project Contract or similar	
20	Configuration mgt	
21	Change mgt	X

5.3.2.1 Preliminary conclusion based on the quantitative survey

Compared to prove the project's postulate Unfortunately, I can once again do not prove it. The three companies follow more of the relevant processes in a way or another.
One thing is clear that these companies do not follow the full version of the processes for managing smaller IT projects but they use some processes, but not always the same processes.

5.3.3 Collection

When I cannot prove the postulate, it means that PRINCE2 and CMMI framework works can be used for management of small IT projects, and this is the answer to my question in my problem formulation.

That said, it is also important to emphasize that it is pointless to use the full version of these formal methods for managing smaller IT projects. Between using a full version or and not use any kind of formalized approaches to the management of small IT projects is not recommendable.
One must therefore use a balance between the two positions, and there are many companies that

have tried to find the balance and they were still working to find it.

We at PDK have tried to use a mini version of the CMMI for control of some of our maintenance projects, but without success. Previously, we have also tried to use an adapted version of PRINCE2, which we have named PRINCE light, but also without success.
The reasons were not only related to methods, but there were also other things such as the culture to change in some of my colleagues, and management's half-hearted support of the trial.

5.3.4 Analysis of questionnaire and survey

From the analysis of the collected data, I was made aware of how difficult it is to formulate a concise questionnaire, which seeks both to formulate the question so respondents can not misunderstand it and also get answers that illustrate the problem formulation as accurately as possible.
For simplicity, I hereafter list my thoughts up on what I could have done differently and what impact, I imagine it has had on the final analysis.

I can see that my lack of experience in practice, research, and my complicity see understanding and project time factor has influenced the questionnaire design and scope of the study. Among other things, it was hard to find some with some specific assumptions that were prepared to spend about 4 times. 2 hours for both interviews and reviews of the answers.
I could not find any, but I was lucky enough to have **Diego Borresen Lladó** as my second supervisor, who has established contacts for me to both PBS and KMD.

When I have completed only the survey of a limited number of firms by interviewing one person per. company focused on PRINCE2 and CMMI, it cannot be excluded that an even broader study would give deviations in relation to my study.

You could have focused on resource wastage under the control of small projects in these companies as a consequence of lack of standard methodology for managing small IT projects in these firms to raise the profile losses.
In this context we hear or read about usually only when there is a large IT projects fail, but you never hear about all the little projects that have failed.
It is clear that prestige is at stake when a major project slips, but economically speaking, an entity may suffer as great loss of land of all the failure of small IT projects that they will receive in the event of a failed big project.

You could also have chosen to measure the effectiveness in relation to management of small projects at eg. those firms that are at CMMI Level 4 or 5, compared to those not using a standard frame work, or those who are at CMMI level 2 or 3
This is perhaps difficult to implement in Denmark, since we already know that there are not many companies that are at Level 4 or 5

6. Conclusion and perspectives

The following conclusion is based on the results of my analysis of the management of small IT projects and maintenance projects using PRINCE2 or CMMI framework works and I will include interconnect problem areas related to management of small IT projects and maintenance projects (Section 5) with empirical data & theory.

The project became the basis of interest and curiosity on my part compared to what can be used to control small IT projects. Similarly, the driving force has been gained from our own work as well as other companies' use of PRINCE2 and CMMI also to manage their small IT projects.

We may on the basis of the project postulate theories and analysis to conclude that the following factors are important for any company that will manage IT costs, and they must therefore seriously consider a permanent solution for their management of small IT projects in their business.

I will then deal with this section by asking a series of questions about the subject, and by answering them, I get partial, and my main conclusion will be a combination of these partial and provisional conclusions which I have already mentioned in the analysis. Using this method, do I also have a series measures in relation to the management of small projects.

What I have found out in relation to problem formulation:
As I mentioned in my analysis and what I have come to the preliminary conclusions that I was not able to convince my question in the project formulation of the problem. Namely

"CMMI and PRINCE2 framework works cannot be used for managing small projects."

I have seen of my case that many of PRINCE2 and CMMI processes already being used, and the question whether it is enough.
There is no question of all or nothing; it's a matter of common sense in the application of the framework works. As we have learned from my case companies and also acc. theory, these methods are adapted because the tasks / projects are different:

Of the book "PRINCE2 revealed her under how to uses PRINCE2 for small projects" by Colin Bentley:

"It (PRINCE2) can be used for any project, however large or small, the basic philosophy remains the same. Method must be adapted to suit the size, significance and environment of the project "

This shall also apply CMMI Level 2 That is what companies should do and not use the pretext that the methods are too cumbersome, too bureaucratic, too expensive overhead and lack of time.

It is a finding that these frame works can also be used to manage small IT projects, and my next question is how?

My case companies:
My case study companies that I've used (PDK, KMD and PBS) are not all well advanced CMMI certification in relation to managing projects except PDK, which is already at Level 2

And so some will probably think that perhaps it is a little thin to use them as case companies, especially KMD and PBS. I think that the two companies are in full swing to implement many of the CMMI processes and the areas where they have not come this far, they have in place other efficient processes in place, and therefore it is completely safe to use them, in my opinion.

KMD has plans for certification in the fall of 2009, while PBS has plans for certification in 2010. PDK had been certified for CMMI Level 2 in 2007 compared to the management of large IT projects. And since you work to find an adapted form of CMMI or something else entirely for the management of their small IT projects.

The question that many of my colleagues had and still ask:
Does it pay to use a full version of CMMI level 2 on an IT project for example. 300 hours?
Most people think of all the paperwork, monitoring, review, audit, inspection and other bureaucratic actions during filling process.
To calculate the overhead related to using CMMI Level 2 with its 7 underlying processes in relation to the task, we need to look closely at the organization itself. There is a difference between one organization and another in relation to culture, maturity levels, the IT department's position, size, management's ambition, the company's understanding of the process itself and its roadmap for implementation.

An organization with a clear implementation plan with a management that stands behind the implementation of the method and is willing to invest in it and have an understanding of the process implementation will take time will probably succeed.

It may be from the start, and when the company is CMMI level 2 or 3, the process will seem a little cumbersome and bureaucratic, but once the organization has built up experience and implementation capacity, it will go better and better. [See App. 4Aog 4B].

Companies working to achieve greater implementation capacity and maturity, goes through five maturity stages (see CMMI five phases as an example). The ripening process is sequential in that it is not possible to advance more than one level at a time, i.e. one cannot achieve a higher level, without the lower levels are also met.

There are other organizational factors that also play into whether a company is successful or not, among them; organizational process maturity and project maturity, test, quality assurance and employee competence, etc., for example to have an experienced project manager in relation to CMMI in your organization who know the model is not enough, as I said, there are other players that may affect project implementation, and project manager alone cannot spell.

Customers can also play a central role, and they have influence and can therefore help to determine the outcome of a project.

To find a suitable form of a specific framework that fits exactly to the particular task, it requires a complete interaction and a high degree of maturity among the players to ensure a course without or with minimum overhead, and without compromising the method's core purpose and without necessarily increasing the risk so much that the project's future may end in failure

What is the difference between projects and small projects?
We at Post Denmark separate large and small IT projects based on estimated task hours. Is it over 1500, so it is a project, otherwise it is a maintenance task, but at PBS consider the addition of any new functionality to an existing application as a project and therefore managed as a project (case PBS). In fact, the size of small projects depends on the size of the company and the size of the normal's projects in the company.

You can also choose to allocate a block (management group / product manager) to take care of the task concerning Maintenance of a specific application. (PBS, PDK and KMD).

It's hard to find the appropriate limitation of what is the minimum necessary control elements versus project size, so that you are not going to spend hundreds of hours on some activities that do not appear necessary for the task including paperwork, monitoring, review, audit, inspection, planning and follow up on a project that once was estimated, for example. 300 hours. Small tasks require a flexible workflow process in relation to usage, and scalable method.

Small IT tasks, whether it is maintenance or development, are so different in its nature that it becomes almost impossible to find a standard method that can be used to manage them sensibly and without overhead.
Some companies try to use their standard method also for control of small IT projects, although they are convinced that it gives a great overhead in at least one period (learning phase KMD), but it's hard to see if it can continue to do so.

 "its habituation phase (learning) - After the needs - later it will be adapted as needed"

There are not some among my case companies, which see small projects or projects and they treat them not as projects

Is it a MUST to treat small IT tasks such projects?
Sometimes one thinks that it's ridiculous to introduce such. CMMI and PRINCE2 in a small IT project, but time will show that if you do not, it can go wrong.
Just calling a task for a project will change much, because you automatically will direct its focus on all essential elements of project management. It makes you think of risk or of change management, or other processes that will help the project much. The answer is yes, all the small tasks should be treated as projects.

When is a methodology (PRINCE2 or CMMI) bureaucratic overkill?
Purpose of using the formal methods is to use resources efficiently so that you will save time, resources, and improve quality. But these methods at certain stages involves a dealer bureaucratic mechanism, especially when the organization is not mature enough or with less implementation skills. These mechanisms are designed to manage the project, supervising, monitoring and quality assurance, which is standard regardless of the project. This means that these methods may seem so stiff and heavy, if you are always using the same processes regardless of project size and type, and it will cause some overhead, especially when business is at Level 2-3 of CMMI. Are CMMI and PRINCE2 inflexible?

Can CMMI and PRINCE2 scaled?
This leads us to the question whether we can scale the formalized methods so that you get the benefits of these methods benefits while avoiding the overhead by using only the processes that are absolutely necessary to suit the task you are again in.

What is the PRINCE2 or CMMI as a minimum, be used to manage projects small or large without the risk of supply failure?
Finding the most essential elements of a methodology to be used for one project without the overhead and without increasing the risk that could result in a failure, is not enough because it may be that these elements are appropriate for the project, but they may create overhead or bring another project to failure.

Organization, including project managers, is to reach a maturity level that enables them to adapt the methods that it is PRINCE 2 or CMMI framework works by selecting the most appropriate processes to suit the project. For an organization to reach this level of maturity required both time, resources and commitment.
Some of the processes that may be needed, regardless of the project e.g.:

1. Requirements should be clear whether the project size
2. Deadline - when the project will be delivered, target date, time
3. Budget estimate - how much does it cost?
4. What to do in case of problem, the answer is sound and reasonable?

Is this enough that you can deliver what the customer wants no misunderstanding concerning. work scope and quality of the product?

Overhead related to the implementation of the formalized methods
The answer to the question why not to use formal methods for all types of projects, namely because of the overhead, and what is overhead;
Overhead is a percentage added to the cost of each project to cover general business expenses - here redundant processes and procedures that are not attributable to a particular project.

Acc. the book "IT project management essentials"
Prince has excessive overhead for small and medium-sized bet. "And this is probably also other methods.

Purpose of investment in the implementation of methodologies
These organizations invest in their project management approaches, by implementing one or another method such as PRINCE2, CMMI, or other practices.
Implementation of these practices are largely driven by their desire to have a better management control, mainly in senior management who need some reliable information and duelig report in a way or another up to the organization or to shareholders. In these implementations, it is always necessary to have projects that are successful as a goal.

Companies overlook small IT projects
Most companies start to implement in PRINCE2 and CMMI framework works and invests in a number of learning, training and instruction of the method, their focus is only on large projects, then later they find out that they also have something called small projects, so they try to use the same

method on their little projects, and they find out that it is not always possible, because they will spend huge overhead of bureaucracy, monitoring and reviews, checking and waste a lot of resources that were once required in relation to project size.

The company may by moving some of this overhead toward level to minimize or relieve the projects along this overhead.

This can be done to define and establish safety, stakeholder analysis, communications plan and a part of quality plan per application or application group at the department level, it will help the project by not spending time on these activities.

To implement a new method in an enterprise is not only to train a group of project managers in the new method, but also develop the whole organization so that there is established a healthy environment for projects that contribute to their success.

And this also applies to customers, especially if we're talking about internal customers by firms in my case (PDK, KMD and PBS) has. They must also have an understanding both of the new approach and will certainly require a sustained project success and the way to SW departments plan their investments in the implementation of the new methods in a reasonable manner in the long term ensure a optimal and most efficient project process.

Since business should not just accept the overhead method of implementation, it may have, but instead urge SW supplier to take the initiative to implement the latest and the most effective method, although it will take time and cost money. In this way a few SW-supplier time to develop their implementation skills to become mature enough to tailor the method to suit any task. That way they can use it in the most efficient way to manage small IT projects, instead of being constantly pressured to think only on the present, and not invest in the future.

As we know, all applications that are produced by the projects require maintenance for many years and it will impact corporate budgets for many years until the date the application's life span is closed and there must therefore also focus on small projects equally as large projects.

Winnings are when you are at level 4 and 5
Project management always tries to gain control of the four variables (time, cost, quality and quantity).
The aim of the approach is to introduce as little overhead as possible in terms of rationalizing justification, documentation, reports, meetings, management, monitoring and authorization.

