

Human resource allocation practices in multi-project organizations

A case study of human resource allocation practices and the contextual conditions that shape them

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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Summary

It has been claimed that “project-based business activities are part of all private firms and public organizations” (Artto & Kujala, 2008, p. 469), and that two thirds of the work carried out in companies is organized in projects (Karlesen, 2013). Along with its popularity, project-orientation has gained massive traction in the research community. In spite of the attention given to project-oriented organizations - where tools and methods for control, management and resource allocation has been developed in plenty - less attention has been given to how these tools and methods work in practice. Particularly little research has been done on multi-project environments. We know relatively little about how human resources are actually allocated to- from- and between projects in multi-project organization, and even less research has been done on how the context impact these allocation practices.

This study aims at filling the research gap on human resource allocation practices, and discovers how practices are influenced by contextual conditions. In this sense, the study contributes to establish patterns of behaviour for human resource allocation that could be used to form new theory on multi-project management. The study also offer useful insight into how organizational context shape behaviour in the project and organization in its entirety.

The study builds on the knowledge gaps in current management theories and studies of resource allocation in multi-project organizations. Data has been collected from two case-organizations, where respondents have identified different practices used to allocate human resources and visualized the interplay between their choice of practices and contextual variables. The finds reveal contextual conditions to affect human resource allocation practices – some of which correlates with prior studies on similar topics, and some of which are entirely new contributions to the understanding of the relationship between allocation practice(s) and context. Project size and duration, resource availability, and degree of formalization are found to influence the allocation of human resources, supporting suggestions put forth by current literature. Formalization is presented as a mediator variable. This is particularly interesting, because it can help explain causal connections that are found empirically- and statistically, but not entirely understood. The study also find market conditions and customer’s expectations to have a significant effect on the allocation practices in the two cases-organizations, conditions that no prior studies have empirically revealed to influence the allocation practice(s). As a final outcome of the study, a model for human resource allocation practices is presented, along with a model portraying the effect of contextual conditions on allocation practices.

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Abbreviations

DM	Department Manager
HR	Human Resources
HRM	Human Resource Management
NOK	Norwegian Kroners
PM	Project Manager
R&D	Research and Development

1.0 Introduction

An increasing number of companies are choosing to organise their work (or parts of their work) in projects (Fricke & Shenhar, 2000; Artto & Kujala, 2008; Karlsen, 2013). It seems as projects has become the method of choice for executing work-orders and assignments in an efficient and orderly manner, hence project orientation has grown increasingly popular. In their study of project business as a research field, Artto and Kujala (2008, p. 469) stated that “project-based business activities are part of all private firms and public organizations”, while others have claimed that as much as two thirds of the work carried out in companies is organized in projects (Karlesen, 2013).

A project’s main purpose is to meet stakeholders’ needs and expectations (Burke, 2003). The way of structuring the workload in the project-format enables companies to be more flexible and apt to changing environments. One of the reason why the project-organization has become so popular is its ability to adapt to the changes in consumer preferences, which for the past decade or so has been to focus on customized products and solutions (Karlsen, 2013). Another reason is that assessing risk, resource demands, time required, cost and profitability, in order to evaluate the overall project performance, is easier when tasks and activities are separated into projects (Burke, 2003; Karlesen, 2013).

As projects become an integral part of organizations, the concept of multi-project organizations has gained traction in the project management literature. Fricke and Shenhar (2000, p. 259) explain *multiple projects* as “a setting in which more than one project is carried out at the same time. The projects vary in size, importance, required skills, and urgency, are in various stages of completion, and are using the same pool of resources. According to this definition, multiple projects exist in almost every organization in which functional divisions undertake a number of duties through a project format.”

The paradigm shift in modern organizations, from the classically managed organization to the project-oriented organization, is now widely recognized and has inspired a string of research focusing on this some-what new way of organizing the firm (Patanakul & Milosevic, 2008; Huemann, 2010). Several new studies have contested the established perception that project organization allows better utilization of expertise, resources, and division of labour (Harrison & Lock, 2004; Karlsen, 2013), discovering that multi-project organizations holds serious challenges related to resource allocation. These referred challenges include the sharing of resource, specifically resource availability and resource conflicts as well as re-allocation and

prioritizing problems (Hendriks et al, 1999; Engwall & Jerbrant, 2003; Huemann et al, 2007; Huemann, 2010).

