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Study of standardization of planning process in a Project Management Office (PMO).

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ABSTRACT

This thesis is about the standardization of the planning phase in a project management office (PMO). The purpose of the research is to find the way to standardize the planning phase in PMO. This purpose is motivated by the relevance of planning phase in projects. Planning is about to forecast, and the consequences of a bad forecasting can be critical for the developing of the project. The research question of the study is the following one:

> ➢ How can the planning phase be standardized in a Project Management Office?

To answer this question five interviews have been performed. The interviewees were senior project managers from different companies in Sweden. In order to keep the confidentiality, the names of the managers and the companies which they belong to are omitted. A literature review has been done to set up a theoretical framework and validate the results from the interviews. The study concludes that the only part in planning which can be easily standardized is the work breakdown structure. The results showed that standardization of planning phase as a whole is a big challenge for PMO and also that specialization helps in great measure the standardization of planning.

Key Words: "Project Management" "Planning project management" "Planning" "Project Management Office" "Standardization"

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Introduction

Purpose & research question

The purpose of the thesis is to investigate the planning process of a project manager office. The research gap is the standardization of this process which would make it more efficient not only for the project manager office but also for their clients. There is some literature about the possible standardization in different phases of planning, but none has researched about the standardization of the whole process. The research question "How can the planning phase of a PMO be standardized?" is motivated by the aim to fill the research gap, the standardization of the planning phase in a project management office. The research question has been chosen due to the relevance of planning in projects.

Nomenclature

To make the reading more comfortable some abbreviations are going to be used in this paper. From here on, project management is going to be presented as PM and project management office is going to be presented as PMO.

Background

Project management

If it has to be explain to a child, a project is the solution for a need. If you are thirsty your project is going to consist in get a glass of water. The purpose of the project is to drink water, for this purpose you are going to think how to get it (going to the kitchen and fill up a glass from the tap) what resources do you need (in this case the resources that you need are a glass, the water tap, and yourself) and how much time do you need to achieve your goal (maybe one minute). Obviously, this is one of the simplest projects that you can carry out, but it is a good example to start to get familiar with projects. Every single project you can imagine is unique, it will never be performed with the same time, within the same environment or by the same group of people for instance. Most projects have an economic interest, earn or save money are common objectives in almost every project. Coming up with a more complex example of a project than the first one of the glass of water, when a project consists in the construction of a football stadium the main objective is to build it. Nevertheless, it cannot be built at any cost, the money, resources

and time needed for developing the project are going to be the most efficient possible in order to be feasible and also profitable (Heerkens, 2002).

Project management is about to find the optimal way to perform the entire project, managing and organising from the beginning until the end in the most efficient way possible (Tonnquist, 2008). The person in charge of this process is the project manager who creates a team and an organisation to fulfil all needs of the project (Heerkens, 2002). There exists an institution which gives the guidelines to perform a project properly and helps the companies to have what they need to be successful when making a project. This institution is the project management institute, which has a guide book where whoever can support in the task of perform in projects. This guide book is the PMBOK, in it a project is divided in areas of knowledge and process groups (PMBOK, 2008). The areas of knowledge are about what do you need to know, what you need to manage the project while the process groups are about what we need to do, what are the tasks to carry out in the project. Both areas of knowledge and process groups are shown in the following table:

Areas of knowledge	Process groups
- Integration - Scope - Time - Cost - Quality - Human Resources - Communications - Risk - Procurement - Stakeholders	- Initiating - Planning - Executing - Monitoring & Controlling - Closing

Table 1 Areas of knowledge and process groups in PMI (PMBOK, 2008)

The PMBOK is divided into 10 chapters following each one of the knowledge areas. In the different chapters 47 processes can be found. An area of knowledge can have several processes which in turn can be inside of different process groups. This can be better seen in the following figure 1 (See Below).

In the abovementioned figure can be observed that the same area of knowledge can be presented in different process groups. Moreover, it can be seen why the process groups have this name, they are made by different processes which have common characteristics.

This paper is going to focus on process groups, which are after all the ones which are going to be present in a project. In the following paragrahs are short descriptions of each one.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring & Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Execution	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Collect Requirements 5.2 Define Scope 5.3 Create WBS		5.4 Verify Scope 5.5 Control Scope	
6. Project Time Management		6.1 Define Activities 6.2 Sequence Activities 6.3 Estimate Activity Resources 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Estimate Costs 7.2 Determine Budget		7.3 Control Costs	
8. Project Quality Management		8.1 Plan Quality	8.2 Perform Quality Assurance	8.3 Perform Quality Control	
9. Project Human Resource Management		9.1 Develop Human Resource Plan	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management	10.1 Identify Stakeholders	10.2 Plan Communications	10.3 Distribute Information 10.4 Manage Stakeholder Expectations	10.5 Report Performance	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Monitor and Control Risks	
12. Project Procurement Management		12.1 Plan Procurements	12.2 Conduct Procurements	12.3 Administer Procurements	12.4 Close Procurements

Figure 1. Knowledge areas and process groups related by processes (PMBOK, 2008)

The initiating process group is the first one in every project, in it an overview of the whole project is performed. Which is the goal of the project, which are the stakeholders

involved in it and the feasibility of it is discussed in this process group. For instance, for a small company which usually is doing minor projects as the construction of small houses cannot afford a project as the construction of a big mall. To perform this phase of the project normally it is used project chart which is a chart where the main aspects of the project are represented to analyse the feasibility of it.

The second process group in which a project is divided is planning. In the following sections of the thesis planning phase is going to be the focus due. "The Planning Process Group consists of those processes performed to establish the total scope of the effort, define and refine objectives, and develop the course of action required to attain those objectives." (PMBOK, 2008). That is to say, planning is about to clarify the objectives in the project, identify the resources needed and establish the most efficient way to achieve the goals. Simplifying the process planning consists in define a scope for the project with a determined budget in an estimated period of time.

Once the planning process is done the execution process starts, carrying out all the tasks needed for the achievement of the goals of the project. This phase is about trying to follow the plan, and it is about trying because with almost a 100% probability the plan is going to be adapted at some moment of the project.

After execution, there have to be a control and a monitoring of it. This process normally takes a long time after the project is finished. In this process the project is reviewed periodically with the aim of make sure that everything is going properly. This phase changes depending on the type of project. For example, if the project is about the construction of a bridge this phase is going to be crucial in order to assure the safety of the users of the bridge. However, if the project has consisted in the implementation of a new software for a company this phase is going to lose relevance.

The closing process group is the last stage in a project, where all the deliverables are handed in to the sponsor of the project and the project is over. Normally a meeting to discuss the whole development of the project is performed in order to learn from mistakes and avoid them in the future.

Project management office

A PMO is created for control and to give support to projects. It can be found as a department in a big company or as a single company. The PMO were created with the

purpose of help the companies with projects, the standardization of processes and the raise of the quality in the management of the projects (Tonnquist, 2008).

Among the different tasks of a PMO, the most frequent ones can be observed in figure 2 (see below):

Figure 2. Tasks to undertake in project management (*PMO Consulting – Seting up or Optimizing a Project Management Office the Right Way TPG - The Project Group*, 2018)

Planning

Planning is one of the five process groups in which PMBOK divides PM. PMBOK gives the following definition for planning: "The Planning Process Group consists of those processes performed to establish the total scope of the effort, define and refine objectives, and develop the course of action required to attain those objectives. (PMBOK, 2008) All of the tasks carried out in planning are merged in a single big file