CMMI-wise you have to either go up the levels to levels 4 and 5, and thereby reap the benefits or they will be at level 2 or 3 and accept the waste of resources that many businesses unfortunately do because of the cost that is in the short term may follow.

Certification to Level 4 or 5 of CMMI requires additional investments in training, learning & training. It will be expensive before it gets cheap and good. [See the annex below]

 "Software Tech march 2007 vol.10 no. 1 "
Below [Graph 1 award fee / CMM Levels] compares the performance award fee for CMM Levels

and shows customer satisfaction continues to rise as the process maturity will be higher and it makes the Software Productivity.
The following [Graph 2] shows the IS & S overhead rate has been steadily declining since SW CMMI Level 3 period and the same goes Software Unit Cost. This reduction in overhead rate shows that CMMI - related response is likely to have had a positive effect on fixed costs.

It might be expensive in the short term to invest in implementing the full CMMI processes within the company to levels 4 and 5, one should invest in the entire organization from management, project management and project team to gain maturity in the organization up Level 4 or 5 To develop the company's deployment capability / maturity will take time.

It gives value to invest in becoming more mature in my opinion. [Appendix 4A and 4 B]
- It increases the effectiveness and benefits of IT projects
- It reduces risks

Also because it may be a requirement from some major customers / main supplier who simply make demands on their suppliers that they should be, for example. CMMI Level 4 or 5

t can also be used as an additional parameter that can really be understood if a company is in fierce competition with others in the industry.

From the other side is competition in the software industry very hard, and the continued pressure from low cost airlines (e.g. TATA / India), where they push companies to improve their efficiency and to find ways to optimize their development and quality assurance activities locally and globally. In addition, companies will try to improve their operations and optimize them to achieve higher levels of CMMI maturity.

It is also very expensive to keep on CMMI 2 or 3 in relation to the management of large & small IT projects. There is extra overhead and less productivity at these levels relative to CMMI 4 or 5 [See Annex "Software Tech march 2007 vol. 10 no. 1 "]

What then is the solution?
Organization's ability to work some solutions that fit their organization, while being flexible to be able to use on different projects. This requires enough experience and good results.

Neither CMMI nor PRINCE2 is so static, as some would believe. It can be customized and must be adapted.

The following points shall assemble the threads about the challenges that these companies are experiencing related to the Managing small IT projects and maintenance projects. These points should be borne in enabling us to answer my questions first problem formulation in Section 1.5.

Approaches to managing small projects	Desired impact
Need for standard methods for controlling	Increases flexibility in the organization. It becomes easier for others and new project manager to enter. Easy to measure results
Method should be scalable	reduce overhead

Does not increase risk	Balance productivity versus project vellykkes
Requires a certain maturity in the organization	Fast and efficient adaptability
Possibility of tailoring versus task type	reduce overhead
Think of the control functions together with the implementation of common projects	Involving management group including project managers of small projects in, so from the outset Mon focus on what will suit small projects.
Applying CMMI, would rather increase the maturity to level 4-5 - It will be expensive before it gets cheap	Increase productivity, lower overhead
Does your organization is not the maturity, please use a tool	Allows you to customize some solutions to suit their organizational maturity
Learning and education must include the entire organization and not just project management	All will be affected by projects should understand what roles they have implementation of the method.
Increase implementation capacity takes time	To achieve the necessary maturity capability
One size does not fit all	Increase productivity and lower overhead.
Increasing focus on small IT projects, and not assigns them low priority, or allocate them only inexperienced project managers, and - the resources.	It costs money on long-term

Table 8: Recommendation around actions

I have thus responded to my questions from the problem formulation.

By examining how many businesses which e.g. trying full implementation of all CMMI maturity levels, we note that there are not many companies that invest in the implementation of higher levels of these methods (full implementation) for managing projects generally, both small and large IT projects. As we have noted, there is additional waste and overhead and reduced productivity related under CMMI Level 2 and 3 than for instance during CMMI Level 4 & 5.

We can use a dynamic process to help companies to adapt methods to suit any tasks they may have.

I try to make it possible for project managers and companies to establish a procedure so that it becomes possible for them to arrive at a set of operating controls and monitoring mechanism that is tailored to the tasks they may have.

One size does not fit all
A modified matrix approach that can be used and adapted by all project managers and organizations so that it will fit with the small projects and tasks:

Conditions/Features of Proposed Project															
Complex Dependencies?	Y														
Kritisk tidsfrister?		Y													
Critical Deadlines?			Y												
Duration up to 5 weeks?				Y											
Duration between 5 weeks and 3 months?					Y										
Duration greater than 3 months?						Y									
Effort greater than 180 days?							Y								
Management spread over two or more sites?								Y							
More than 2 User Teams?									Y						
More than 20 major end products?										Y					
Resource Intensive?											Y				
Estimated Spend > £5000?												Y			
Estimated Spend > £50 000?													Y		
Kritisk kvalitet														Y	
Budget overholdelse															Y
Styringselementer															
Business Case															
Statement of Benefits	✓	[✓]	[✓]	✓	✓	[✓]	✓		✓	[✓]	[✓]			[✓]	[✓]
Full Business Case			✓			✓		✓	✓	✓			✓	[✓]	✓	✓
Organization															
Project Board			[✓]		✓	[✓]	✓	✓	✓	[✓]			[✓]	✓	✓
Delegation of Executive's Project Assurance role						✓		✓		✓		✓	[✓]	✓	✓
Delegation of Senior Supplier's Project Assurance role	✓	✓			✓	✓	✓			[✓]			✓	✓	✓
Delegation of Senior User's Project Assurance role		✓	[✓]					✓	✓	✓		✓	[✓]	✓	✓
Use of Team Manager(s)						✓				✓					
Kravstyring															
Understanding and adherence to requirements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	[✓]	[✓]
Traceability and identification of any discrepancy between supplies and demands	✓	✓								✓				[✓]	[✓]
Change mgt.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	[✓]	[✓]
Planning															
Stage Plans, ESA's & Highlight Reports- Fase planlægning					✓	[✓]	✓		✓	[✓]					
Produktbeskrivelse	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]
WBS projektned-brydning & Product Flows	[✓]	✓	✓	✓	✓	[✓]	[✓]		✓				[✓]	[✓]	[✓]
Network Analysis (Critical Path Analysis)	[✓]	✓								✓				✓	✓
Gant Charts - projektplan	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	✓	✓	[✓]	[✓]
Projektkontrakt eller lignende	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]
Interessent analyse & Kommunikation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Estimation	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	[✓]	✓	[✓]	✓	[✓]	✓	✓	[✓]
Controls															
Statement of Tolerances	✓	[✓]	✓	✓	✓	✓	✓			✓	✓	[✓]	✓	[✓]	[✓]

Highlight Reports	✓	[✓]	✓	✓	[✓]	[✓]	[✓]	[✓]	[✓]	[✓]	✓	✓	✓	[✓]	[✓]
Use of Checkpoints		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Configuration- & Change mgt.	[✓]	[✓]	✓		✓	[✓]	✓		✓	[✓]	✓	✓	[✓]	[✓]	[✓]
Risk mgt.	[✓]	[✓]	[✓]	✓	[✓]	[✓]	[✓]	✓	✓	[✓]	[✓]	[✓]	[✓]	✓	✓
End Project Report	[✓]	[✓]	✓	✓	✓	[✓]	✓	✓	✓	[✓]	✓	[✓]	[✓]	[✓]	[✓]
Post-Project Review			✓		✓				✓	✓	✓	✓	✓		
Lessons Learned Report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Review & Audit	✓	✓												✓	✓
Quality mgt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	[✓]	✓
Supplier Agreement Management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 9: Matrix approach **Source: Self**

Conditions of use

Ex. We have an overall demand from customers for a small IT - project with the following conditions:
1) Duration up to 5 weeks
2) More than 20 major products
3) estimated to be> DKR50.000
Which management elements should I take hold of / use?

Solution:

Desirable	Highly desirable
Supplier Agreement Management	Experience Report
Quality Management	Completion Report
Requirements Management	Configuration management & change
Post-Project Review	management
Use of Checkpoints	Status Report
Network Analysis (Critical Path Analysis)	Statement of Tolerance
WBS	Project Contract or similar
Business Case	Gant Charts - Project Plan
	Product Description (Job Description)
	planning phase
	Steering Committee - attended by represents
	from their suppliers and customers - Users of
	Team Manager (s)
	Estimation
	Purpose of the job

This is just an example that companies can build on, so it will fit with the types of projects and tasks they have. The list can be very useful because it will help the supervisor to get an overview of the controls, he / she should go.

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8. Appendix

Appendix 1: Working Plan

Forløbet for hvordan jeg ønsker at arbejde med opgaven, har jeg delt op i fem området med dertil hørende aktiviteter forklares lidt nærmere nedenfor.

- *Hvad vil jeg undersøge - og hvorfor*

Aktivitet - Nysgerrighed og motivation:
Hvad der skabte min motivation for lige præcis denne opgave er beskrevet i **afsnit 1.4.**

Aktivitet - Problemformulering:
Min nysgerrighed og motivation dannede grundlag for min problemformulering, som er beskrevet i **afsnit 1.5**.

- *Hvordan*

Aktivitet – teoretiske overvejelser
Her beskriver jeg hvorledes hvilke metoder jeg kunne anvende til indsamling af oplysninger omkring disse virksomheder i relation til formålet. Afsnit **2.2.1**.

Aktivitet – Mine overvejelser og metodevalg
Her beskriver jeg mit valg af metode. Afsnit **2.2.2**

Aktivitet - Dataopsamling og analyse af interviewdata
Her beskriver jeg hvordan jeg vil opsamle data og hvilken teknik jeg vil bruge i forbindelse med interview og analyse af disse data. **Afsnit 2.2.3**

Aktivitet – Valg af deltagere
Her beskriver jeg valget af mine datakilder. **Afsnit 2.2.4**

Aktivitet – Vejen til besvarelse
Her beskriver jeg, hvordan vil jeg arbejde videre med de indsamlede data og måden at nå til konklusionen. **Afsnit 2.2.5**

Aktivitet - Reliabilitet og validitet
Her vurderer jeg grundlaget for mine undersøgelser med henblik på troværdighed. **Afsnit 2.2.6**

- *Undersøgelse*

Aktivitet - Case: undersøgelse af fire danske virksomheder:
Udarbejdelse af casen er baseret på undersøgelse af fire udvalgte danske virksomheder. De repræsenterer et bredt snit blandt virksomheder i Danmark, hvor man har valgt at styre små IT projekter og vedligeholdelsesopgaver. **Afsnit 4.**

Aktivitet - undersøgelse og budskaber

For at jeg bliver i stand til at besvare min problemformulering og samtidig opnå et tilstrækkeligt datamateriale til min videre perspektivering og konklusioner, har jeg valgt at undersøgelsen skal bygge på nedenstående aktiviteter. **Afsnit 5.**

- *Konklusion*

Mine analyse vil berøre flere aktiviteter, og her vil jeg besvare min problemformulering og komme med min konklusion og budskaber. **Afsnit 6.**

- *Perspektivering*

Aktivitet – Små IT projekter og vedligeholdelses IT opgaver
Jeg vil undersøge styring af *små IT projekter og vedligeholdelses IT opgaver* i de disse fire virksomheder og i den forbindelse beskriver jeg teorien omkring både PRINCE2 og CMMI, de karakteristikker af s*må IT projekter og vedligeholdelses IT opgaver*, hvordan disse fire virksomheder styrer disse typer opgaver og projekter som resultat af min undersøgelser, herunder en vurdering af anvendelighedsgrad af disse processer og en analyse af det. **Afsnit 7.**

## *Appendix 2: Questionnaires and interview data on CD in Wave format*

B 2.1 Post Denmark's task management:

Styring af små – og/eller vedligeholdelsesprojekter	
Spørgsmål	**Svarer**
1 Kravstyring 1.1. Hvordan opnår I forståelse af jeres krav? 1.2 Hvordan opnår I tilslutning til kravene? 1.3 Styre I ændringer af krav? 1.4 Opretter I sporbarhed mellem kravene? 1.5 Hvordan identificerer I overensstemmelse mellem leverancer og krav?	1.1 ift. store projekter gøres det ved at holde afklaringsmøder med de interessenter især kunden. Ift. små IT projekter – er der et fast forum mellem productmanager og kunden 1.2 Ved at inddrage alle interessenter 1.3 Ja, Kun ift. store projekter 1.4 Ja, som hoved regle bliver Quality Center brugt. 1.5 både (stor og små IT projekter) gøres ved at holde kvalitetstest med inddragelse af kunden.
2 Projektplanlægning og opfølgning 2.1 Hvilket flow har opgavernes – fra kunden til udvikling? **2.2 Ideudvikling – ledelsesbeslutning** 2.2.1 Hvem beslutter projektstart? **2.3 Projektinitering** 2.3.1 Projekt organisation etablering 2.3.2 Risikostyring 2.3.3 Gantt – projektplan 2.3.4 Resoourceallokering 2.3.5 Underleverandørstyring **2.4 Estimering** 2.4.1 WBS projektnedbrydning 2.4.2 Estmiat pr. faggruppe **2.5 Planlægning** 2.5.1 Projektkontrakt 2.5.2. Faseopdelt projektplan 2.5.3 Kvalitetsplan 2.5.4. Konfigurationsplan 2.5.5 Risikoanalyse 2.5.6 Kommunikationsplan 2.5.7 Interessentanalyse 2.5.8 Etablere mødestruktur 2.5.9 Emnelog /ændringslog **2.6 Forhandling, Review og godkendelse** 2.6.1 Etablering af reviewlog **2.7 Løbende opfølgning**	2.1 se bilag 2.2.1 2.2.1 Et organ bestående af kompetenceledere og folk med teknisk indsigt kaldes mandagsmøde. 2.3.1 Ja, ved start af projektet ift. store projekter, og der er fast forvaltningsgruppe (product manager, kunden og i nogle tilfælde udvikler plus tester) 2.3.2 Ja, i tilfælde af store projekter, men sjælden ift. små it projekter. 2.3.3 Ja – store projekter, sjælden ift. små IT projekter. 2.3.4 Ja, gøres både ift. store og små IT projekter. 2.3.5 Ja, gøres. 2.4 Kun ift. store projekter 2.4.2 Ja, gøres både ift. store og små IT projekter. 2.5.1 Kun ift. store projekter 2.5.2 Kun ift. store projekter 2.5.3 Kun ift. store projekter 2.5.4 Kun ift. store projekter 2.5.5 Kun ift. store projekter ej nødvendigt ift. små it projekter 2.5.6 Kun ift. store projekter 2.5.7 Kun ift. store projekter 2.5.8 Ja. 2.5.9 Ja i et eller andet form. 2.6.1 Kun ift. store projekter 2.7.1 Kun ift. store projekter

	2.7.1 Følg op på aktiviteter via milepæl 2.7.2 Laver I status 2.7.3 Identificerer afvigelse	2.7.2 Ja det gøres 2.7.3 Kun ift. store projekter, og gøres mindre formelt på små projekter.
3	**Projektopfølgning (Projektmonitorering og kontrol)** 3.1 Hvem rapporterer I til? 3.2 Hvordan følger I op på fremdriften? 3.3 Bruger I statusrapport?	3.1 Ift. store projekter til styregruppe, og til kunden ift, små projekter 3.2 Kun ift. store projekter – via diverse audit & review. Ift. små projekter bruges uformel opfølgning. 3.3 Ja. Kun ift. store projekter, ift små it projekter bruges andre former(mail, ringer osv.)
4	**Leverandør aftale styring**	Ja, både til store og små projekter.
5	**Måling & Analyse (MA)** 5.1 Hvordan etablerer I måling for projektet 5.2 Hvordan gennemfører I målinger på jeres projekter og analyserer de? 5.3 Hvilke elementer indsamler I data om? 5.4 Hvordan analyserer disse data? 5.5 Rapportering af disse data	5.1 Kun ift. store projekter, i samarbejder med kunden. 5.2 Kun ift. store projekter - gøres v.b.a. Forskellige metoder. 5.3 Kun ift. store projekter – dem vi har defineret i vores målinger. 5.4 ved at sammenligne det med vores taskværdier. 5.5 Ja Kun ift. store projekter til kompetenceleder
6	**Proces & Produkt Kvalitetssikring** 6.1 Hvordan sikrer I at kunderne får det, de har bestilt?	6.1 Ved at inddrage dem i hele forløbet
7	**Konfigurationsstyring** 7.1 Bruger I CVS eller noget lignende? 7.2 Hvor meget går I op i konfigurationsstyring? 7.3 Etablerer I af baseline? 7.4 Hvor meget styrer I ændringer? 7.5 Etablerer I og/eller vedligeholder I integritet af CI?	7.1 Ja, både til stor og små IT projekter 7.2 Meget ift. store projekter 7.3 Kun ift. store projekter 7.4 Meget både ift. store og små IT projekter 7.5 Kun ift. store IT projekter
8	**Organisation:** 8.1 IT afdelings placering i organisation? 8.2 Hvordan organiserer I jer i forhold til forretningen? 8.3 Hvem igangsætter IT projekter? 8.4 Hvem styrer IT projekter hos jer? 8.5 Er de programleder, kompetence ledere eller Teamledere? 8.6 Benytter I styregruppe?	8.1 En afdeling som andre forretningsenheder – på vice direktør niv. 8.2 Vi er en selvstændig afdeling 8.3 Forretningen via mandagsmøde 8.4 Projektleder - Styregrupper 8.5 Ja, der er både programleder, kompetenceledere. 8.6 Ja, programleder og kompetenceleder
9	Overholdelses af deadlines 9.1 Hvor vigtigt er det at I leverer til tiden?	9.1 Vigtigt især ift. store projekter
10	Budget overholdelse 10.1 Hvad vigtigt er det for jer at I overholder budgettet?	10.1 Vigtigt især ift. store projekter

11	Audit: 11.1 Bliver jeres små /vedligeholdelsesopgaver auditeres? Hvis ja Af hvem ?	11.1 vigtigt især ift. store projekter, af audit team, og ift. små projekter afholdes der ikke audit.
Generelt:	**Hvad synes du at bruge CMMI til styring at små projekter?** **Er I tilfreds med det? Når I jeres mål ved at bruge det til små projekter + osv.** Tung men meget nyttig og nødvendig ift. Store projekter. stort overhead / ubrugelige ift. små IT projekter	

B 2.1.1 Post Denmark process description of the management of small IT projects (tasks)
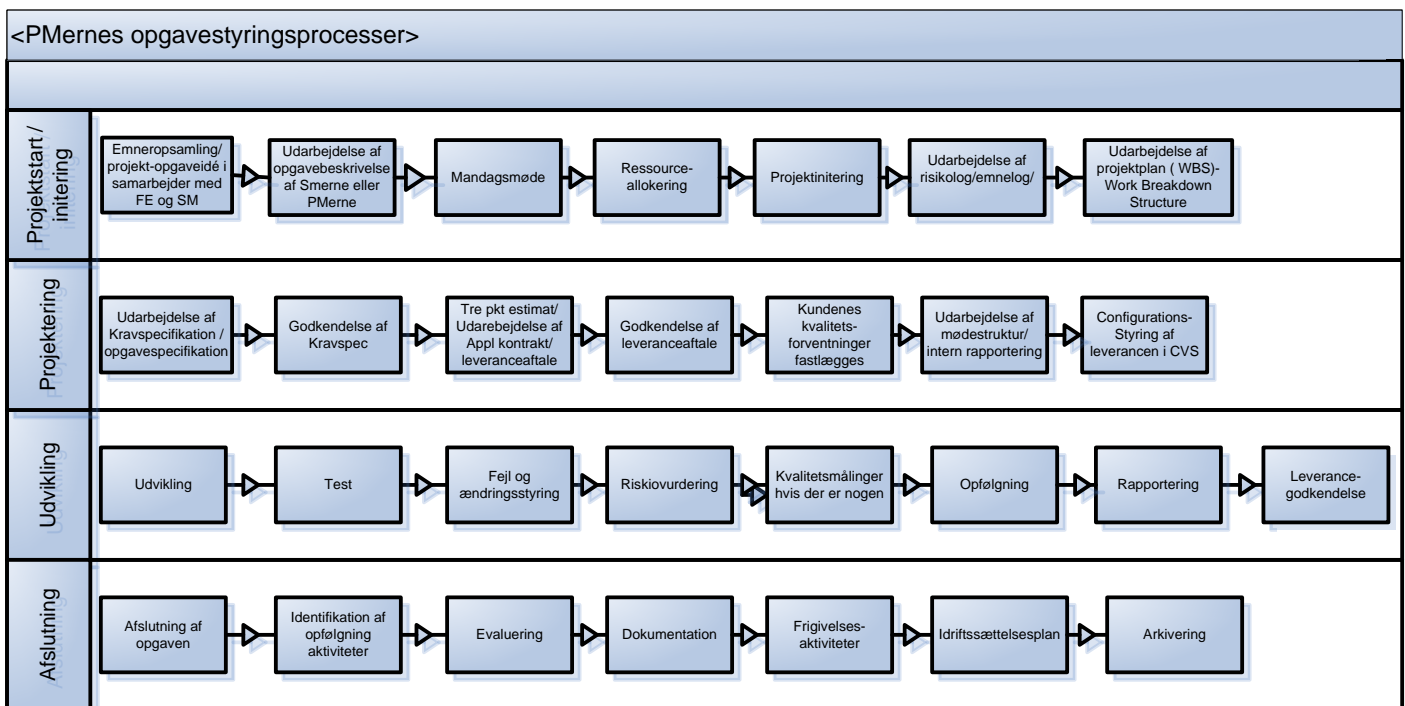
B 2.2 Questionnaire related KMD on 23 March 2009:

	Styring af små – og/eller vedligeholdelsesprojekter	
	Spørgsmål	**Svarer**
1	**Kravstyring** 1.1. Hvordan opnår I forståelse af jeres krav? 1.2 Hvordan opnår I tilslutning til kravene? 1.3 Styre ændringer af krav? 1.4 Opretter I sporbarhed mellem kravene? 1.5 Hvordan identificerer I overensstemmelse mellem leverancer og krav?	KMD er endnu ikke certificeret til niv. 2 1.1 Forretningsspecialister står for indsamling af krav - opgavebeskrivelse % et system til kravstyring 1.2 Krav styres via fejlhåndtering system(POB), eller i quality center også deres ændring. 1.3 Change management er ikke implementeret helt ud. 1.4 Etablere sporbarhed styres via et POB nr. 1.5 Tester godkender test, kundeservice (KFO) deltager ofte i test. Forvaltningsledelse
2	**Projektplanlægning og opfølgning** 2.1 Hvilket flow har opgavernes - fra kunden til udvikling? **2.2 Ideudvikling – ledelsesbeslutning** 2.2.1 Hvem beslutter projektstart? **2.3 Projektinitering** 2.3.1 Projekt organisation etablering 2.3.2 Risikostyring 2.3.3 Gantt – projektplan 2.3.4 Ressource allokering 2.3.5 Underleverandørstyring **2.4 Estimering** 2.4.1 WBS projektnedbrydning 2.4.2 Estimat pr. faggruppe **2.5 Planlægning** 2.5.1 Projektkontrakt 2.5.2 Faseopdelt projektplan 2.5.3 Kvalitetsplan 2.5.4 Konfigurationsplan 2.5.5 Risikoanalyse 2.5.6 Kommunikationsplan 2.5.7 Interessentanalyse 2.5.8 Etablere mødestruktur 2.5.9 Emnelog / ændringslog **2.6 Forhandling, Review og godkendelse** 2.6.1 Etablering af reviewlog	2.1 Der anvendes portefølje styring til prioritering af større projekter der indmeldes fra 10 forretningsenheder, til vedligehold anvendes releasestyring hvor større ændringer skal godkendes af 2 boards. 2.2 2.2.1 I princippet porteføjle – små vedligehold projektchef der har overordnet ansvar 2.3 2.3.1. Der er fast organisation til at styre små IT systemer. Det anbefales i høj grad at bundle mange små IT systemer – men der er modstand mod det. 2.3.2 Overordnet risikostyring sker på projektchefniveau 2.3.3 Det bliver samlet et release for en del små opgave sammen – Der udarbejdes et projekt plan 2.3.4 Der er fastlagt ressource allokering til systemer oftest med udgangspunkt i at holde systemerne i live 2.3.5 Der skal laves aftaler internt, eksterne aftaler laves igennem vores juridiske afdeling 2.3.6 2.4 2.4.1 findes – Det er nyt – bruger WBS

	2.7 Løbende opfølgning 2.7.1 Følg op på aktiviteter via milepæl 2.7.2 Laver I status 2.7.3 Identificerer afvigelse	2.4.2 findes – alle involverede estimerer 2.5 2.5.1 - Der findes produkt deklaration, og leveranceaftale der i princippet dækker projektkontrakt. 2.5.2 Der anvendes releaseplan, og i de fleste tilfælde vil den være faseopdelt. 2.5.3 findes – flere har taget den i anvendelse. I nogle forvaltninger findes nogle gange en kvalitetsansvarlig. 2.5.4 Findes- nogle har taget den i anvendelse. De bruger forskellige CM værktøjer afhængigt af source. % ej fælles 2.5.5 krævet for alle 2.5.6 Der er kørende apparater ift. de eksisterende systemer, 2.5.7 krævet for alle. Man ved hvem er kunden, hvem er interessenter. 2.5.8 Det bliver aftalt et fast møde frekvens 2.5.9 Ændringslog findes, men benyttes forskelligt, i forskellige dokumenter (i visse tilfælde skrives blot ind i release plan) og benyttes ikke alle steder 2.6 2.6.1 Styrings aftale har reviewkolonne 2.7 2.7.1 Der er milepæl styring men ikke til de små opgaver, medmindre de indgår i større releaseplan hvor der er sat milepæle 2.7.2 Der er et krav om statusrapportering også på små opgaver – i øjeblikket som minimum 4 gange årligt. Indholdet fast, men det *kan* afhænge af person hvad man bliver enige om. 2.7.3 Processen findes, og anvendes. En kritisk hændelse skal eskaleres til projektchef
3	**Projektopfølgning (Projektmonitorering og kontrol)** 3.1 Hvem rapporterer I til? 3.2 Hvordan følger I op på fremdriften? 3.3 Bruger I statusrapport?	3.1 Projektchef 3.2 Der er statusrapport med krævet indhold (fremdrift, ressource, deadline) 3.3 Ja
4	**Leverandøraftale styring**	4. Der findes altid en aftale på langt de fleste eksisterende systemer, men oftest findes ikke noget skriftligt aftale, men nogle mundtlige aftale der fungerer. De nye leverancer bliver der altid lavet ny aftale på de nye ting. Det skelner mellem eksterne og interne