Project management “utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy).” (Kerzner, 2009, p. 4). In multi-project organizations the functional personnel typically belong to what is called a *common pool of resources*, which refers to the concept of a group of people who are all eligible to work on the various projects in the organization’s portfolio, and who are shared between the various projects. The concept of a common pool of resources cause the people working in the project-functional interface to report to a minimum of two bosses; functional managers and project managers (Kerzner, 2009, p. 192). An additional challenge for multi-project organizations is that functional personnel are often assigned to more than one project at a time. This might cause friction between the managers, and between the manager and the individual employee, because functional managers and project managers tend to practice different management schools (Kerzner, 2009). This may also cause friction between the managers regarding what, how and when the individuals are going to work on the project specific tasks, as opposed to work in the line organization

It may also lead to disagreements related to who are going to work on the project; does the functional manager decide which individual(s) he can spare to work on the project, or does the project manager decide which individual(s) he wants on his project? It would be naïve to believe that all people working in a specific department in the organization is equally skilled and talented. Hereby it would be naïve or ignorant to claim that it does not matter which individual(s) are transferred from the line organization to the project for a period. The competition for resources and the fight for the best employees is a result of the shared and sometimes inadequate pool of resources in the multi-project organization, adding on to the complexity of multi-project environments. An important question to ask is therefore; who decide how the resources (the people) are allocated to projects, and on what grounds?

The question of how human resources are allocated to different projects and the motives behind the allocation practices has not received much attention in the business management literature. Nor has the relationship between allocation practices and project context. Although recent research has started to focus on the contextuality of project portfolio management and the interface between managing portfolios vs. single projects (Artto & Kujala, 2008), there are few studies that look at how context shape practices, let alone resource allocation practices.

I believe my study can help fill this gap. I think there is a need for a broader, more inclusive research approach to the practice of human resource allocation, one that accommodates the multi-project organization and the specific challenges it holds. And I am not the only one who recognizes the need for such an approach (Artto & Kujala, 2008; Blomquist et.al.2010). I hope my study will contribute to broadening the scope of current resource allocation theory or to establish new theory on human resource allocation in multi-project environments.

The shortage of studies on resource allocation in multiple-project organizations makes it difficult to create universal principles. I hope that my study can contribute to the building of empirical evidence in favour of establishing a clear pattern between contextual conditions and choice of practices for human resource allocation.

In my thesis I will be examining the practices of human resource allocation in two different companies that uses different methods of management and control, and runs different types of projects. The firms also differs in the number of projects they undertake, along with the size and duration of these projects. According to studies of multi-project organizations and portfolio performance, these are some of the conditions, or contextual factors, that are expected to affect the choice of allocation practices for human resources.

I will conduct an inductive study, exploring the human resource allocation practices in two case organizations. The aim of my study is to describe the actual human resource allocation practices in these two cases, and examine how the allocation practices for human resources are influenced by contextual conditions.

My research question is:

What are the human resource allocation practices in multi-project organizations, and which contextual factors influence these practices?

In the following chapter I will present the scope of this paper, and talk about the methodology I have used. I will then carry on to the theory chapter, where I introduce the existing theory on multi-project organizations and human resource allocation practices, and present findings from studies that have been conducted on the topic. In the fourth chapter I present my findings from the two case organizations, and in chapter five I discuss my findings in light of the existing theory. In the discussions chapter I formulate 9 propositions that

summarizes my significant findings. These propositions are then presented in a model for human resource allocation practices, which is the outcome of my study. I round off this paper with some concluding remarks and suggestions for further studies.

2.0 Theory

2.1 Theoretical background

The literature on resource allocation is vast, and includes contributions from organizational theory, project management theory and portfolio management theory. Project management “utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy)” (Kerzner, 2009, p. 4). Pryke and Smyth (2006, p. 3-4) consider the “allocation of resources to projects, monitoring performance and motivation” as the most vital human dimensions of project management. Harrison and Lock (2004, p. 6) also emphasizes the critical role of human resources in reaching project objectives. It would hereby be justified to say that human resource allocation is key for successful project execution and portfolio performance.

Throughout the years project management theory has grown and evolved, and the current expression *project management* accommodates a magnitude of different meanings and focuses – e.g. information management, supply-chain management, product development management, resource management, quality management, program and portfolio management (Pryke & Smyth, 2006; Söderlund, 2012; Morris, 2012). The traditional project management approach has been oriented towards production or assembly, focusing on techniques and tools for the application and execution of project management (Pryke & Smyth, 2006, p. 3-4; Morris, 2012). In more recent times the project management discipline has been recognized as a “diversity of views and perspectives” (Söderlund, 2012, p. 38).