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which contains all the information needed to perform the planning process. This file is the project management plan and depending of the nature of the project is going to have different sections in it but generally it can be found the following documentation in it (PMBOK, 2008):
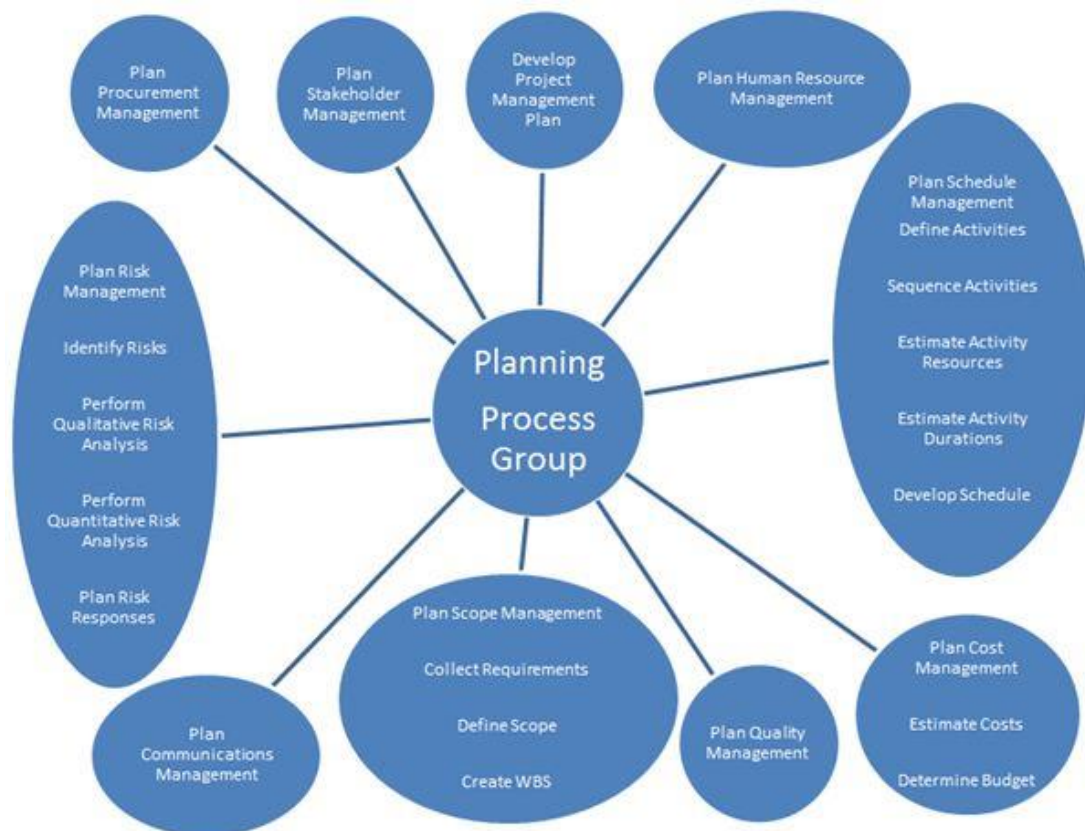
Figure 3. Planning process (*The Planning Process Group in Project Management: Containing the Most Processes of Any Other Group*, 2018)

Standardization

There is not only one way to make anything, two different people can reach the same goal by using different resources and different amount of time for instance. Nevertheless, nowadays everybody is looking for the best way reach a goal, to produce cars, to package food or to be more efficient in terms of energy use for example. This is where standards come in, guiding companies to follow the best way to perform their activities or reach their goals (BSI, 2012).

There is an International Organisation for Standards (ISO) which have published 22136 international standards covering almost every aspect of technology and manufacturing. ISO was created in 1946 because of the need of work in the same way and coordinate activities in different countries (BSI, 2012). When companies started to work with other continents companies this need came up. If a USA car company outsource the production of different pieces to different companies in Asia for instance, the company needs to know that all the different companies are going to produce the pieces in the same way, with the same standard of quality and with the same methods. If this does not happen when the pieces were delivered to the main company in order to assembly them, it could take place that the different pieces do not fit well when it is time to put them together. Last example shows the significance of standardization which let companies talk the same language. With a standard, companies around the world can work together being sure that there is not going to be any mistake in communication and in the way of doing processes (Nissinboim and Naveh, 2018). Furthermore, to follow a standard add value to a company (BSI, 2012).

The ease to work among different companies is one of the advantages of standards, however, it is not the main characteristic to look for in this thesis. This thesis seeks to the efficiency of the standards, to the best procedures to achieve an objective. In a process as the planning phase of projects where there are many different ways to reach the goal aimed. A standard would provide speed of action, ease in the decision making and efficiency in the use of resources.

Theoretical framework

Standardization of planning

In the 1930´s managers of different companies started PM with a rationalized approach which helped the organisations be coherent and efficient in their projects. Nevertheless, it was not until the end of 1950´s when PM began to use standardized tools and create a model for PM (Garel, 2013). What were they doing until the appearance of a model? Companies performed their projects with a high level of rationality but with no order in them, each project followed a different sequence of actions, with different actions. Before the end of the 1950´s some pre-models appeared, but PM was not recognised as an activity until the creation of the first model, where there were clear phases differentiated with a coherence and steps to follow in order to have a good standardization of the project (Garel, 2013). PM as a field of knowledge was inspired in three sources:

- Engineering sciences
- The conducting of large projects
- The managing of innovation

Which the help of these sources of inspiration and with the need of having an institution which formalized PM as a field of knowledge the PMI was founded in 1969 by five volunteers with the goal of put their vision about PM together and discuss how could it be improved. This later became the PMI model which was based in a huge number of tools and techniques as WBS (Work Breakdown Structure) CPM (Critical Path Method) or PERT (Program Evaluation and Review Technique). Step by Step PMI founded the bases for the total standardization of PM (Garel, 2013).

Finally, the PM was standardized by PMI and it is nowadays constantly changing, giving updates of the PMBOK when it is needed. The evolution of PM shows us the need of a standardization to improve the process (PMBOK, 2008). The purpose of this thesis is to contribute with the development of this standardization giving some guidelines to start with the standardization of the planning phase in PMO.

Over time the complexity of project has been increasing and a need of specific knowledge to carry out projects has appeared. This knowledge came with PMO which were created in the 1950s (Monteiro, Santos and Varajão, 2016). The role of PMOs is dim and several authors have written about it, in the theoretical background of this paper the main characteristics of PMOs has been shown, however, in this literature

review it is going to go deeper regarding to the different versions of PMOs. In a general way they have three main roles: operational, tactical and strategic. At the operational level PMOs offer support to projects, assuring that all the procedures follow good project management practices. In tactical level PMO provide added value with multi-project coordination. Finally, at strategic level PMO is in charge of both tactical and operational functions in addition to the consecution of general objectives for the company (Monteiro, Santos and Varajão, 2016). Now that a general framework of the three main fields of operation of PMOs has been established it is time to analyse every single typology of PMO. According to (Monteiro, Santos and Varajão, 2016) there are 12 typologies of PMO which give 47 PMO models. A typology is a classification where different models of PMO are established according to their characteristics. Each of these 12 typologies is suggested by a different author. In each typology there are different PMO models with different characteristics.

Although a total amount of 47 different PMO models have been mentioned above, there are a lot of them which share the main characteristics. Finally 25 unique (see figure 4 in the following page) PMO models have been detected (Monteiro, Santos and Varajão, 2016).

PMO Models	Englund, Graham & Dinsmore (2003) [18]	Kendall & Rollins (2003) [19]	Garfien (2005) [20]	Letavec (2006) [21]	Desouza & Evaristo (2006) [12]	Gartner - Fitzgerald (2008) [22]	Hill (2008) [23]	Kerzner (2009) [7]	Crawford (2011) [1]	Unger, Gemünden & Aubry (2011) [5]	PMI (2013) [24]	Bolles & Hubbard (2015) [16]
Project Repository		x										
Project Coaching		x										
"Deliver Value Now"		x										
Mature PMO			x									
Consulting PMO				x								
Knowledge PMO				x								
Standards PMO				x								
Information Manager					x							
Knowledge Manager					x							
Coach					x							
Standard							x					
Advanced							x					
Functional								x				
Customer Group PMO								x				
Federated PMO						x						
Project Support Office	x					x					x	x
PMoCE	x					x	x				x	x
Program Management Office	x					x					x	
Supporter				x						x		
Enterprise PMO		x	x			x		x	x			x
Project Office		x					x				x	x
Basic PMO		x					x					
Business Unit PMO									x		x	x
Controller									x	x		
Coordinator										x		