5	**Måling & Analyse (MA)** 5.1 Hvordan etablerer I måling for projektet 5.2 Hvordan gennemfører I målinger på jeres projekter og analyserer de? 5.3 Hvilke elementer indsamler I data om? 5.4 Hvordan analyserer I disse data? 5.5 Rapportering af disse data	5.1 Skal fortages målinger - rapporteringer via regneark. 5.2 Der findes metrikkonsulenter der vurderer om en opgave skal måles – fra projekt til projekt. Forvaltninger (små projekter - kan også blive målt) 5.3 Blandt andet budgetteret tid, forbrugt tid. 5.4 kan jeg ikke svare på 5.5 Benyttes bla i statusrapport og som ledelsesinformation, og ledelsesrapportering
6	**Proces & Produkt Kvalitetssikring** 6.1 Hvordan sikrer I at kunderne får det, de har bestilt?	Samarbejde med forretnings specialister og Kundeservice organisationen, det er dem der deltager i kvalitetssikring. Der er ikke formal godkendelse. Kunderne køber en løsning som er udviklet efter generel efterspørgsel. Den udvikles som en generel løsning og kan så bestilles af kommuner. Godkendelse proceduren har kørt i mange år, oftest har Kundeservice organisationen været godkender, Ofte er det en intern godkendelse der sker på baggrund af en pilotafprøvning hos en kommune/flere kommuner.
7	**Konfigurationsstyring** 7.1 Bruger I CVS eller noget lignende? 7.2 Hvor meget går I op i konfigurationsstyring? 7.3 Etablerer I af baseline? 7.4 Hvor meget styrer I ændringer? 7.5 Etablerer I og/eller vedligeholder I integritet af CI?	7.1 der benyttes platformsafhængigt konfigurationsstyringsværktøj. Der pt. Kun krav om at konfigurationsstyre kode. Øvrige elementer vil blive CM'et med udgangen af året. 7.2 P.t. ikke meget 7.3 Der etableres baseline på software, nogle enheder medtager flere elementer end kun kode, dvs. dokumentation mm. 7.4 det er afhængigt af hvor kritisk det enkelte produkt er 7.5 For de fleste platformsafhængige CM værktøjer foregår dette automatisk, hvorfor der ikke er meget fokus på egentlige formelle audits. I de fleste tilfælde er audits, og sikring af integritet lagt hos en udviklerrolle.
8	**Organisation:** 8.1 IT afdelings placering i organisation? 8.2 Hvordan organiserer I jer i forhold til forretningen? 8.3 Hvem igangsætter IT projekter? 8.4 Hvem styrer IT projekter hos jer? 8.5 Er de programleder, kompetence ledere eller	8.2 Vi har lavet en bestiller/udfører organisation. Forretningsspecialister, arkitekter og market managers er led mellem endelige kunder (kommunerne)og produktforretningen KMD. Det er market managers der udvikler forretningside, forretningsspecialister kravspecificerer – de er

	teamledere? 8.6 Benytter I styregruppe?	produkt ejere (bestillere) og aftaler med udfører (komponentejer) vha. leveranceaftale at et proukt bliver fremstillet . 8.3 I princippet porteføjlestyringen 8.4 Styregruppe 8.5 Styregruppe består af ledelse fra forretningsområdet det være sig kundeserviceorganisationen, udviklingsenheden og operations 8.6 Ja
9	Overholdelses af deadlines 9.1 Hvor vigtigt er det at I leverer til tiden?	Alle opgaver der har krævet deadline f.eks. lovbefalede opgaver. Deadline overholdes på disse. Kvalitet skal også overholdes
10	Budget overholdelse 10.1 Hvad vigtigt er det for jer at I overholder budgettet?	Afhængigt af opgaven -
11	Audit: 11.1 Bliver jeres små /vedligeholdelsesopgaver auditeres? Hvis ja Af hvem ?	Ja der auditeres en gang årligt af objektiv person fra organisationen. Der fastsættes deadlines for løsning af observationer, overholdes disse ikke træder eskalering i kraft.

Overall, what score:

It creates some overhead slower - decisions.

It is learning - After the needs - later becomes customized as needed

Project manager is a lot for it especially when they're doing it together with others - have / make the frame for the work it's pretty - Do things together with other project in the same way.

B 2.3 Questionnaire accompanying PBS on 20th april 2009:

	Styring af små – og/eller vedligeholdelsesprojekter	
	Spørgsmål	**Svarer**
1	**Kravstyring** 1.1. Hvordan opnår I forståelse af jeres krav? 1.2 Hvordan opnår I tilslutning til kravene? 1.3 Styre ændringer af krav? 1.4 Opretter I sporbarhed mellem kravene? 1.5 Hvordan identificerer I overensstemmelse mellem leverancer og krav?	1.1 Dette gøres i samarbejde med forretningen 1.2 Kravene bliver specificeres i samarbejder med forretningen og den gruppe der udvikler den. 1.3 Ja, det gøres, men der forskellige udgangspunkt til hver type. 1.4 i begrænset omfang – Qaulity Center bliver anvendt - der er mulighed for sporbarhed mellem testcases og kravene 1.5 dette gøres ved test, hvor nogle gange deltager forretning med.
2	**Projektplanlægning og opfølgning** 2.1 Hvilket flow har opgavernes - fra kunden til udvikling? **2.2 Ideudvikling – ledelsesbeslutning** 2.2.1 Hvem beslutter projektstart? **2.3 Projektinitering** 2.3.1 Projekt organisation etablering 2.3.2 Risikostyring 2.3.3 Gantt – projektplan 2.3.4 Resoourceallokering 2.3.5 Underleverandørstyring **2.4 Estimering** 2.4.1 WBS projektnedbrydning 2.4.2 Estimat pr. faggruppe **2.5 Planlægning** 2.5.1 Projektkontrakt 2.5.2.Faseopdelt projektplan 2.5.3 Kvalitetsplan 2.5.4.Konfigurationsplan 2.5.5 Risikoanalyse 2.5.6 Kommunikationsplan 2.5.7 Interessentanalyse 2.5.8 Etablere mødestruktur 2.5.9 Emnelog /ændringslog **2.6 Forhandling, Review og godkendelse** 2.6.1 Etablering af reviewlog **2.7 Løbende opfølgning**	2.1 Uanset opgavernes art (akut fejl, release eller et projekt), bliver opgaverne registreret i opgave styringssystem (Paragreen). 2.2.1 det er afhængige af opgavernes art (akut fejl, release eller et projekt). For akut fejl og release er udviklingsledelse der beslutter opgavens start, men ifm. Et projekt er det et board der beslutter det. 2.3.1 Projekt organisation bliver etableret af udviklingsledelse 2.3.2 Ja, det gøres uanset opgavens type, men man omfanget er forskellige fra en release og et projekt. 2.3.3 Dette gøres forskelligt, nogle steder bruger man MS projekt andre bruger SAP 2.3.4 dette styres af udviklingsledelse 2.3.5 Dette styring ikke ens. 2.4.1 Ja 2.4.2 Der er fast ramme ift. releases og funktions point til projekter 2.5.1 gøres forskelligt – man bruger opgavebeskrivelse ift. Releases og et projekt definition ift. et projekt 2.5.2 ja, hvis der er behov 2.5.3 ikke så meget af ift. releases, der findes ift. projekter.

	2.7.1 Følg op på aktiviteter via milepæl 2.7.2 Laver I status 2.7.3 Identificerer afvigelse og	2.5.4 ej startet 2.5.5 findes 2.5.6 findes 2.5.7 findes 2.5.8 ja findes 2.5.9 findes 2.6.1 findes 2.7.1 der gøres 2.7.2 findes 2.7.3 ja.
3	**Projektopfølgning (Projektmonitorering og kontrol)** 3.1 Hvem rapporterer I til? 3.2 Hvordan følger I op på fremdriften? 3.3 Bruger I statusrapport?	3.1 Ja, til udviklingsledelsen 3.2 der er en projektgraf 3.3 findes
4	**Leverandøraftale styring**	4. ej leverandør til releases, men det har leverandøraftale (ODC) til udvikling
5	**Måling & Analyse (MA)** 5.1 Hvordan etablerer I måling for projektet 5.2 Hvordan gennemfører I målinger på jeres projekter og analyserer de? 5.3Hvilke elementer indsamler I data om? 5.4 Hvordan analyserer I disse data? 5.5 Rapportering af disse data	**Er startet ift. CMMI**
6	**Proces & Produkt Kvalitetssikring** 6.1 Hvordan sikrer I at kunderne får det, de har bestilt?	**Er startet ift. CMMI**
7	**Konfigurationsstyring** 7.1 Bruger I CVS eller noget lignende? 7.2 Hvor meget går I op i konfigurationsstyring? 7.3 Etablerer I af baseline? 7.4 Hvor meget styrer I ændringer? 7.5 Etablerer I og/eller vedligeholder I integritet af CI?	**Er startet ift. CMMI**
8	Organisation: 8.1 IT afdelings placering i organisation? 8.2 Hvordan organiserer I jer i forhold til forretningen? 8.3 Hvem igangsætter IT projekter? 8.4 Hvem styrer IT projekter hos jer? 8.5 Er de programleder, kompetence ledere eller teamledere? 8.6 Benytter I styregruppe?	8.1 8.2 Der er match mellem produkt/forretningen og IT. 8.3 Det er afhængige af opgavernes art (akut fejl, release eller et projekt). For akut fejl og release er udviklingsledelse der beslutter opgavens start, men ifm. Et projekt er det et board der beslutter det. Det er også board, der afsætter timer til releases, men hvilke opgaver, der ligger i releasen afklarer projektlederne med de relevante forretningsmæssige ressourcer. 8.4 Projektledere

		8.5 Der er udviklingsledelse 8.6 Ja, ifm. projekter
9	Overholdelses af deadlines 9.1 Hvor vigtigt er det at I leverer til tiden?	Det skal levere til tiden – ift. releases Ift. projekt deadline og kvalitet skal overholdes.
10	Budget overholdelse 10.1 Hvad vigtigt er det for jer at I overholder budgettet?	Overholdes – budget Overholdes deadline og kvalitet kan overskrider budget.
11	Audit: 11.1 Bliver jeres små /vedligeholdelsesopgaver auditeres? Hvis ja Af hvem ?	Det er på vej

At PBS shared tasks concerning small IT projects following:
1) There are error correction - here we speak of acute failure, these type of errors are detected and corrected with the same. There is not much time to process control.
2) Release management here assembled several small tasks together into one release, and releases are managed as
projects
3) Projects: most are redirected development projects - new functionality to the existing one.