Another well-known approach for managing an organization’s endeavours is project portfolio management, which is a framework to manage “the multitude of simultaneous projects ongoing in an organization” (Blomquist & Müller, 2006, p. 52). Portfolio management is happening on a higher hierarchical level than the regular (single) project management, encompassing the overreaching issues of prioritization and resource allocation (Teller et al., 2012). The use of the portfolio management approach to manage and control project activity

has increased in line with the use of projects to delivering products and services, and it is now a relatively prevalent management approach (Blomquist & Müller, 2006, p. 53).

Project- and portfolio management approaches has increasingly been critiqued for being too rational and for disregarding human interaction (Blomquies et al., 2010; Martinsuo, 2013). Ghoshal (2005) has gone as far as saying that management theory is destructive for good practises. According to him, a scepticism toward the assumptions and rationales of management theory and their tools and *best practices* is not only justified but advised (Ghoshal, 2005).

Blomquist et al., (2010, p. 5) claims that management theory give irrelevant descriptions of what is really going on in organizations. The notion that we need more explorative studies of actions and practices that takes place in project-oriented organisations is hereby undeniable (Artto & Kujala, 2008; Blomquist et al., 2010).

2.2 Characteristics and challenges for multi-project organizations

A project-oriented organization differs from a classically managed organization in several fundamental ways. The project-oriented organization has set up their organization structure to accommodate the fact that most work is done in projects, so that as much as possible of their expenses are allotted to one or more project(s) (Artto & Kujala, 2008, p. 475-476). Most of the organization's earnings is attained by the projects. Their work practices, organization culture and strategy are shaped according to the fact that most work is carried out in projects (Huemann et al., 2007).

According to established theory on project management, the project-oriented firm allows better utilization of expertise, resources, and division of labour (Harrison & Lock, 2004; Karlsen, 2013). However, this premise is not entirely compatible with the specific challenges held by the multi-project organization. Several studies conducted over the past two decades indicates that a multi-project environment holds serious challenges related to the sharing of resource, specifically resource availability and resource conflicts as well as re-allocation and prioritizing problems (Hendriks et al., 1999; Engwall & Jerbrant, 2003; Huemann et al., 2007; Huemann, 2010).

Multi-project organizations, as organizations that runs multiple projects simultaneously (Payne, 1995; Fricke & Shenhar, 2000), constitutes a range of additional challenges that mere

(single) project-oriented organizations does not have. It is much more complicated to schedule and allocate resources to multiple projects than to a single project (Meredith & Mantel, 2012). The environment of the multi-project organization impacts the whole organization, not just the project department, and the rest of the organization e.g. the functional department or HR department will also have to deal with the complexity and challenges caused by the multi-project environment (Kerzner, 2009).

Structural characteristics and challenges

The organizational structure is said to be instrumental for the organization's actions (Van Der Merwe, 1997; Jacobsen & Thorsvik, 2007; Christensen et al., 2007; Teller et al., 2012). If this is true, the organizational structure of multi-project organizations should impact its resource allocation practices. Payne (1995), and Hendriks et al. (1999) stated that most multi-project organizations are structured in a matrix form. The matrix structure is a way of horizontally linking different units, and it combines the functional structure and the project structure. It is believed to be well suited for multi-project organizations due to the issue of shared resources, but it is also prone to conflicts (Payne, 1995; Jacobsen & Thorsvik, 2007; Kerzner, 2009).

The matrix structure is said to have three variations; functional bias, project bias, or neutral (Payne, 1995, p. 165). Conflicts and disputes over loyalty, resources and power are therefore common in multi-project organizations, constituting additional challenges to consider when allocating human resources (Payne, 1995; Jacobsen & Thorsvik, 2007; Kerzner, 2009). For example, such challenges could include the dispute over who gets a particular person on their team, or it could be the replacement of a central position due to changing resource requirements or shifting priorities (Payne, 1995; Fredric & Shenher, 2000)

In conjunction with the organizational structure, you find the issue of prioritization amongst projects. A multi-project organization carries out several projects simultaneously, creating a need for a system that decide which project should be given priority in situations of resource shortages or resource conflicts (Engwall & Jerbrant, 2003). Priority systems are often associated with the presence or absents of organizational structures and the degree of formalization (Teller et al., 2012). Project management literature present several different, very concrete descriptions of how to prioritize amongst projects (Meredith & Mantel, 2012). These priority systems are very normative in the sense that they go far in saying which actions should be taken and which conditions should be given priority. Project management theory

present the different prioritization systems as tools that will lead to an appropriate and good result. The priority systems are also presented as suitable for all organizations, with little emphasis on the possibility that some organizations might feel that these priority systems does not fit them or their specific context