Figure 4. List of PMOs regarding different authors (Monteiro, Santos and Varajão, 2016)
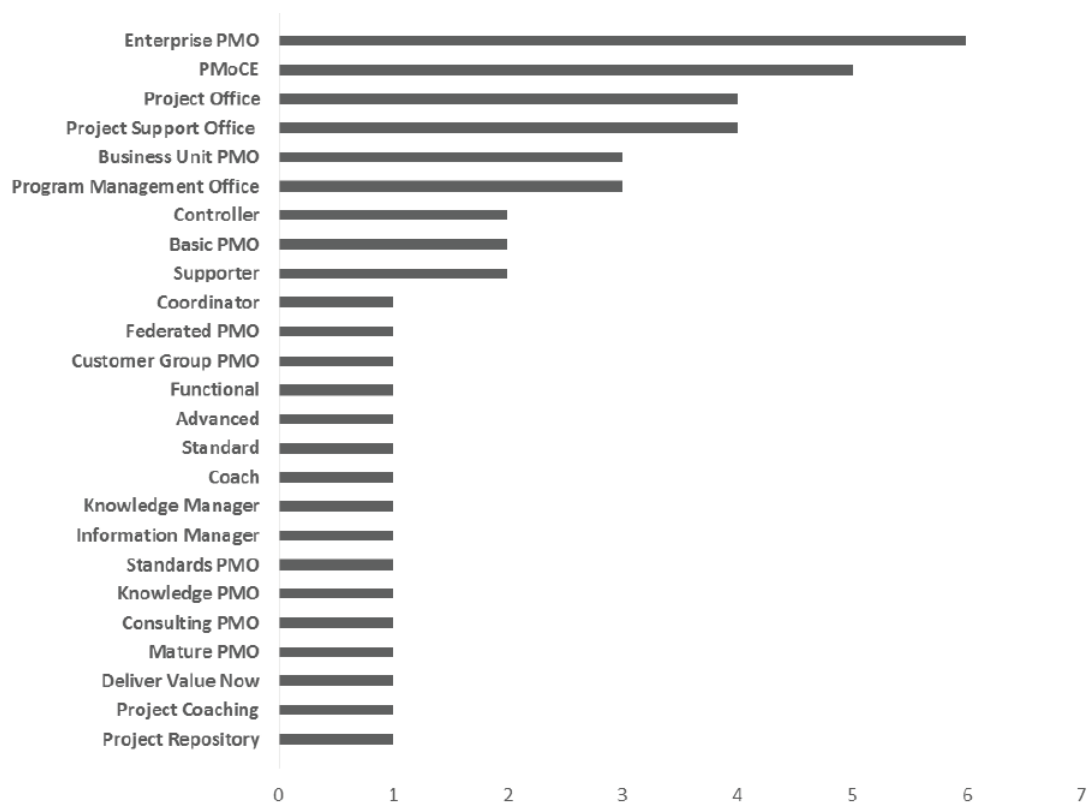
Figure 5. PMO models ranked by frequency of use (Monteiro, Santos and Varajão, 2016)

In figure 5 it can be seen that the most frequent PMO model is the enterprise PMO which provides complete management of whole projects. These are the kind of PMOs that this paper is focused on. These PMOs have a team which is used to work together and where it would be easy to establish new processes as a standard.

As it has been said in this paper, planning is a long and complex process inside projects. Even planning is in continuous development, there is still a lot of room for improvements (Laurian *et al.*, 2004). The problem is that a small mistake in planning can become a disaster in the execution phase. With standardization of the process this problem could be reduced, the protocol would help the team members to not forget anything and make their jobs better. Although standardization is a good tool to reduce mistakes, too much standardization can end up in a lack of motivation from the team members. When someone´s work consist only in follow orders, making checklists and, in general, becomes routine, the person starts to feel useless and lose the motivation for working.

It is because of that there has to be a balance between the standardization of a process and the freedom of the workers to make the job (Nissinboim and Naveh, 2018). Standardization is one step more to keep improving planning. Although it is a complex way which not all the companies are able to perform, it needs time, resources and education. However, there are other steps this companies can make, going from project planning to strategic planning. Strategic planning has traditionally had two schools of thought, the first one is the "planning" also known as rational school and the second one is the "learning" school also known as the adaptive school. Both schools have completely opposite conceptions about planning. While the first one bets for trying to monitoring and control every single step inside planning the second one believes that planning is always in change and there is a need of adaptation for this changes, a need to be ready for those changes (Papke-Shields and Boyer-Wright, 2017). Over the last years the frontier between rational and adaptive approach has become more and more vague, until nowadays where this frontier is almost inexistent, giving as a result a new approach for strategic planning where both schools are merged called rational adaptive approach. It has been demonstrated that this approach is beneficial to PM (Papke-Shields and Boyer-Wright, 2017). That mix of approaches makes sense, in a project as many things as you have under control (rational approach) the better is going to be the results of these tasks. However, when it is time to plan, forecasting takes part, and when forecast appear, uncertainty does as well. Hence, a good planning phase in PM has to be performed to be ready for the changes which can occur (adaptive approach).

There is no doubt that standardization is one of the best way to improve the performance on the company regarding different aspects such as cost reduction, time saving or efficient use of resources among others (Nissinboim and Naveh, 2018). Nevertheless, a standard is not the solution for all the problems of a company. First of all, the standard has to be well designed to help the most possible in the task which is wanted to be standardized. For this purpose a standard has to own the following characteristics (MÍkva *et al.*, 2016):

  ➢ Maximum brevity
  ➢ Simplicity and visual
  ➢ Flexibility to future improvements
  ➢ Clarity in instructions

Even though a standard is well designed it does not assure its effectiveness, other factors have to be taken into account. One of these factors is the adherence of the employees to this standard. If the employees do not like the standard, it is not going to work (Nissinboim and Naveh, 2018). There is a straight relationship among the

standardization rigidity, the adherence to standardization and the employee discretion (see figure 6 below).
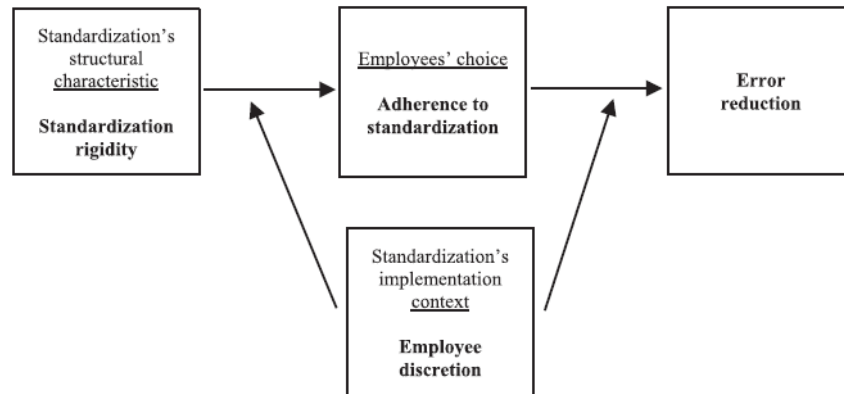
Figure 6. Relationship between standardization and error reduction (Nissinboim and Naveh, 2018)**.**

As the Figure 6 illustrates the three factors which affect the reduction of error in a process come from a characteristic (Standardization rigidity), the employee´s choice (Adherence to standardization) and the context (Employee discretion). The rigidity of a process is the amount of flexibility of the project, how much the process can change. If the process does not accept any changes is highly rigid whereas if it accepts a lot of changes the process has a low rigidity. The employee discretion is the freedom for the employees to choose one way or another in critical situations and this is the factor which marks the relationship of the three of them. If the discretion is high, the rigidity going to be low since they are opposites, the problems come when the three factors have to be analyse at the same time, and for that the following graphic which shows a correlation among them is going to be very useful.
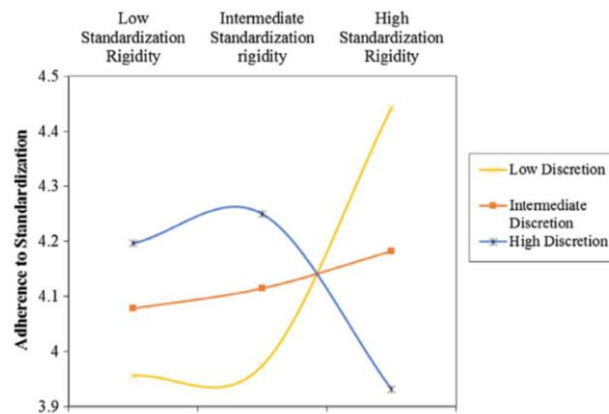
Figure 7. Interaction between standardization rigidity and employee discretion on adherence to strandardization (Nissinboim and Naveh, 2018)**.**

As it can be observed in figure 7, with three different levels of discretion, the correlation between adherence and rigidity change considerably. For an intermediate level of discretion (orange line) the relationship is almost linear, nevertheless when it comes to a low (yellow line) or high (blue line) level of discretion the things change in a radical way. For a low level of discretion (yellow line), the adherence grows quickly when the rigidity does it. However, for a high level of discretion (blue line) the relationship seems to be the opposite, growing a bit and reaching the maximum of adherence when the rigidity is intermediate but falling straight when it goes to a high level of rigidity.