PBS is not CMMI certified, but they are going and it makes sense that they will become certified to Level 2 in March 2010.
It is in the process some of the processes, rather than all, and the processes it is in the process of:
  Requirements Management
  Project planning and management
  Project monitoring and control
  Supplier Agreement Management

B 2.4 The overall schema

	Processerne	Udfyldes af PDK	Udfyldes af KMD	Udfyldes af PBS
1	**CMMI** certificeret **Kravstyring** 1.1. Hvordan opnår I forståelse af jeres krav?	PDK er certificeret til niv. 2. 1.1 ift. store projekter gøres det ved at holde afklarings-møder med de interessenter især kunden. Ift. små IT projekter – er der et fast forum mellem product-manager og kunden.	KMD er endnu ikke certificeret til niv. 2 1.1 Forretningsspecialister står for indsamling af krav – opgavebeskrivelse. % et system til kravstyring	PBS er endnu ikke certificeret til niv. 2 1.1 Dette gøres i samarbejde med forretningen
	1.2 Hvordan opnår I tilslutning til kravene?	1.2 Ved at inddrage alle interessenter	1.2 Krav styres via fejlhåndtering system(POB), eller i quality center også deres ændring.	1.2 Kravene bliver specificeres i samarbejder med forretningen og den gruppe der udvikler den.
	1.3 Styre ændringer af krav?	1.3 Ja, Kun ift. store projekter.	1.3 Change management er ikke implementeret helt ud.	1.3 Ja, det gøres, men der forskellige udgangspunkt til hver type.
	1.4 Opretter I sporbarhed mellem kravene?	1.4 Ja, som hoved regel bliver Quality Center brugt.	1.4 Etablere sporbarhed styres via et POB nr.	1.4 i begrænset omfang – Qaulity Center bliver anvendt - der er mulighed for sporbarhed mellem testcases og kravene
	1.5 Hvordan identificerer I uoverensstemmelse mellem leverancer og krav?	1.5 både (stor og små IT projekter) gøres ved at holde kvalitetstest med inddragelse af kunden.	1.5 Tester godkender test, kundeservice (KFO) deltager ofte i test. Forvaltningsledelse	1.5 dette gøres ved test, hvor nogle gange deltager forretning med.
2	**Projektplanlægning og opfølgning** 2.1 Hvilket flow har opgavernes - fra kunden til udvikling?	2.1 Se bilag 2.2.1	2.1 Der anvendes portefølje styring til prioritering af større projekter der indmeldes fra 10	2.1 Uanset opgavernes art (akut fejl, release eller et projekt), bliver opgaverne registreret i opgave styringssystem

		forretningsenheder, til vedligehold anvendes releasestyring hvor større ændringer skal godkendes af 2 boards.	(Paragreen).
2.2 Ideudvikling – ledelsesbeslutning 2.2.1 Hvem beslutter projektstart?	2.2.1 Et organ bestående af kompetenceledere og medarbejdere med teknisk indsigt kaldes mandags-møde.	2.2.1 I princippet porteføjle – små vedligehold projektchef der har overordnet ansvar	2.2.1 Det er afhængige af opgavernes art (akut fejl, release eller et projekt). For akut fejl og release er udviklingsledelse der beslutter opgavens start, men ifm. Et projekt er det et board der beslutter det.
2.3 Projektinitering 2.3.1 Projekt organisation etablering	2.3.1 Ja, ved start af projektet ift. store projekter, og der er fast forvaltnings-gruppe (product manager, kunden og i nogle tilfælde udvikler plus tester)	2.3.1. Der er fast organisation til at styre små IT systemer. Det anbefales i høj grad at bundle mange små IT systemer – men der er modstand mod det.	2.3.1 Projekt organisation bliver etableret af udviklingsledelse(næsten fast)
2.3.2 Risikostyring	2.3.2 Ja, i tilfælde af store projekter, men sjælden ift. små it projekter.	2.3.2 Overordnet risikostyring sker på projektchefniveau	2.3.2 Ja, det gøres uanset opgavens type, men man omfanget er forskellige fra en release og et projekt.
2.3.3 Gantt – projektplan	2.3.3 Ja, ift. store projekter, men sjælden ift. små IT projekter.	2.3.3 Det bliver samlet et release for en del små opgave sammen – Der udarbejdes et projekt plan	2.3.3 Dette gøres forskelligt, nogle steder bruger man MS projekt andre bruger SAP.
2.3.4 Resoourceallokering	2.3.4 Ja, gøres både ift. store og små IT projekter.	2.3.4 Der er fastlagt ressource allokering til systemer oftest med udgangspunkt i at holde systemerne i live.	2.3.4 Dette styres af udviklingsledelse
2.3.5 Underleverandørstyring	2.3.5 Ja, gøres	2.3.5 Der skal laves aftaler	2.3.5 Dette styring ikke ens

		internt, eksterne aftaler laves igennem vores juridiske afdeling	
2.4 Estimering 2.4.1 WBS projektnedbrydning	2.4.1 Kun ift. store projekter	2.4.1 Ja, findes – Det er nyt – bruger WBS	2.4.1 Ja,
2.4.2 Estimat pr. faggruppe	2.4.2 Ja, gøres både ift. store og små IT projekter	2.4.2 findes – alle involverede estimerer	2.4.2 Der er fast ramme ift. releases og funktions point til projekter
2.5 Planlægning 2.5.1 Projektkontrakt	2.5.1 Kun ift. store projekter	2.5.1 - Der findes produkt deklaration, og leveranceaftale der i princippet dækker projektkontrakt.	2.5.1 gøres forskelligt – man bruger opgavebeskrivelse ift. Releases og et projekt definition ift. et projekt
2.5.2. Faseopdelt projektplan	2.5.2 Kun ift. store projekter	2.5.2 Der anvendes release-plan, og i de fleste tilfælde vil den være faseopdelt.	2.5.2 Ja, hvis der er behov
2.5.3 Kvalitetsplan	2.5.3 Kun ift. store projekter	2.5.3 findes – flere har taget den i anvendelse. I nogle forvaltninger findes nogle gange en kvalitetsansvarlig.	2.5.3 ikke så meget af ift. releases, der findes ift. projekter.
2.5.4. Konfigurationsplan	2.5.4 Kun ift. store projekter	2.5.4 Findes- nogle har taget den i anvendelse. De bruger forskellige CM værktøjer afhængigt af source. % ej fælles	2.5.4 ej startet
2.5.5 Risikoanalyse	2.5.5 Kun ift. store projekter ej nødvendigt ift. små it projekter	2.5.5 krævet for alle	2.5.5 findes
2.5.6 Kommunikationsplan	2.5.6 Kun ift. store projekter	2.5.6 Der er kørende apparater ift. de eksisterende systemer,	2.5.6 findes
2.5.7 Interessentanalyse	2.5.7 Kun ift. store projekter	2.5.7 krævet for alle. Man ved hvem er kunden, hvem er interessenter.	2.5.7 findes

	2.5.8 Etablere mødestrukture	2.5.8 Ja,	2.5.8 Det bliver aftalt et fast møde frekvens	2.5.8 ja findes
	2.5.9 Emnelog /ændringslog	2.5.9 Ja, i et eller andet form	2.5.9 Ændringslog findes, men benyttes forskelligt, i forskellige dokumenter (i visse tilfælde skrives blot ind i release plan) og benyttes ikke alle steder	2.5.9 findes
	2.6 Forhandling, Review og godkendelse 2.6.1 Etablering af reviewlog	2.6.1 Kun ift. store projekter	2.6.1 Styrings aftale har reviewkolonne	2.6.1 findes
	2.7 Løbende opfølgning 2.7.1 Følg op på aktiviteter via milepæl	2.7.1 Kun ift. store projekter	2.7.1 Der er milepæl styring men ikke til de små opgaver, medmindre de indgår i større releaseplan hvor der er sat milepæle	2.7.1 der gøres
	2.7.2 Laver I status	2.7.2 Ja, ift. små projekter gøres det status til kunden. Men ift. store projekter der gøres status overfor styregruppen og den kompetence leder	2.7.2 Der er et krav om statusrapportering også på små opgaver – i øjeblikket som minimum 4 gange årligt. Indholdet fast, men det kan afhænge af person hvad man bliver enige om.	2.7.2 findes
	2.7.3 Identificerer afvigelse	2.7.3 Kun ift. store projekter, og gøres mindre formelt på små projekter.	2.7.3 Processen findes, og anvendes. En kritisk hændelse skal eskaleres til projektchef	2.7.3 ja.
3	**Projektopfølgning (Projekt-monitorering og kontrol)** 3.1 Hvem rapporterer I til?	3.1 Ift. store projekter til styregruppe, og til kunden ift. små projekter	3.1 Projektchef	3.1 Ja, til udviklingsledelsen
	3.2 Hvordan følger I op på fremdriften?	3.2 Kun ift. store projekter – via diverse audit & review. Ift. små projekter bruges	3.2 Der er statusrapport med krævet indhold (fremdrift, ressource, deadline)	3.2 der er en projektgraf

		uformel opfølgning.		
	3.3 Bruger I statusrapport?	3.3 Ja. Kun ift. store projekter, ift små it projekter bruges andre former (mail, ringer osv.)	3.3 Ja	3.3 findes
4	**Leverandør aftale styring**	4. Ja, både til store og små projekter.	4. Der findes altid en aftale på langt de fleste eksisterende systemer, men oftest findes ikke noget skriftligt aftale, men nogle mundtlige aftale der fungerer. De nye leverancer bliver der altid lavet ny aftale på de nye ting. Det skelner mellem eksterne og interne	4. ej leverandør til releases, men det har leverandøraftale (ODC) til udvikling
5	**Måling & Analyse (MA)** 5.1 Hvordan etablerer I måling for projektet	5.1 Kun ift. store projekter, i samarbejder med kunden.	5.1 Skal fortages målinger - rapporteringer via regneark.	**Ej startet ift. CMMI**
	5.2 Hvordan gennemfører I målinger på jeres projekter og analyserer de?	5.2 Kun ift. store projekter - gøres v.b.a. Forskellige metoder.	5.2 Der findes metrik-konsulenter der vurderer om en opgave skal måles – fra projekt til projekt. Forvaltninger (små projekter - kan også blive målt)	**Ej startet ift. CMMI**
	5.3Hvilke elementer indsamler I dat om?	5.3 Kun ift. store projekter – dem vi har defineret i vores målinger.	5.3 Blandt andet budgetteret tid, forbrugt tid.	**Ej startet ift. CMMI**
	5.4 Hvordan analyserer disse data?	5.4 ved at sammenligne det med vores taskværdier.	5.4 kan jeg ikke svare på	**Ej startet ift. CMMI**
	5.5 Rapportering af disse data	5.5 Ja Kun ift. store projekter til kompetence-leder	5.5 Benyttes bla. i statusrapport og som ledelsesinformation, og ledelsesrapportering	**Ej startet ift. CMMI**

6	**Proces & Produkt Kvalitetssikring** 6.1 Hvordan sikrer I at kunderne får det, de har bestilt?	6.1 Ved at inddrage dem i hele forløbet	6.1 Samarbejde med forretnings specialister og Kundeservice organisationen, det er dem der deltager i kvalitetssikring. Der er ikke formal godkendelse. Kunderne køber en løsning som er udviklet efter generel efterspørgsel. Den udvikles som en generel løsning og kan så bestilles af kommuner Godkendelse proceduren har kørt i mange år, oftest har Kundeservice organisationen været godkender, Ofte er det en intern godkendelse der sker på baggrund af en pilotafprøvning hos en kommune/flere kommuner.	**Ej startet ift. CMMI**
7	**Konfigurationsstyring** 7.1 Bruger I CVS eller noget lignende?	7.1 Ja, både til store og små IT projekter	7.1 der benyttes platforms-afhængigt konfigurations-styringsværktøj. Der pt. Kun krav om at konfigurations-styre kode. Øvrige elementer vil blive CM'et med udgangen af året.	**Ej startet ift. CMMI**
	7.2 Hvor meget går I op i konfigurationsstyring?	7.2 Meget ift. store projekter	7.2 P.t. ikke meget	
	7.3 Etablerer I af baseline?	7.3 Kun ift. store projekter	7.3 Der etableres baseline på software, nogle enheder medtager flere elementer end kun kode, dvs. dokumentation mm.	

	7.4 Hvor meget styrer I ændringer?	7.4 Meget både ift. store og små IT projekter	7.4 det er afhængigt af hvor kritisk det enkelte produkt er	
	7.5 Etablerer I og/eller vedligeholder I integritet af CI?	7.5 Kun ift. store IT projekter	7.5 For de fleste platforms-afhængige CM værktøjer foregår dette automatisk, hvorfor der ikke er meget fokus på egentlige formelle audits. I de fleste tilfælde er audits, og sikring af integritet lagt hos en udviklerrolle.	
8	**Organisation:** 8.1 IT afdelings placering i organisation?	8.1 En afdeling som andre forretningsenheder – på vice direktør niv.		8.1
	8.2 Hvordan organiserer I jer i forhold til forretningen?	8.2 Vi er en selvstændig afdeling	8.2 Vi har lavet en bestiller/udfører organisation. Forretnings-specialister, arkitekter og market managers er led mellem endelige kunder (kommunerne)og produkt-forretningen KMD. Det er market managers der udvikler forretningside, forretningsspecialister kravspecificerer – de er produkt ejere (bestillere) og aftaler med udfører (komponentejer) vha. leveranceaftale at et proukt bliver fremstillet.	8.2 Der er match mellem produkt/forretningen og IT
	8.3 Hvem igangsætter IT projekter?	8.3 Forretningen via mandagsmøde	8.3 I princippet porteføjlestyringen	8.3 Det er afhængige af opgavernes art (akut fejl, release eller et projekt). For akut fejl og release er

				udviklingsledelse der beslutter opgavens start, men ifm. Et projekt er det et board der beslutter det. Det er også board, der afsætter timer til releases, men hvilke opgaver, der ligger i releasen afklarer projektlederne med de relevante forretnings-mæssige ressourcer.
	8.4 Hvem styrer IT projekter hos jer?	8.4 Projektleder - Styregrupper	8.4 Styregruppe	8.4 Projektledere
	8.5 Er de programleder, kompetence ledere eller Teamledere?	8.5 Ja, der er både program-leder, kompetenceledere.	8.5 Styregruppe består af ledelse fra forretnings-området det være sig kunde-serviceorganisationen, udviklingsenheden og operations.	8.5 Der er udviklingsledelse
	8.6 Benytter I styregruppe?	8.6 Ja, programleder og kompetenceleder	8.6 Ja	8.6 Ja, ifm. projekter
9	9. Overholdelses af deadlines 9.1 Hvor vigtigt er det at I levere til tiden?	9.1 Vigtigt især ift. store projekter	Alle opgaver der har krævet deadline f.eks. lovbefalede opgaver. Deadline overholdes på disse. Kvalitet skal også overholdes	Det skal levere til tiden – ift. releases Ift. projekt deadline og kvalitet skal overholdes.
10	Budget overholdelse 10.1 Hvad vigtigt er det for jer at I overholder budgettet?	10.1 Vigtigt især ift. store projekter	Afhængigt af opgaven -	Overholdes – budget Overholdes deadline og kvalitet kan overskrider budget.
11	Audit: 11.1 Bliver jeres små /vedligeholdelsesopgaver auditeres? Hvis ja Af hvem ?	11.1 vigtigt især ift. store projekter, af audit team, og ift. små projekter afholdes der ikke audit.	Ja der auditeres en gang årligt af objektiv person fra organisationen. Der fastsættes deadlines for løsning af observationer, overholdes disse ikke træder eskalering i kraft.	Det er på vej

B 2.5 Questionnaire associated PDK

Nedenunder vil du finde redegørelser som beskriver hvordan jeg kategoriserer styringsparameter under disse typer af projekter på baggrund af mine erfaringer ved at lede store og små IT projekter i Post Danmark.