Now the correlation among the three factors is known it has to be known as well the correlation among them and the reduction of errors, which is what really matters. For that purpose, a correlation between the adherence level, the discretion level and the error reduction in percentage can be seen in Figure 8 (see below).
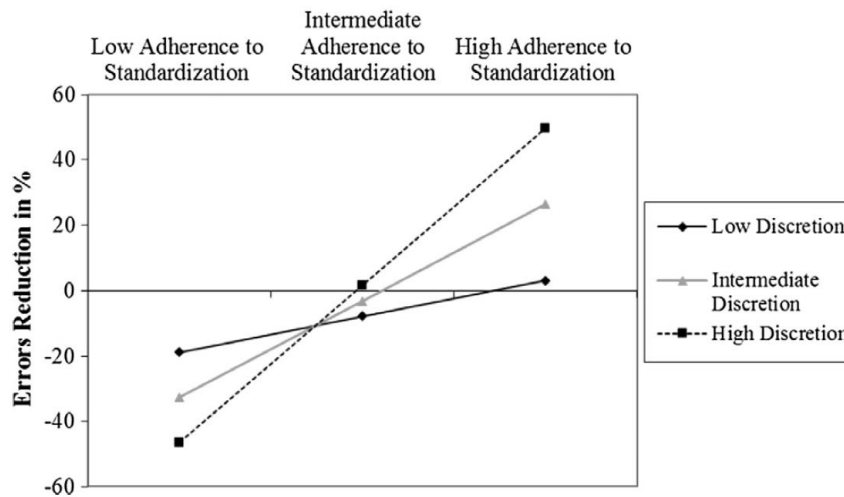
Figure 8. Interaction between adherence to standardization and employee discretion on error reduction (Nissinboim and Naveh, 2018)**.**

Even the rigidity does not appear in the last correlation there is no need of it. With the figure 7 and figure 8 a good conclusion can be reached. On one hand, in figure 8 can be seen that the main goal (maximum percentage of error reduction) is reached when there is a high level of discretion and a high level of adherence. On the other hand in figure 7 is observed that this combination of adherence and discretion is reached when the rigidity of the standardization has an intermediate level (see line blue in figure 7). Hence, the best combination to reach the highest percentage of error reduction is to have a high level of discretion and adherence and an intermediate level of rigidity in the standardization.

Even though there is no standard for the planning phase in a project there are some methodologies which help to do this task. One of the most used methodologies in Sweden is XLPM which provide tools for managing and controlling projects in general. Among these tools several document templates can be found which make it easier the different phases inside projects (*What is XLPM? – Projilent.com*, 2018).

Once the bases of the research are established, it is time to get deep into planning phase, reviewing the most important aspects of it. Traditionally project management was governed by three constraints which formed a triangle. These three constraints were: time, cost and scope, the last one is interchangeable by quality sometimes. With the development of the project management this constraint model has been changing until the current star model where the constraints are the following ones: Scope, risk, schedule, resources, budget and quality. This star is likewise formed by two triangles, one from the inputs of the project (scope, schedule and budget) and other one from the

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outputs of the project (risk, resources and quality) (PMBOK, 2008). To being successful the project should fulfil this star model (see figure 10 below).
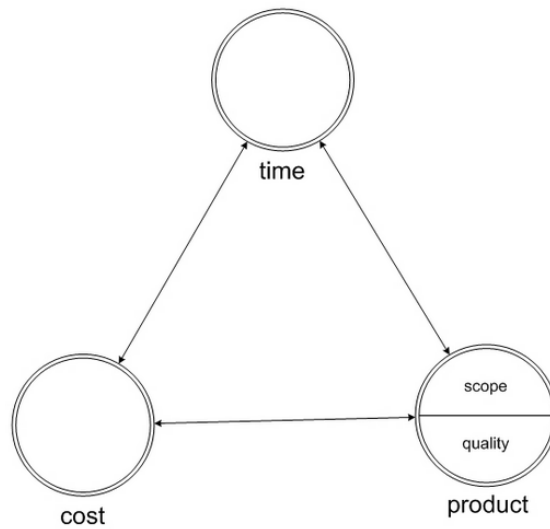

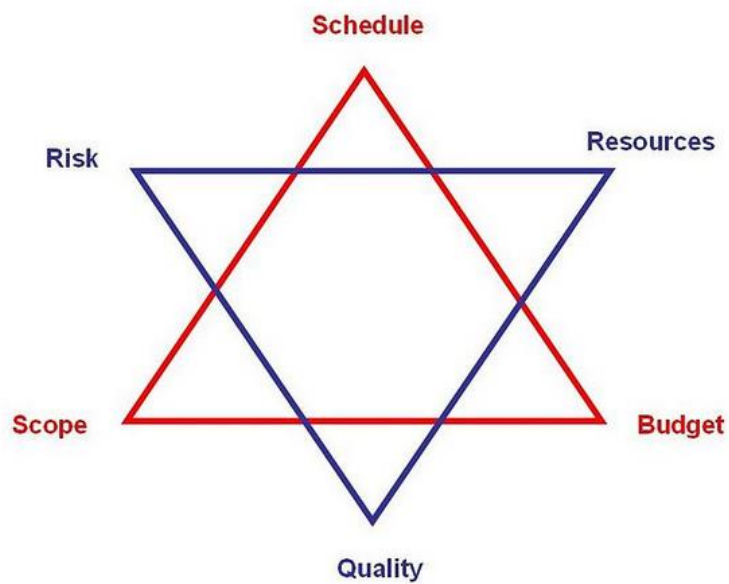**Figure 9. Traditional constraint model** (PMBOK, 2008)

Figure 10. Current constraint model (PMBOK, 2008)

The first constraint to care about is the scope of the project, what is it expected from it. Making the scope is literally to set up the boundaries of the project, what is needed to do to manage the objective of the project. The scope is determined at the beginning of the planning phase and the tool used to do it is the work breakdown structure (PMBOK, 2008). The work breakdown structure is the organisation of the work to do during the project and it is the backbone of a good planning, executing and monitoring (Kenley and Harfield, 2014). The work breakdown should be graphic, straight and easy to understand for every member in the team, with not so much information The purpose of work breakdown structure is to organize the project in different tasks from different families (Sequeira and Lopes, 2015). An example of a generic work breakdown structure can be seen in the figure 11 (see below).
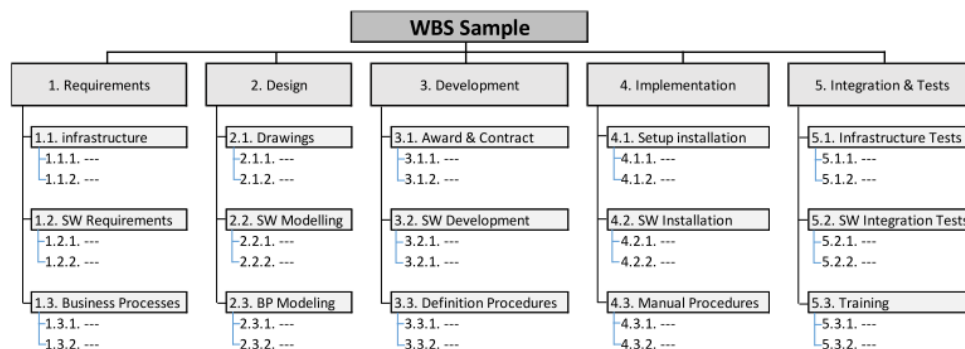
Figure 11. Work breakdown structure example (Sequeira and Lopes, 2015)

Apparently, work breakdown structure is one of the parts of the planning phase which can be standardized with no so much difficulties. In most projects there are common tasks which have to be carried out and it would not be so hard to implement a template with common tasks which saves a lot of work in this phase of the project.

From work breakdown structure a simple method for the cost estimation can be made. According to Sequeira and Lopes, (2015) the procedure to follow in order to get this estimation is the next one:

Once the work breakdown structure is built the responsibility allocation matrix has to be made. The responsibility allocation matrix is the distribution of the different levels of responsibility which every member in the project or worker has in relation with every task in the work breakdown structure (Sequeira and Lopes, 2015). This matrix can be observed in the figure 12 (see below).

WBS Item	Owner Work	Functional Manager A	Functional Manager B	...	Functional Manager K	Project Manager	Business Analyst	Programmer	Security Expert	Web Designer	Back Office	Contractor 1	Contractor 2	...	Contractor i
1. Requirements	S				I	R			A						
1.1. infrastructure		P	I		S	P	R								
1.2. SW Requirements		S	P	P	P	P	R		A		I				
1.3. Business Processes	S	P	A	P	P	P	R				I				
2. Design						R									
2.1. Drawings					S					I	R				
2.2. SW Modelling		S	P			P	R	I	I	I	I				
2.3. BP Modeling	S	P	P	P	P	P	R				I				
3. Development			S	P		P	I	R	I	I	I				
....															
5.3. Training	S	P	P	P	P	P	R								

Figure 12. (Sequeira and Lopes, 2015)

As it can be observed in figure 12 every responsible can have responsibilities in more than one task with different levels. The level of responsibility is marked with a letter. The meaning of each letter is shown in figure 13 (see below).