For hver redegørelse ganske enkelt prøver jeg at give et pointtal mellem 1 (= anvendes ikke), 3 (=anvendes i et vist omfang), og 5 (=anvendes i fuld omfang).

	Styringsmekanisme	Ny udvikling		Videreudvikling projekter	Vedligeholdelse projekter
		Store projekter	Små projekter		
1	Opgavebeskrivelse	5	5	5	5
2	Risikoanalyse	5	3	3	3
3	Interessent analyse	5	3	1	1
4	Kommunikation	5	3	1	1
5	Uddannelse	5	3	3	1
6	Gantt - projektplan	5	3	3	3
7	Rapportering til styregruppe eller lignende	5	5	3	3
8	Produktdokumenter udarbejdes	5	3	5	5
9	Kravstyring	5	5	3	3
10	Kvalitetsstyring	5	5	5	5
11	Estimering	5	5	3	1
12	Review	5	3	3	1
13	Audit	5	1	1	1
14	Sikkerhed	5	5	1	1
15	People managment	5	3	3	1
16	Opgaver liste (release)	1	5	5	5
17	Emnelog	5	5	3	3
18	Leverandøraftale styring	5	5	5	5
19	Projektkontrakt eller lignende	5	5	3	3
20	Konfigurationsstyring	5	3	3	3
21	Ændringsstyring	5	3	3	3

B 2.5.1 What is it, as a minimum, must be present regardless of project size

	Styringsmekanisme	Scoring
1	Opgavebeskrivelse	X
2	Risikoanalyse	X
3	Interessent analyse	
4	Kommunikation	
5	Uddannelse	X
6	Gantt - projektplan	X
7	Rapportering til styregruppe eller lignende	X
8	Produktdokumenter udarbejdes	
9	Kravstyring	
10	Kvalitetsstyring	X
11	Estimering	X
12	Review	X
13	Audit	
14	Sikkerhed	
15	People management	
16	Opgaver liste (releasenotat)	
17	Emnelog	
18	Leverandøraftale styring	
19	Projektkontrakt eller lignende	X
20	Konfigurationsstyring	
21	Ændringsstyring	

B 2.6 Questionnaire related KMD

Nedenunder vil du finde redegørelser som beskriver hvordan jeg kategoriserer styringsparameter under disse typer af projekter.

For hver redegørelse ganske enkelt prøv venligst at give et pointtal mellem 1 (= anvendes ikke), 3 (=anvendes i et vist omfang), og 5 (=anvendes i fuld omfang).

	Styringsmekanisme	Ny udvikling		Videreudvikling projekter	Vedligeholdelses projekter
		Store projekter	Små projekter		
1	Opgavebeskrivelse	5	5- 3	5	5 - 3
2	Risikoanalyse	5	5	3	3
3	Interessent analyse	5	3	1-3	1 -3
4	Kommunikation	5 – 3	3	1	1
5	Uddannelse	5 – 3	3	1 -3	1 -3
6	Gantt - projektplan	5	5	3	3
7	Rapportering til styregruppe eller lignende	5	3	3	3
8	Produktdokumenter udarbejdes	5 – 3	5 -3	3	3
9	Kravstyring	5 – 3	3	3	3
10	Kvalitetsstyring	5 – 3	3	5	5
11	Estimering	5 – 3	5 - 3	5 -3	5
12	Review	5 – 3	3	1 – 3	1 - 3
13	Audit	5	3 - 5	1 – 5	1 - 5
14	Sikkerhed	5	5	1 – 5	1 - 5
15	People managment	5 - 3	3	3	3
16	Opgaver liste (release) – skal lige være helt sikker på at det er styring af et projekt, hvor delleverancer releases undervejs? Hvis ja – så har jeg ændret tallene	1 – 5	1 - 3	5	5 - 3
17	Emnelog	5 - 3	5 – 3	3	3
18	Leverandøraftale styring	5 - 3	5 - 3	5 - 3	5 – 3
19	Projektkontrakt eller lignende	5 - 3	5 - 3	5 - 3	5 – 3
20	Konfigurationsstyring	5 - 3	5 -3	5 -3	5 -3
21	Ændringsstyring	5 – 3	5 – 3	5 - 3	5 - 3

B 2.6.1 What is it, as a minimum, must be present regardless of project size

	Styringsmekanisme	Scoring
1	Opgavebeskrivelse	X
2	Risikoanalyse	
3	Interessent analyse	
4	Kommunikation	
5	Uddannelse	
6	Gantt - projektplan	
7	Rapportering til styregruppe eller lignende	
8	Produktdokumenter udarbejdes	
9	Kravstyring	
10	Kvalitetsstyring	
11	Estimering	X
12	Review	
13	Audit	
14	Sikkerhed	
15	People management	
16	Opgaver liste (releasenotat)	
17	Emnelog	
18	Leverandøraftale styring	X
19	Projektkontrakt eller lignende	X
20	Konfigurationsstyring	X
21	Ændringsstyring	X

B 2.7 Questionnaire accompanying PBS

Nedenunder vil du finde redegørelser som beskriver hvordan jeg kategoriserer styringsparameter under disse typer af projekter.

For hver redegørelse ganske enkelt prøv venligst at give et pointtal mellem 1 (= anvendes ikke), 3 (=anvendes i et vist omfang), og 5 (=anvendes i fuld omfang).

	Styringsmekanisme	Ny udvikling		Videreudvikling projekter	Vedligeholdelses projekter
		Store projekter	Små projekter		
1	Opgavebeskrivelse	5	5	5	5̶ 1
2	Risikoanalyse	5	5	3̶ 4	3̶ 2
3	Interessent analyse	5	3	1̶ 3	1̶ 2
4	Kommunikation (jeg ved ikke helt hvad der ligger i dette?)	5	3	1	1
5	Uddannelse	5	3	1̶3	1̶ 3
6	Gantt - projektplan	5	5	3	3
7	Rapportering til styregruppe eller lignende (Ja, hvis der er en styregruppe)	5	3	3	3
8	Produktdokumenter udarbejdes	5	5	3	3
9	Kravstyring	5	3̶ 4	3̶ 5	3
10	Kvalitetsstyring (Lidt i tvivl om hvad der helt præcis menes, i PBS er der ekstrem forkus på kvalitet, da størstedelen af vores systemer er 0-fejls systemer)	5	3	5	5
11	Estimering	5	5	5	5
12	Review	5	3	1̶ 4	1
13	Audit (Ej i gang p.t.)	5	3	1	1
14	Sikkerhed	5	5	1̶ 5	1̶ 4
15	People managment	5	3	3	3
16	Opgaver liste (release) (jeg er i tvivl hvad der menes med dette punkt?)	1	1	5	5
17	Emnelog	5	5	3	3
18	Leverandøraftale styring	5̶ 4	5̶ 4	5̶ 4	5̶ 4
19	Projektkontrakt eller lignende	5	5	5	5̶ 3
20	Konfigurationsstyring	5	5̶ 3	5̶ 3	5̶ 3
21	Ændringsstyring	5	5	5	5

B 2.7.1 What is it, as a minimum, must be present regardless of project size

|	Styringsmekanisme	Scoring
1	Opgavebeskrivelse	X
2	Risikoanalyse	
3	Interessent analyse	
4	Kommunikation	
5	Uddannelse	
6	Gantt - projektplan	
7	Rapportering til styregruppe eller lignende	
8	Produktdokumenter udarbejdes	
9	Kravstyring	
10	Kvalitetsstyring	X
11	Estimering	X
12	Review	
13	Audit	
14	Sikkerhed	X
15	People management	
16	Opgaver liste (releasenotat)	
17	Emnelog	
18	Leverandøraftale styring	
19	Projektkontrakt eller lignende	X
20	Konfigurationsstyring	
21	Ændringsstyring	X

B 2.8: Questionnaire for quantitative study

For hver redegørelse ganske enkelt prøver jeg at give et pointtal mellem 1 (= anvendes ikke), 3 (=anvendes i et vist omfang), og 5 (=anvendes i fuld omfang)..

Ny udvikling = NUD. Store projekter =STP, Små projekter =SMP, Videreudviklingprojekter =VIP, Vedligeholdelseprojekter=VEP
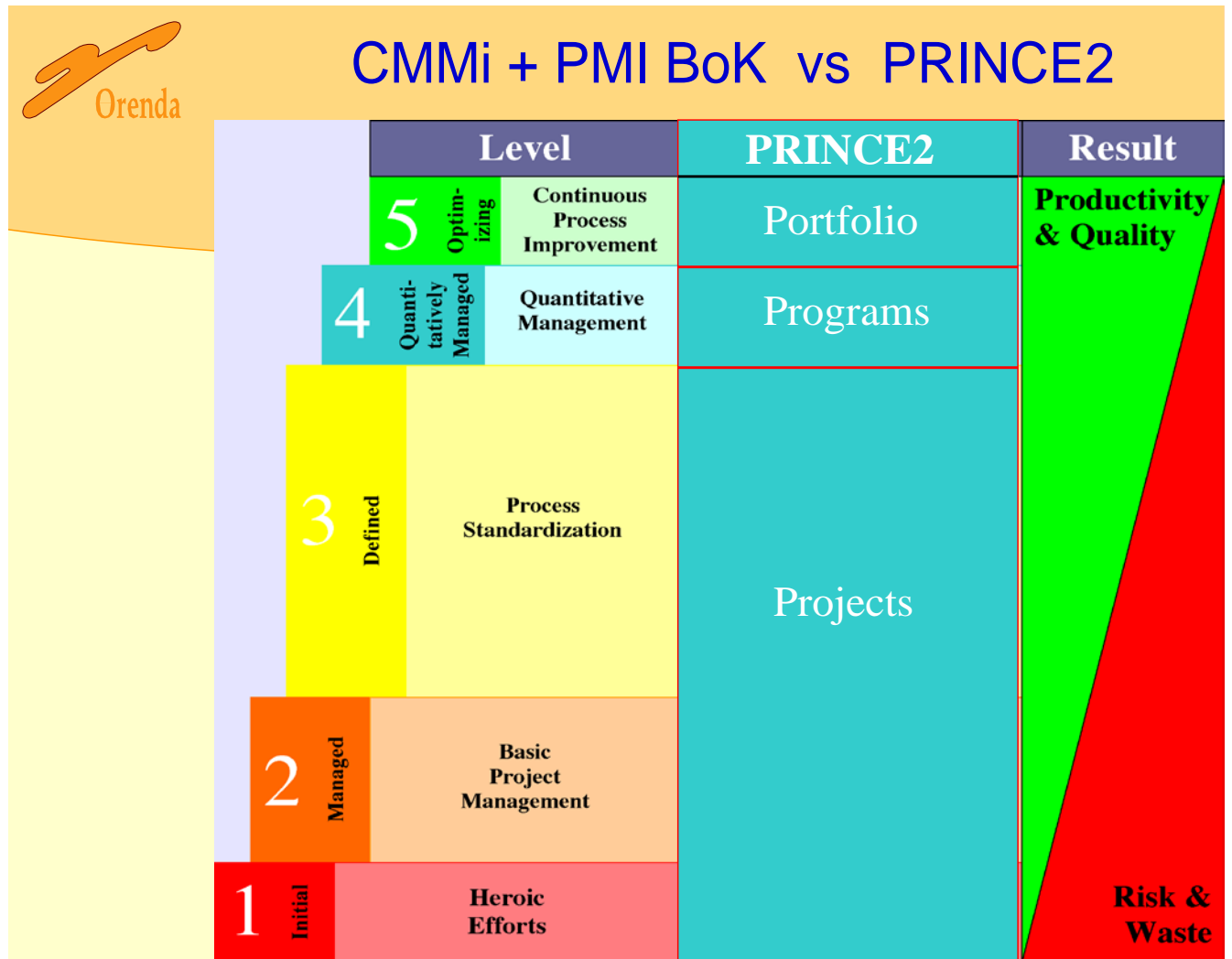
	Styringsmekanisme	PDK				KMD				PBS			
		NUD		VIP	VEP	NUD		VIP	VEP	NUD		VIP	VEP
		STP	SMP			STP	SMP			STP	SMP		
1	Opgavebeskrivelse	5	5	5	5	5	5- 3	5	5 - 3	5	5	5	~~5~~ 1
2	Risikoanalyse	5	3	3	3	5	5	3	3	5	5	~~3~~ 4	~~3~~ 2
3	Interessent analyse	5	3	1	1	5	3	1-3	1 -3	5	3	~~1~~ 3	~~1~~ 2
4	Kommunikation	5	3	1	1	5 – 3	3	1	1	5	3	1	1
5	Uddannelse	5	3	3	1	5 – 3	3	1 -3	1 -3	5	3	~~1~~ 3	~~1~~ 3
6	Gantt - projektplan	5	3	3	3	5	5	3	3	5	5	3	3
7	Rapportering til styregruppe eller lignende	5	5	3	3	5	3	3	3	5	3	3	3
8	Produktdokumenter udarbejdes	5	3	5	5	5 – 3	5 -3	3	3	5	5	3	3
9	Kravstyring	5	5	3	3	5 – 3	3	3	3	5	~~3~~ 4	~~3~~ 5	3
10	Kvalitetsstyring	5	5	5	5	5 – 3	3	5	5	5	3	5	5
11	Estimering	5	5	3	1	5 – 3	5 - 3	5 -3	5	5	5	5	5
12	Review	5	3	3	1	5 – 3	3	1 – 3	1 - 3	5	3	~~1~~ 4	1
13	Audit	5	1	1	1	5	3 - 5	1 – 5	1 - 5	5	3	1	1
14	Sikkerhed	5	5	1	1	5	5	1 – 5	1 - 5	5	5	~~1~~ 5	~~1~~ 4
15	People managment	5	3	3	1	5 - 3	3	3	3	5	3	3	3
16	Opgaver liste (release)	1	5	5	5	1 – 5	1 - 3	5	5 - 3	1	1	5	5
17	Emnelog	5	5	3	3	5 - 3	5 – 3	3	3	5	5	3	3
18	Leverandøraftale styring	5	5	5	5	5 - 3	5 - 3	5 - 3	5 – 3	~~5~~ 4	~~5~~ 4	~~5~~ 4	~~5~~ 4
19	Projektkontrakt eller lignende	5	5	3	3	5 - 3	5 - 3	5 - 3	5 – 3	5	5	5	~~5~~ 3
20	Konfigurationsstyring	5	3	3	3	5 - 3	5 -3	5 -3	5 -3	5	~~5~~ 3	~~5~~ 3	~~5~~ 3
21	Ændringsstyring	5	3	3	3	5 – 3	5 – 3	5 - 3	5 - 3	5	5	5	5

Appendix 3A: CMMI Level / Productivity versus waste
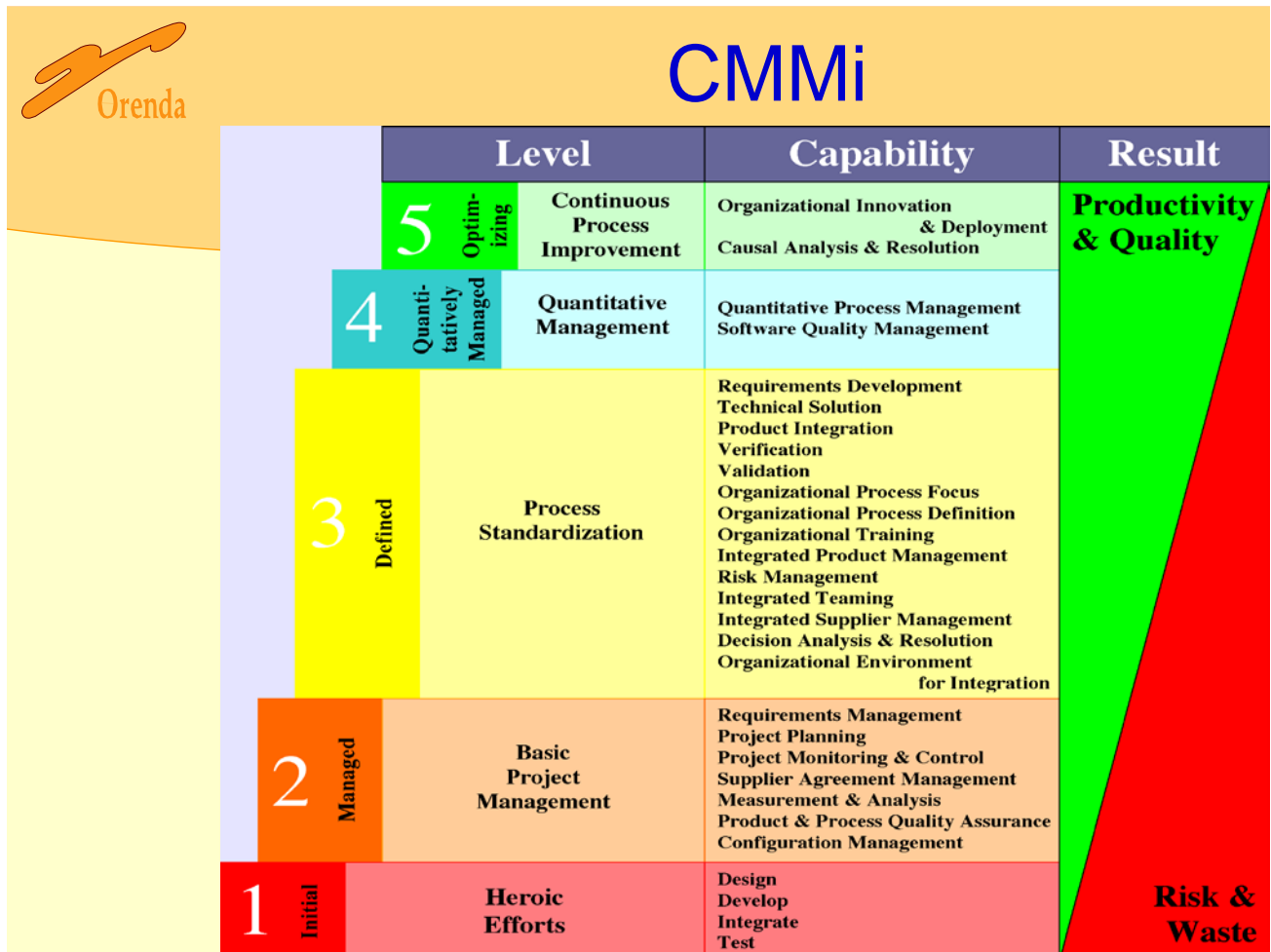
I will not go into detail on this sheet. The main idea is the 5 levels of project management. The highest levels 4 and 5 are rarely seen. But they are a good economic investment, especially when the projects are related to a high level of investment & high income results.

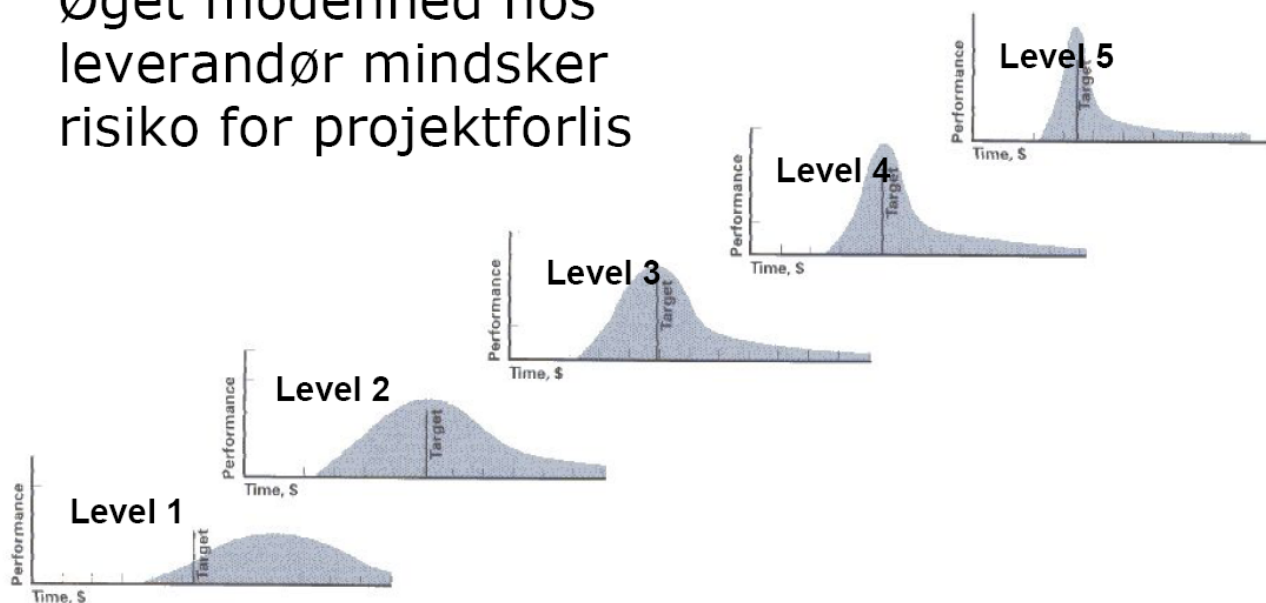### Appendix 3B: CMMI Level3 / PRINCE2 project part / waste

CMMi + PMI BoK vs PRINCE2

Level		PRINCE2	Result
5 Optim-izing	Continuous Process Improvement	Portfolio	Productivity & Quality
4 Quanti-tatively Managed	Quantitative Management	Programs	
3 Defined	Process Standardization	Projects	
2 Managed	Basic Project Management		
1 Initial	Heroic Efforts		Risk & Waste

Orenda

Appendix 4A: Spread by increasing maturity of supplier

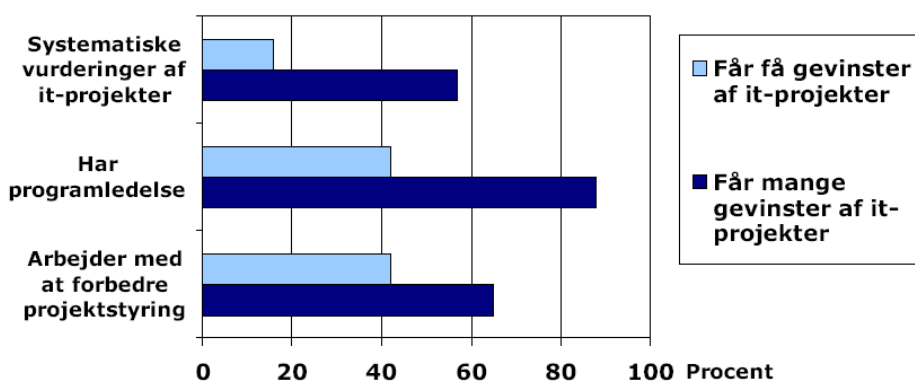Kilde: Software Engineering Institute

Appendix 4B: Spread by increasing the maturity of project owner

IT- og Telestyrelsen
Ministeriet for Videnskab
Teknologi og Udvikling

Øget modenhed hos projektejer gør en forskel

Virksomheder (kunder), der udviser høj modenhed, får større gevinster!

Systematiske vurderinger af it-projekter

Har programledelse

Arbejder med at forbedre projektstyring

□ Får få gevinster af it-projekter

■ Får mange gevinster af it-projekter

0   20   40   60   80   100   Procent

Kilde: Rambøll Management, It i praksis 2004 + 2006

Appendix 5: Description of CMMI level 2

1) Konfigurationsstyring (CM)

Formålet med konfigurationsstyring er at etablere og vedligeholde sammenhængen i og helheden af arbejdsprodukter ved hjælp af

- unik identifikation,
- versions- og ændringskontrol,
- statusrapportering og
- auditering af konfigurationsemner (herefter benævnt CI's for Configuration Items).

Konfigurationsstyring sikrer således, at alle (projektdeltagere) til enhver tid kender det gældende arbejdsgrundlag og dermed opererer ud fra det samme, gældende sæt af arbejdsprodukter.