RAM letter abbreviation	Function	Meaning
P	Participant	Usually a meeting
A	Accountable	Must be consulted
R	Review Required	Responsible for the Execution
I	Input Required	Must provide Information
S	Sign-off Required	Approval Responsible

Figure 13. (Sequeira and Lopes, 2015)

Once the responsibility allocation matrix is done it is time to estimate the time needed for every task. This part is done based on the level of responsibility which the member has in every task. It also depends on the task to carry out. An example of the time estimation in the responsibility allocation matrix can be seen in figure 14 (see below).

WBS Item	Owner Work	Functional Manager A	Functional Manager B	⋮	Functional Manager K	Project Manager	Business Analyst	Programmer	Security Expert	Web Designer	Back Office	Contractor 1	Contractor 2	⋮	Contractor i
1. Requirements	1h				0.5h	4h			2h						
1.1. infrastructure		0.5h	0.5h		1h	1h	2d					10.000€	2.500€		5.000€
1.2. SW Requirements		0.5h	1h	0.5h	1.5h	1h	2d		1h		1h				
1.3. Business Processes	1h	0.5h	1h	0.5h	1h	4h	4d				1d				
2. Design						2h									
2.1. Drawings						2h				2d	2d				
2.2. SW Modelling		1h	1h			1h	3d	4h	1h	2h	1d				
2.3. BP Modeling	1h	1h	1h	1h	1h	1h	1w				3h				
3. Development			1h	0.5h		1h	4h	3w	1d	2h	2d				
....															
5.3. Training	1h	1h	1h	1h	2h	1h	2d								
Duration Time	4h	3.5h			3.5h	9h	16h	22d	15.5d	1.5d	2.5d	6.5d	10.000€	2.500€		5.000€

Figure 14. (Sequeira and Lopes, 2015)

The Last table to do is rate estimation of each activity by adding to the figure 15 the cost per hour of every responsible and applying the equation which can be seen in figure 16 (see below).

$$Cost\ Estimation_i = Hour\ Estimation\ Cost_i \times Duration\ Time_i$$

Figure 15. (Sequeira and Lopes, 2015)

WBS Item	Owner Work	Functional Manager A	Functional Manager B	⋮	Functional Manager K	Project Manager	Business Analyst	Programmer	Security Expert	Web Designer	Back Office	Contractor 1	Contractor 2	⋮	Contractor i
Hour Estimation Cost	60 €	25 €	25 €	15 €	15 €	75 €	60 €	25 €	75 €	40 €	40 €	10.000€	2.500€		5.000€
1. Requirements	1h				0.5h	4h	0:00		2h						
1.1. infrastructure		0.5h	0.5h		1h	1h	2d					10.000€	2.500€		5.000€
1.2. SW Requirements		0.5h	1h	0.5h	1.5h	1h	2d		1h		1h				
1.3. Business Processes	1h	0.5h	1h	0.5h	1h	4h	4d				1d				
2. Design						2h									
2.1. Drawings						2h				2d	2d				
2.2. SW Modelling		1h	1h			1h	3d	4h	1h	2h	1d				
2.3. BP Modeling	1h	1h	1h	1h	1h	1h	1w				3h				
3. Development			1h	0.5h		1h	4h	3w	1d	2h	2d				
....															
5.3. Training	1h	1h	1h	1h	2h	1h	2d								
Duration Time	4h	3.5h	6,5h	3.5h	9h	16h	22d	15.5d	1.5d	2.5d	6.5d	10.000€	2.500€		5.000€
Estimation Cost	240,00 €	87,50 €	162,50 €	52,50 €	135,00 €	1 200,00 €	10 560,00 €	3 100,00 €	900,00 €	800,00 €	2 080,00 €	10.000€	2.500€		5.000€

Figure 16. Rate estimation of each activity (Sequeira and Lopes, 2015)

To end up with the process, the cost of the project can be estimated by applying the equation shown in figure 17 (see below).

$$Cost\ Estimation = \sum Hour\ Estimation\ Cost_i \times Duration\ Time_i$$

Figure 17. Equation for cost estimation (Sequeira and Lopes, 2015)

Role / WBS Item	Owner Work	Functional Manager A	Functional Manager B	⋮	Functional Manager K	Project Manager	Business Analyst	Programmer	Security Expert	Web Designer	Back Office	Contractor 1	Contractor 2	⋮	Contractor i	Total
Hour Estimation Cost	60 €	25 €	25 €	15 €	15 €	75 €	60 €	25 €	75 €	40 €	40 €	10.000€	2.500€		5.000€	
Duration Time	4h	3.5h	6,5h	3.5h	9h	16h	22d	15.5d	1.5d	2.5d	6.5d	10.000€	2.500€		5.000€	
Estimation Cost	240,00 €	87,50 €	162,50 €	52,50 €	135,00 €	1 200,00 €	10 560,00 €	3 100,00 €	900,00 €	800,00 €	2 080,00 €	10 000,00 €	2 500,00 €		5 000,00 €	36 817,50 €

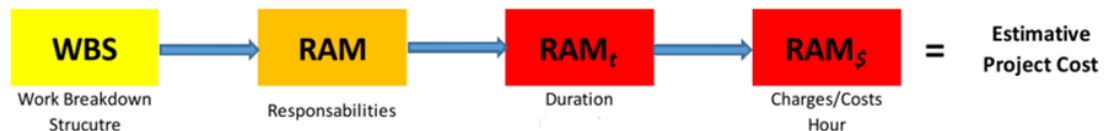**Figure 18. Final table of method** (Sequeira and Lopes, 2015)

Figure 19. Diagram of the method (Sequeira and Lopes, 2015)

In figure 19 a diagram of how the estimation of the cost of the project has been obtained proceeding from work breakdown structure can be observed. Even though this method can be useful in some projects it is not a standard of how the estimation cost should be done. It depends a lot of the kind of project and the experience in similar projects that the project office has (Sequeira and Lopes, 2015).

Apart from this basic process for getting an estimation of the project costs, there is still a need of standardization in project cost management. For instance, the 90% of construction projects have overruns in their costs which is an alarmin figure (Smith, 2014). The problem is that usually the profession of project cost manager lacks global

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recognition and union in practice. Around the world different managers treat the management of costs in different ways with any guidance from a proper organisation. Smith, (2014) asks for the standardization of project cost management and the creation of an organisation which rules the profession of project cost manager.

According to Smith (2016) the lack of standardization blocks the development of the project cost management. Whereas other fields of project management such as quality or risk have their own standards and are able to develop themselves, project cost management is blocked. With the standardization all the companies around world would speak the same language in terms of project cost management, what would make easier the development of it (Smith, 2016).

For the moment, the companies can used the strategic cost management as a tool to be efficient in project cost management. Strategic cost management is the relation between resources and their costs with a long-term strategy and short-term tactics (Henri, Boiral and Roy, 2014). Sructural cost management is divided into two groups: Structural cost management which is related with the costs of the company itself, it can be seen as a fixed costs and executional cost management which is related with the cost of each project which has to be carried out (Henri, Boiral and Roy, 2014). Even this is a good tool for companies to improve their finances, it does not fix the problem of standardization in project cost management, it only gives a tool to the companies to take profit of the project cost management to other activities in the company.
When it comes to scheduling things change. Scheduling is one of the restrictions which appears in figure 10 and it is one of the most standardizable. The hardest thing in scheduling is to estimate how much time is going to tak each task in the project. After this estimation there are several methods which take into account different variables and give as a result the best schedule for the project. Usually these methods weight the different tasks according to the relevance of the project and chose the best schedule possible knowing which are the probabilities of each task to fail or success in the estimated time (Coolen *et al.*, 2014).
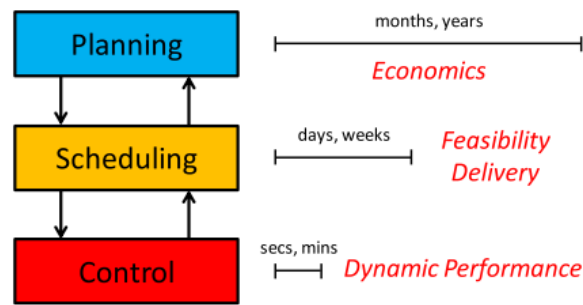
Figure 20. Scheduling inside planning (Castro, Grossmann and Zhang, 2018)

As it is shown in figure 20, scheduling is in the middle of planning and control, which turns scheduling into a link between both of them. This relationship also means the complexity and relevance of every process, where scheduling is in an intermediated level, with a lot of influence on planning, which is the process object in this paper. Being able to standardize a process like scheduling with this level of influence on planning helps in great measure the final purpose of this thesis which is after all trying to standardize all the subprocess which are contained in planning.