2) Kravstyring (REQM)

Formålet med kravstyring er at styre kravene til projektets produkter/produktkomponenter og at identificere evt. uoverensstemmelser mellem kravene og projektets planer/leverancer.

Kravstyringsprocessen styrer alle krav, der modtages af eller opstår i projektet – både tekniske og ikke-tekniske krav såvel som krav, der pålægges projektet af organisationen i øvrigt.

Projektet skal sikre, at aftalte krav styres mhp. at understøtte planlægningen og udførelsen af projektet. Når projektet modtager krav fra en godkendt kravstiller, reviewes kravene med kravstilleren mhp. at afklare udeståender og at undgå misforståelser, før kravene indgår i projektets planer. Når kravstilleren og projektet er nået til enighed om kravene, sikres tilslutning til kravene fra projektets øvrige deltagere (f.eks. udviklere). Projektet styrer ændringer til kravene, efterhånden som de opstår, og identificerer evt. uoverensstemmelser mellem planer, leverancer og krav.

- Nye krav
- Ændringsforslag
- Fejlrettelser

3) Måling & Analyse (MA)

Formålet med denne proces er, at udvikle og vedligeholde evnen til at foretage målinger baseret på kvantitative data, i forhold til de mål som kunder og PDI ledelsen opstiller for projekterne.

Det er endvidere intentionen at tilsikre objektive, og faktuelle målinger af projektmål, såvel som projektprocessernes gennemførsel..

4) Proces & Produkt Kvalitetssikring (PPQA)

Dette procesområde tilsikrer leverance af kvalitetsprodukter og projektleverancer, gennem synlighed og feedback til ansvarlige. Denne synlighed må fokusere på procesafvikling og produkter, gennem projektets livscyklus.

Kvaliteten sikres ved at opstille krav til kvalitetssikring af de dokumenter, processer og produkter, der indgår i arbejdet samt til de dokumenter og produkter, der bliver fremstillet.

Omfanget af kvalitetsaktiviteterne skal vurderes og planlægges fra projekt til projekt, fra opgave til opgave, og afhænger af projektets/opgavens kompleksitet, omfang og karakter. For at sikre afvikling, opfølgning og ledelsesmæssig fokus på disse aktiviteter, må de forankres i en særskilt kvalitetsplan eller alternativt indarbejdes i projektplanen.

Uafhængighed i evalueringer, reviews mv. må tilsikres gennem tilvejebringelse af en rolle defineret som Kvalitetsansvarlig. Denne rolle må have en uafhængig status i relation til berørte projekter, samt de nødvendige beføjelser til at beslutte nødvendige tiltag mht. kvalitetssikring.

5) Projektopfølgning (Projektmonitorering og kontrol) PMC

Post Danmark Informationsteknologi skal have indsigt i projekters fremdrift, således at det er muligt at foretage nødvendige og tilstrækkelige tilpasninger af planen, når projekter afviger væsentligt fra projektplanen.

Projektplanen er basis for overvågningsaktiviteter, formidling af status og opfølgningsaktiviteter.

Fremdrift fastslås ved at holde udførte opgaver og aktiviteter, indsats, omkostninger og tidsforbrug op mod projektplanens milepæle, kontrolpunkter og den reelle opfyldelse af krav til projektet.

Når den aktuelle status afviger væsentligt fra den forventede status, skal der foretages passende korrektioner. Dette kan medføre genplanlægning, der igen vil have indflydelse på den oprindelige plan og dermed kræve indgåelse af nye aftaler eller kræve ændringer i opgaver og aktiviteter i den aktuelle projektplan

6) Projektplanlægning og opfølgning (PP)

Formålet med projektplanlægning er at sikre, at vi kan levere IT til tiden ved at skabe et overblik over projektets leverancer i form af tid, omkostninger og ressourcer. Selve projektplanlægningen består af flere forskellige dele, bl.a. risikoanalyse, interessentanalyse og kommunikationsplan, uddannelsesbehov og ressourceplanlægning.

Formålet med projektopfølgning er at sikre, at der følges op på og justeres i projektets planer, efterhånden som projektet skrider frem. Projektopfølgningen sammenholder projektplanen med de faktiske forhold i form af aktuelle data, risici og aftaler og opsamler dermed erfaringstal til brug for estimering i efterfølgende projekter. Der foretages de nødvendige tilpasninger, når der er væsentlige afvigelser fra planen.

Risikostyring

Formålet med risikostyring er at identificere potentielle problemer, inden de måtte opstå i et projekt. Aktiviteter til håndtering af risici planlægges og – om nødvendigt – igangsættes for at undgå negative konsekvenser mht. opfyldelsen af projektets mål.

7) Leverandørstyring (SAM)

a) Etablér leverandøraftale

Bestem leverancetype for udvalgte dele af projektets leverancer til forretningen, såsom brug af standard komponenter eller udvikling af software hos leverandører.

Eksempler på leverancetyper:

- COTS produkt
- Underleverance
- Partnerleverance

a1) Opstil vurderings- og udvælgelseskriterier
a2) Udarbejd udbudsmateriale

b) Opfyld leverandøraftale
Overvåg og følg op på leverandørens kritiske processer og leverancer (gælder ikke COTS produkter)

Appendix 6: PRINCE2 Light

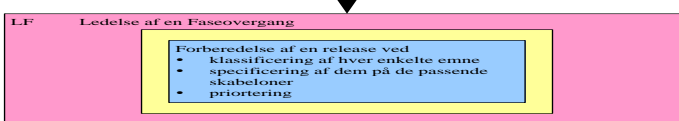**Rammen for Start og Initeringsfaser er fastlagt herunder:**

|	
• Projektplan, Business Case, Projektgrundlag • Projektkontroller • Interessent analyse og Kommunikationsplan • Emnelog og Erfaringslog • Budget • Projektdata placering • Risikolog	• Udnævnelse af PM og forretningens Partner er fastlagt • Sammensætning og Udnævnelse af opgave/ release organisation • Definition af Projektfremgangsmåde • Kvalitetsstandarder (leverandør eller kundes) • Projektkvalitetsplan og Kvalitetslog

SP & IF Start og initeringsfase

Servicecenter
SOS
Forretningshenvendelser
Projekter
- Ændringsforslag
- Fejlrapporter
- Sager
- Forespørgsler

Opgaven kan være en store ændring eller en samling af rækker små ændringsforslag og fejlrettelser.

SF Styring af en Fase

Opsamling og gennemgang af projektemnerne i emnelog

Anvend et eller andet værktøj heriblandt share point eller excel til at styre din **emnelog**

LF Ledelse af en Faseovergang

Forberedelse af en release ved
- klassificering af hver enkelt emne
- specificering af dem på de passende skabeloner
- priortering

Udfølg **opgavebeskrivelse**s skema og være opmærksom på:
Formål med opgaven
Hvad opgaven går ud på
At have SAPPS nummer
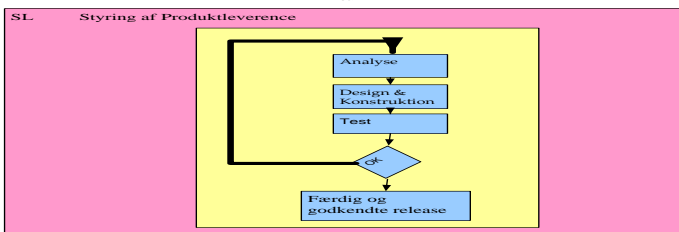OSV.

Mandagsmøde
Godkendelse af opgavebeskrivelse
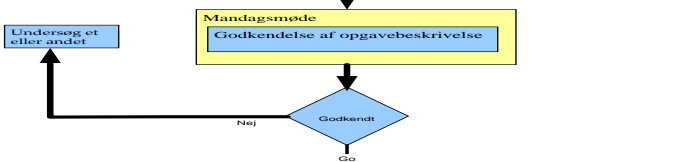
Mandaagsmødes afgørelse skal implementeres således at:
I tilfælde af afvisning skal der udarbejdes en handlingsplan for det
I tilfælde af godkendelse skal de pågældende kompetenceledere /teams kontaktes for evt. ressource allokerering.
Husk **udfølg ressorceallokeringsblanket**

Undersøg et eller andet

Godkendt — Nej / Go

PL Planlægning og Ressourcer allokering

Resourceallokering
Aftale ressource- allokering

Input
Udarbejdelse release og faseplan
Estimering
Udarbejdelse af tidsplan
Analyse af risici

Opgavebeskrivelse med bl.a.
- Estimat
- Ressourcer allokeret
- Start og slut dato på opgaven

Undersøg et eller andet
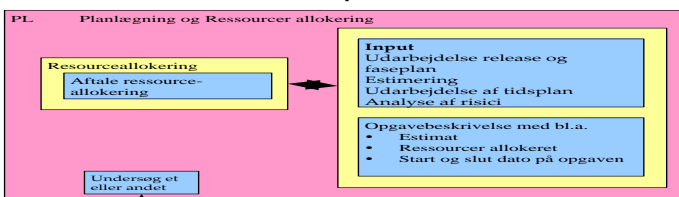
Udarbejd **projektplan - MS projekt** kan anvendes
- Opdel evt. til faser planer
- **specificerer kravene** - bruge evt. CaliberRM sammen med fooretningen.
- udskriv referat fra afklaringsmøder.
- Fortag endelig **estimat - anvend en tre punkt metode**
- **Udarbejd sporbarhed matrice**
- **Udarbejd breakdown**
- Udarbejd **tidsplan**
- Fortag **risikoanalyse**
- Udarbejd **kvalitetsplan**
- Udarbejd teststrategi, testplaner/cases.
- Put alle dine dokumenter i CVR efter en fastlagte katelog.
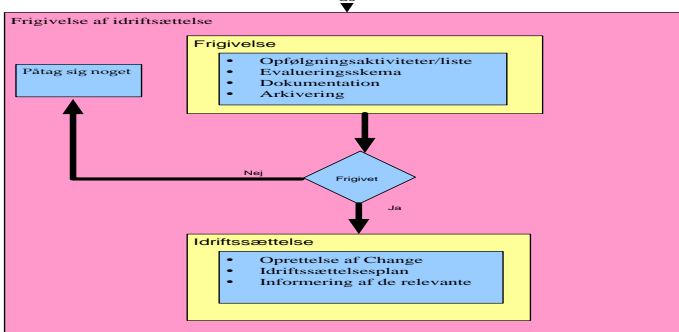- Udarbejde **Konfigurationsstyringsplan**

Sendt til forretningen
Nej
Godkendt af forretningen
Ja

Forretningen får den endelige **tre punkt estimat**, og start- og slut dato i form af **projektkontrakt** eller et andet format. Forretningen skal godkende det før opgaven kan overhoved starte
Udarbejd **leveranceaftale** og får den udskrevet

SL Styring af Produktleverence

Analyse
Design & Konstruktion
Test
Ok
Færdig og godkendte release
Go

Anvend **kommunikationsplan** for at informere de **interessente** (hvem, hvad og hvornår) herundog arrangerer herunder jævnlig statusmøder, og fremsend statusrapporter
Anvend CVS til at konfigurationsstyring
- Under test skal der anvendes en rigtig skabelon til fejl/ændrings registrering.
- Anvend Prince2 til ændrings- og fejlstyring

Afslutning på release

Afslutning på release
- Afvikling af release
- Identifikation af opfølgningsaktiviteter
- Projektevaluering
Go

- Udarbejd brugerinformation sammen med Forretningen
- Udarbejd frigivelsesdokument
- Sæt dokumentationtilrettelse (driftdok-, vedligeholdelsedok.) på plads efter review
- Udarbejd opfølgningsaktiviteter
- Udfølg projekt evalueringsskema
- indkald de relevante personer til frigivelsesmøde

Frigivelse af idriftsættelse

Frigivelse
- Opfølgningsaktiviteter/liste
- Evalueringsskema
- Dokumentation
- Arkivering

Påtag sig noget

Nej
Frigivet
Ja

Idriftssættelse
- Oprettelse af Change
- Idriftssættelsesplan
- Informering af de relevante

- Indkald til frigivelsesmøde
- Færdiggør leverance dokument
- Laver en plan for implementereing af opfølgningsaktiviteter.
- Opret en change
- Informerer de interessenter om frigivelses
- Udarbejd en implemneteringsplan
- Lav en plan for arkivering

Appendix 7: Thanks for your help

Above all, well, in a project like this, my two supervisors Seeberg Claus Friis are thanked for their diligence with the stylus and advice.

My second supervisor Diego Borresen Lladó thanked deeply for establishing contacts with KMD & PBS slipped some valuable guidance.

Then, of course, in particular, Charlotte Jorgensen P Bøgedal from KMD and Suzanne Kinttof from PBS, they were tenacious interviewers, who later also quality assured by the interview material.

To the last I will take this opportunity to thank Elsine and Lone Plesner for their help regarding. proofreading.

Without these, there was no work to perform, let alone to thank for help.