Now the internal constraints of a project have been exposed, the external constraints are going to be reviewed as well. The first one which is going to be treated is the quality. Quality is one of the main values in a project, it makes the difference between a good project and a normal one. Sometimes the quality of a project is given to the sponsor. Anyway, the quality of the processes inside the project depends on the executor of the project, in this case of the project office in charge of the project. For the standardization of the quality there is a standard from ISO, the ISO 9000 series which contain a huge number of guidelines of every aspect in quality management inside a company (Lo and Yeung, 2018). When it comes to quality, the manager in charge of it has to be very rational in his decisions, taking into account all the aspect that could affect the quality of the process to be carried out in the project (Rusu, 2016). The problem here is that ISO 9000 series is about the management of a company and not about project management. Some guidelines can be extrapolated to planning phase but there is not a direct link between the management of the quality of a company and the management of the quality of a project. Nevertheless, there are some principles of ISO 9001 that can be useful in project quality management as the continuous improvement or the decision taking-based approach (Lo and Yeung, 2018).

The concept of risk management is wide and diffuse. Different countries have traditionally understood risk differently. In United Kingdom for instance, the risks are

seen as opportunities while in France risks are related with danger and possible troubles. In Germany the risks perception is more about prevention (Barafort, Mesquida and Mas, 2017). Actually, all these perceptions are right, that does not mean that in those countries they look at the risks only with their own perception, they take care of all the aspects of risks management but each one gives more relevance and are focused on one part of risks management. Currently it exists an ISO standard about risk management, ISO 31000.
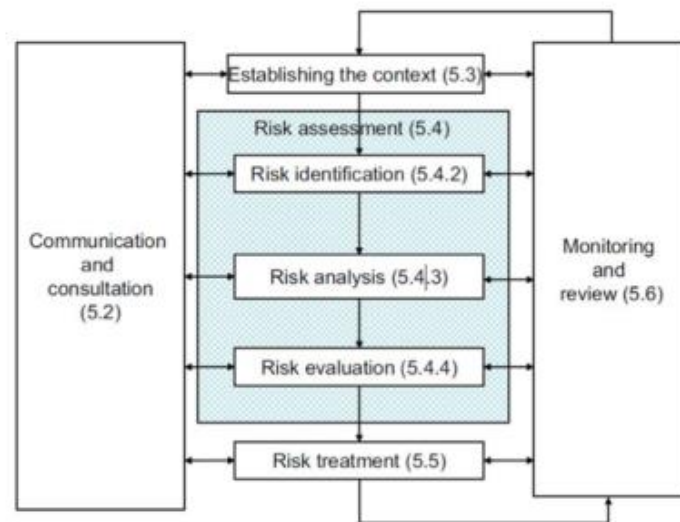

Figure 21. ISO 31000 Risk management process (Barafort, Mesquida and Mas, 2017)

As it is shown in figure 21, ISO 31000 propose a cyclic process to perform the risk management. The process starts with establishing the context of the risk and then go throughout risk assessment and risk treatment, always in touch with communication and monitoring of the process. When a risk has passed through this diagram (figure 21), it is revised, and it goes back to the beginning of the process if needed. If it is not needed a new risk starts the process (Barafort, Mesquida and Mas, 2017). This standard is suiting for the planning phase of a project management office and it can be useful for the outcomes of this paper.

Resources are the last external constraint in planning phase. The real problem in resource management is the optimal allocation of them. The optimization means reduction of costs, avoiding overallocated resources, avoiding delays caused by the lack of resources and avoiding the fluctuation of the resources daily (Kaiafa and Chassiakos, 2015). Depending on the project the number of resources used in it can vary from very

few to a huge number. When the number of resources is elevated the task of allocation them in an optimal way becomes tough and almost impossible to do manually. For this purpose several software have been created with different algorithms to find the optimal solution to the problem (Kaiafa and Chassiakos, 2015). Apart from the need of specific software, the resource allocation is a task easy to standardize and find the optimal solution of it.

Now the 6 constraints of planning have been reviewed, two aspects of relevance as communication and leadership are also going to be presented.

The communication plan should outline the following:

- Who (lines of communication – sender and receiver – responsibility and authority)
- What (scope of communication and format)
- When (schedule)
- Feedback (confirms message received and understood – document control)
- Filing (retrieval, storing, disaster recovery)
- How (email, document, telephone, meeting, presentation) [5]

Figure 22 Project communication plan (BG Zulch, 2014)

In figure 22 the different parts of the communication plan are shown. In addition to that, the project communication is divided in two parts, the internal one inside the team members of the project and the external one with the other stakeholders. Zulch (2014) investigated which media were the best to perform the different communication, getting the following ranking.

- Written communication
- Electronic communication
- Oral communication
- Visual communication
- Non-verbal communication

When the communication is written the receiver of the information has the possibilities to read and reread as many times as needed. Moreover, when the communication is written the level of detail and explanation is higher than with the other ones. Hence, for an effective communication inside the project it is advisable to have as much written

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communication as possible. Obviously, oral communication has a great paper in planning phase because team are continuously working together and having meetings but, a good transcript of this meetings with the main ideas of it would give more clarity to the communication.

In relation to communication comes leadership. A good project manager should communicate his/her ideas with strong leadership (Benita Zulch, 2014). A good leader is recognized by his style in leadership, nevertheless, when it is time to manage big groups with different personalities a good leader must adopt the proper leader style with different people (Benita Zulch, 2014). Leadership helps the team to clarify objectives, and set the way of doing things, the role of a leader is to set the goal and the procedures to achieve it (Aga, 2016). A leader is in charge of the human management of the team as well, it is the one who has to keep the motivation up in every moment and guide the team (Reyes Castro and Gonzalez Santafe, 2014). To be successful in planning phase it is not enough having a good team, the leadership is a key aspect which has to be present.

Methods

Two main approaches can be used in a research, deductive or inductive (Bryman and Bell, 2007). The approach used in this thesis has been the inductive one. This approach has the following characteristics regarding to these different perspectives (*Research Approach - Research-Methodology*, 2018):

- Logic: Information already known is used to create new one
- Generalizability: It goes from particular to universal
- Use of data: The data collected is used to create a model
- Theory: New theory is generated

This approach was chosen because due to the characteristics of the study. The research gap of the study is the standardization of planning. This standardization consists in making a new theoretical model where the managers can support on to carry out the planning phase of a project. Hence, the characteristics of the study and the research question demands the inductive approach: the data collected is used to create a model, it goes from particular to universal (creating a standard), information already known is used to create new one and new theory is generated.

Two research strategies have been used in this paper. On the one hand a literature review has been performed with a content analysis as a data collection method. On the other hand, the interview has been the other research strategy in the thesis. Both strategies have been very useful for the study, giving results thanks to the mixture between a theoretical and empirical approach. The literature review has been useful to set up the basis of standardization in planning phase while the interviews has provided of empirical information which has been analysed to come up with the results of the paper.

Both strategies have been selected thinking in the constraints of the study which are mainly time and resources. On one hand, a literature review is going to be useful to expose which is the current situation of planning phase. On the other hand, with 10 weeks to perform the research the interviews are a good method which do not take so much time and gives empirical results which can support the literature.

If more managers would have been interviewed the results of the study might have been different. With only five interviews it is difficult to reach a general conclusion (Bryman and Bell, 2007). However, taking into account the time to conduct the study five

interviews have been enough to have results supported by both the literature review and the manager who have been interviewed.

Regarding the validity and reliability of the data collected several things can be said. Firstly, the data found in the literature review have been analysed in order to find gaps. Afterwards, these gaps have been tried to answer by means of the interviews. The conclusions of the thesis have been taken by the agreement of literature and the results from the interviews. Concerning to the reliability of the data, the articles chosen to carry out the literature review have been taken from reliable data bases as Science direct or Scopus. Moreover, the information from the interviews can be considered reliable since the interviewees keep their anonymity.

The main limitation of the methods is the dependency of the interviewees. It has to be an agreement among the interviewees to be able to have a conclusion. If the number of interviews is too small or there is no an agreement among the manager interviewees the method loos trust.

Literature review

The literature review puts in context the topic of the thesis: Planning phase in projects and the standardization of it. The literature review is located in the theoretical framework section of this paper.

For the searching of the articles different databases have been used among which the most important and relevant have been Science Direct, Scopus, Emerald and Google Scholar. The key words used in the search have been the following ones:

> ➢ "Planning Project Management"
> ➢ "Project Management"
> ➢ "Project Management Office"
> ➢ "Standardization"
> ➢ "Standardization Process"
> ➢ "Resource allocation"
> ➢ "Scheduling"
> ➢ "Risk Management"
> ➢ "Cost management"
> ➢ "Scope"
> ➢ "Work Breakdown Structure"

- ➢ "Communication projects"
- ➢ "Leadership projects"

In addition, the logical conditioners "AND" & "OR" have been used for the search of literature.

Regarding the standardization of the planning phase in a PMO, the planning phase in PM has been reviewed from the general until the particularity of PMO. Moreover, standardization and the requirements to being successful applying a standard has been present in this section. The literature review is a prelude for the main research method of this paper, the interviews, from where the most important information, which come from empirical data, have been obtained thanks to experienced project manager who have given their point of view and their opinions about the standardization in the planning phase of a PMO.

Interviews

The interviews have been carried out with 5 project managers who have worked in different companies mainly in Sweden but also all around the world. The names of the managers are going to be confidential and the data collected from the interview is going to be used in this thesis exclusively. From now each one of the project managers are going to be known in the paper as PM1, PM2, PM3, PM4 and PM5.

Regarding to the kind of interview, the semi-structured interview was the chosen one. A semi-structured interview is the one which has a fixed number of open questions and some others could appear in the development of the interview (Chu and Ke, 2017). In this case the prepared questions were about to know the career of the interview, his opinion about project management, and his experience in planning. The interviews took between 30 and 60 minutes and a lot of questions came up during them. All of the interviews were recorded with a smart phone in order to have a recording which can be listen as many times as it wanted to analyse the interviews.

The semi-structure interview, as with any type of data collection method, there are some strong and weak points. On one hand, in a semi-structure interview the situation is more relaxed, the interviewee feels relaxed and can contribute with different points of view. Moreover, the interviewer is able to get more information about topics that he/she finds interesting. On the other hand, the questions which are fixed before the interview are general and some interesting questions can be lost in the interview if they do not come up during the interview (Chu and Ke, 2017).

After the interviews they were analysed using the analytic induction, where a universal explanation to a phenomena is searched (Bryman and Bell, 2007). The analysis of the interview was carried out as follow: Firstly, several tables were created in order to put the answer of the managers together. After listening the interviews, the tables were filled up. Once the tables were filled up the recording of the interviews were listening several times and the answers of the managers were noted down. When all the answers from different managers were transcribed, they were analysed looking for agreements and disagreements in different points. With this data a review of the interviews which is shown in results section of this thesis were carried out.

Some of the most important characteristics of the interviewees can be seen in table 2 (see below). All of them are Swedish and have been working mostly for project management office in Sweden.

	AGE	Nº of years as a PM	Has he received any education?
PM1	63	43	Yes
PM2	56	25	Yes
PM3	48	20	Yes
PM4	39	7	Yes
PM5	35	10	Yes
AVERAGE	48	21	

Table 2 Main characteristics of the interviewees

As it is shown in table 2 the age of the interviewees was in average of 48 years and the number of years as a project manager of each interviewee was in average of 21. Moreover, all of them have been received any kind of education about project management in any part of their careers. All of them have been received different courses about project management and they are keep learning. It was important for the study to have managers with a relevant number of years of experience who had a good point of view based on their careers.

Even though only five managers have been interviewed, all of them have a relevant career inside project management which gives reliability to the study. The figures in table 2 regarding the average of the managers and the number of years of their careers show that they are managers with experience who are able to contribute to the study with information of quality. As it has been said in this thesis, the number of interviews can be small, but on the contrary the interviews have been conducted face to face which gives more reliability to them than if they would have been carried out by email or other

method where the interviewer and interviewee were in straight contact (Chu and Ke, 2017).

Results

Among the five interviewees there were two of them who did not believe in the possibility of standardization of planning phase (PM3, PM5, 2018, interview). Despite this fact they were collaborative in every moment and helpful for the research. Among the questions which were selected (see appendix 1) all the project manager had agreement in three of them which are the use of templates, the use of a variable structure and the use of checklists.

Regarding to the structure of the team it cannot be said there is an optimal one, all the managers agree that the structure depends in great measure of the conditions of the project. Apart of these three questions, there were not a complete agreement in the rest of the questions. One remarkable thing is that two of the managers used XLPM model (*What is XLPM? – Projilent.com*, 2018) which has been talked about beforehand in this paper (PM1, PM4, 2018, interview). These managers are used to work with procedures and guidance. Hence, for them it is easier to imagine a standardization of planning phase. That fact means that people who are already working with any kind of standardization method is more open to keep standardizing. Managers agree on the relevance of the balance between theory and experience to have a good performance as a manager. Nevertheless, most of them though that sometimes the experience is better than theory and they prefer to go by their own way rather than go by the book (PM1, PM3, PM5, 2018, interview). In this case the perfect manager to apply a standardization would be someone like PM2 or PM4 who admitted that they always prefer to go by the book because it is something safer than go by experience.

According to PM2 the kind of project marks strongly the way to procedure. When a project management office is specialized in one field of projects haver more chances of be successful in the standardization of planning phase because feedback can be taken from all the projects. According to PM4 it is easier to work always with the same companies, however, if a project management office works always with the same company lose his main value, the external sight of the company. For PM5 is also a problem to work with different companies, the manager must be aware of the needs of different companies which work with.

PM3 was the most sceptical about the standardization of planning phase. For him each project is totally different and the procedures to carry out the planning phase are completely distinct depending of the boundary conditions of each project.

Following the same structure that in the literature review, the constraints in planning shown in figure 10 are going to be reviewed as well in this result section with the outcomes of the interviews.

The first constraint is the scope which is usually represent with the work breakdown structure. Regarding the work breakdown structure all the project managers accord that can be standardize with not much difficulty. Every one of them thought that there can be some templates with all the different tasks that use to appear in a breakdown structure, make it easier the process of choose what task fit in the breakdown structure of each project. This was by far the process which every manager trusts the most to be able to be standardized. In fact, PM2, PM3, PM4 and PM5 admitted that they are already using templates for this process.

Regarding the management of costs different approaches have been found among the different managers. For PM2 this was one of the easiest phases of the project because he works with cost-based budget. In this kind of budgets every resource has a cost associated and there is no place for estimation. Unfortunately, this kind of budgets are not usual in projects. Normally a lot of factors influence the cost on a project and according with PM1, PM3, PM4 and PM5 it is the experience which let make good estimations about project costs. For PM5 it is crucial to have a team of experts in each field, in this case, if there is someone specialized in costs the estimations are going to be more trustful than if the same person is in charge of different tasks. For PM5 specialization is key for the good performing of the planning phase.

Obviously, when it has been talked about the decision taking by the book or by own way it is regarding to big decisions, other aspects in planning phase are related with experience. This is the case of time estimation, regarding to it all the managers thought that the estimation is going to be better as more experience. Time estimation depends on a lot of variables, while scheduling it is in a relatively way easy to standardize (Coolen *et al.*, 2014), when it comes to time estimation the task become harder and unpredictive. PM5 keeps with the idea of the experts also in this process which is supported by PM2. Time estimation is one of the hardest of planning, a lot of variables influences the duration of every tasks and all the managers conclude that experience is the basis for a good time estimation.

To manage all the possible deviation in the forecast the managers perform the risk analysis. There was a total agreement among them on one thing: the plan is going to fail at some point, thus the risk management is crucial in planning phase. According to PM5, working with intervals is one of the best ways to accomplish with the expectations. That means that for the estimation of cost and time for instance the predictions are given in

intervals. One example of that is a budget which final value is supposed to be between 10000 and 12000 SEK. The problem with working with intervals is that maybe the sponsor of the project does not want a wide interval in which case it is no so useful. Other way of working with risks is to have margins of error expressed with a percentage, with it is actually another way to express an interval. This last way of work with margins is preferred by PM2, PM3 and PM4. Risk management contains a wide range of actions. In addition to the possible deviations of the forecasting there is also the possible problems which can occur along the project. For this possible problems PM4 uses several templates where different risks than might happen all over the project are represented. These templates were created by experience in the same kind of projects which make them useful for project on the same field. For PM3 there is no way to standardize risk analysis, every project has different boundary conditions which mark the different risks than might happen. PM5 insists in the need of having an expert for every part of planning phase, when everything depend in great measure on experience it is good to have somebody who really knows the topic. Last but not least, it is remarkable to say that there is a standard about risk management which is recommendable to follow and can be really helpful for the standardizing of this task (Barafort, Mesquida and Mas, 2017).

Regarding to the project quality management no one use a way which can be standardize. Normally quality is a specification given by the sponsor of the project, once the project manager has the specification of the quality demanded the quality plan can be performed, analysing the conditions of the specific project. There are standards for improve the quality in the performance of a company but, standardizing the project quality seems to be difficult.

The resource project management was not one of the topics which came up in the interviews. As it has been said in the literature review this seems on of the easiest process to standardize in the planning. The allocation of the resources can be standardized with a specific software.

Concerning to communications each manager had his own point of view. For PM1 and PM5 communication is key, the use of graphics tools as power point are crucial for the complete understanding of the project by all the project members engaged. According to PM4, regarding on meetings is better quality than quantity. Most of the meetings in project management are unnecessary and repetitive for PM4. A great variety of answers were given for the kind of communication that the project managers used in their projects. For PM3 everything is relative on the specific project but if he had to generalize, he prefers to have weekly meetings face to face to know the updates of the project. In contrast, PM5 prefers to keep the contact with the team as much as possible,

supervising closely every action. For PM1 the perfect frequency for meetings is once a week with the project team and one time each two week with the sponsor of the project. The rest of them agree on with having one weekly meeting with the project team. Nevertheless, there is not an agreement on how to perform these meetings, face to face, via online tools or by other means. The only point in common is the frequency of them, once a week.

Last remarkable point is the leadership of a project manager. According to PM3, a good project manager should have three main skills: Project management skills, leadership and experience. Leadership plays an important role in planning phase and seems very hard to standardize. All managers assumed that there is no only one leadership style, a good project manager must know when to use one style or another. Obviously, each person feels more comfortable with a leadership style. PM4 for instance prefer to be a straight leader while PM5 view himself more as a *laisser fair* leader. However, both of them know that they are going to be different leaders depending on the situation or even of the phase of the project. For PM3 every person in the project team is different and it is crucial the kind of leadership that a manager applies for everyone.

Analysis and discussion

After collecting all the data from the interviews, analyse it and expose it in results section, it is time to reflect about the results obtained in the study. The five project managers interviewed in this paper had different points of view about project management and planning phase in particular. All of them are working currently as a project manager in a project management office. When a project manager has a lot of experience, he/she seems to be further from the theoretical basis and more into the experience-based management. That can be dangerous because when someone starts to act by his own, he/she might lose efficiency. Theory and guidelines are proved as the most efficient way to manage a process. Sometime the own experience can be above the theory, but abuse of this way of management is not the best option. Moreover, this kind of managers are less open to standardization because they have the feeling that everything is experience-based. The experience has a very important role in project management, but when it comes to standards and guidelines, this experience has been taken into account when they were built.

Even though the managers above mentioned are not the best ones for implant a standard in planning phase, they are in agreement in that planning is in great measure dependant on experience, it seems to be very difficult to standardize the planning phase of any project. One way to begin a standardization in planning phase seems to be the specialization. When the project management office gets specialist in one field the projects start to be similar in the procedures and the experience from ones can be collected and used in the following ones.

Maybe the standardization of the whole planning phase is an ambitious achievement which is hard to manage, but some processes inside of can be standardized. Planning is about to forecast, and forecasting is always uncertain. Due to that fact the standardization of planning phase seems to be a goal very hard to attain.

The difference between a project management office and a company which perform its own project is that the project management office works from the exterior, having a vision totally different from the company and being more critical (PM4, interview). This point is a disadvantage to the standardization, it is very difficult to standardize planning phase keeping the critical part of the project management office. Despite that fact the procedures can be standardized in some cases without losing this critical point of view.

Standardize is in some way the use of the same language all around the world. There is one specific software, which name is not going to be said in order to not give promotion,

which helps in several tasks along the project. Nevertheless, this is not a standard tool in project management, being used only for one out of five managers who have been interviewed. A programme based on a calc sheet is the preferred by the managers. This kind of programmes let them to make different tasks in an easy way and with the possibility of share the documents due to the wide use of this kind of programmes. This frequent use in the companies makes it easier the communication and the share of documents among different companies. Even Excel is not a specific software about project management it is useful for the main tasks to carry out in project management.

It must be underline the differences between the literature review and the interviews. While with the interviews it can be concluded that the only phase that can be standardize is work breakdown structure, according with PM1, PM2, PM3, PM4 and PM5, in the literature review has been found that it already exists different tools to start to standardize different parts of planning. There are some coincidences between some managers and the literature. Nevertheless, there is not an unanimity among them. For instance, PM4 uses templates to perform the risk assessment, just like ISO 31000 recommends (Barafort, Mesquida and Mas, 2017). In contrast, the other managers prefer doing this task by experience. This discrepancy between interviews and literature can be caused by the low number of interviews. If the number of interviews would have been higher, all the tools described in the literature would probably have appeared in the interviews as well and more conclusions could have been found from interviews.

All managers agree on the need of templates to start the standardization of the planning phase. Most of them are currently using templates to carry out different parts of planning. The templates are provided by a project management model in some cases (*What is XLPM? – Projilent.com*, 2018) or made by the own company based on experience. These templates are in some way a kind of standardization of work breakdown structure. Apart from that, there was a manager who also used templates for conduct the risk assessment (PM4, interview). The use of this templates can be found in the literature review (Smith, 2016), nevertheless, this fact cannot be shown as a result because only one out five interviewees was using this method.

While in the literature review the best way of communication was identified as the written one (Benita Zulch, 2014) all the managers agree on the fact that the most effective communication is the oral one when it is face to face. This can be due by the reliability of face to face communication. In face to face communication the manager can observe the non-verbal communication of the other person and get sure that he/she is getting the message in the right way. This reliability is not present in written communication although, but it has been demonstrated that it is the best way of

communication because of the clarity of the message and the possibility to read it as much ties as needed in order to understand it well (Benita Zulch, 2014).

PM5 insisted in the need of experts to carry out different tasks in planning. In addition, PM3 wanted strongly to remark the difference between project of different nature. At some point the rest of managers came up with the idea of specialization. For all of them conduct different projects in a row were easier when the boundary conditions were the same (The field of the project, the company to work with…). That shows that specialization is one of the key of standardization of planning phase, which is supported by literature (Lo and Yeung, 2018).

Conclusions

As a main conclusion of this paper it can be said that standardization of planning phase in a project management office is a big challenge which needs a lot of effort to conduct. It is easier to standardize each subprocess inside planning than trying to standardize the whole planning process at one time. One of the aspects which helps in great measure the standardization is the specification. As more specific is the work of the project management office (field of working) the standardization of every phase is going to be easier since they can use the experience of precedent project to make a standard for futures ones. This conclusion was supported by the interviewees and the literature as it shown in discussion. Other conclusion than can be taken from the study is that the use of templates in any process of planning. Work breakdown structure is the only process that can be standardized with a simple template with the commons tasks to do in it according with the results of the study. Thus, the work breakdown structure can be performed in a right way without forgetting any task to do. With the interviews undertaken in this study cannot be concluded that another part of planning can be standardized. Nevertheless, with the literature reviewed in this document it can be thought that the standardization of other parts planning can be standardized as cost management plan (Smith, 2016) or risk assessment for instance (Barafort, Mesquida and Mas, 2017). The conclusions imply that if a PMO decides to standardize its planning phase the specialization would be one of the tools to make it easier. In addition, with the research done it is not clear if the standardization of planning is worth it for the PMOs, future research has to be done to be able to conclude the feasibility of the standardization of planning phase.

Limitations

The main limitation in this study has been the number of interviews undertaken. The sample was very small, and the treatment of the data collected was simple. It would be interesting if the number of interviews would have been higher but with the time for performing the study it was not possible. Some of the procedures identified in the literature review were not used by the managers interviewed, therefore, it seems again that the number of interviews were a key factor in the study. Some guidelines found in literature have not been supported by the experience of the managers. This is clearly due to the small number of interviews conducted.

Future research

For future research it is recommendable to get deeper into standardization of planning phase. It is advisable to make more interviews. Other option is substitute the interviews for surveys. Making a survey much more data could be collected, however, the questionnaire for the survey should be more specific in order to get the proper information from the managers.

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Appendix 1: Questionnaire

INTERVIEW WITH SENIOR PROJECT MANAGER

- How many years have you been a project manager?
- Have you received any formal project manager education?
- This interview will focus on the planning phase of a project. Are you working in a project right now? Which phase are you working in at the moment?
- What year did you born?
- How do you estimate the time for each task in the project?
- Do you make a project budget with costs and resources in the beginning of a project?
- Do you have any template to make any part of the planning phase easier? Which template?
- How do you perform the communication among the team members? And with the different stakeholders?
- How do you analyse the risks of each project?
- Do you have a quality checklist, or does it changes depending on the project?
- Do you have a fixed organisational structure, or it changes depending on the project?