What is lacking are descriptive studies, studies that look at what the organization actually does in situations where priority must be established. It would not be unreasonable to question whether organizations with different challenges and different project-contexts would be able to use the same prioritization system, practicing it the same way, and getting the same results from the system. There is undoubtedly room for more studies that looks at the actions and decisions that is actually being made in the organizations, studies that describes the practices in different types of organizations. I think there is a need for studies that explore the apparent literature gap on how priority, and human resources, are assigned in practice. I also think it is time we started looking at how the project context influence this practice.

The normative project management literature (see section above, about the matrix structure) and previous studies of multi-project organizations, indicate that prioritization systems are necessary. The perceived need for priority setting is founded on the notion of a common pool of resources and the expected conflict this brings. Hence, rules and guidelines for which projects should get the first pick of human resources are necessary. However, we are not entirely certain whether there really is a need for priority setting in all multi-project organizations. Previous studies has listed prioritization of projects as one of the challenges for multi-project organizations, but they have not confirmed that a priority system is the best or only way to resolve this challenge. These studies also have not looked at how specific contextual variables might facilitate or contain the prioritization problem. This makes the need for explorative studies even greater, studies exploring how various contextual conditions impact resource allocation practices and the need for priority setting.

Lack of resources, resource conflicts and project interdependencies

The studies of Payne (1996), Fricke and Shenhar, (2000), Engwall and Jerbrant (2003) and Huemann et.al. (2007) found a number of problems that multi-project management must overcome including; project interdependencies, limited resources, having to share the available resources with other projects, priority setting and resource re-allocation, competition between projects (for shared resources), and short-term orientation.

Through their study Cooper et al. (2004) mentions resource availability as a main challenge for project portfolio management. They claim that resources are often inadequate and they are seldom dedicated to specific projects or areas. These challenges can be traced to the issue of needing and sharing the same resources in an organization i.e. the issue of a *common pool of resources* (Payne, 1995; Engwall & Jerbrant, 2003). Patanakul and Milosevic (2008) also found resource availability and interdependency between projects and operations to be a complication in multi-project environments. The project-interdependency require multi-project managers to divide their focus to more than one project (Payne, 1995; Engwall & Jerbrant, 2003).

The issue of a common pool of resources and the potential interdependencies in multi-project organizations creates the need for some sort of interaction between the different project managers, sometimes including the functional manager (who is the resource owner in the functional division of the organization), to sort out how the human resources are to be (re)allocated and distributed (Blomquist & Müller, 2006). If there is a lack of resources, this interaction can develop into a conflict.

There are many ways in which the project manager can go about it to secure the human resources (them being actual named people, or number of work-hours he needs on his projects). The actions taken by the project manager is claimed to be influenced by a number of factors, e.g. the project managers' personal experiences and their educational background, the organizational structure and systems, organizational culture and norms, the type of projects and project duration, project prioritization, practitioners power base etc. (Cooper et al., 2004; Blomquist & Müller, 2006; Blomquist et al, 2010; Teller et al., 2012; Martinsuo, 2013). All of these conditions can be considered as the project's context.

Uncertainty, temporality and pressure on people working in multi-project organizations

Multi-project organizations put a great deal of pressure on the people working in projects and in the interface between the project- and functional department. People working in projects often have too many roles and responsibilities, and these responsibilities differ immensely. Further, resources and time is often not dedicated to each specific tasks (Payne, 1995; Fricke & Shenhar 2000; Engwall & Jerbrant, 2003; Huemann et.al, 2007).

In addition to the potential resource conflicts and power play between project managers and functional managers, Fricke and Shenhar (2000) found that the employee's experience and training was highly important for the possibility to move employees between projects and for employees to be able to have different roles and responsibilities in different projects and in the functional department. If human resources "are well cross trained on different types of work and are flexible enough, more projects can run smoothly in parallel (rather than sequentially), and total work productivity is higher" (Fricke & Shenhar, 2000, p. 263). This finding indicates employees' training and competences as an additional challenge for allocation of human resources in multi-project organizations.

Huemann et al., (2007) states that the project-oriented organization needs to have human resource management (HRM) policies, practice and processes that is tailored and attuned to the specific characteristics of project-oriented organizations. The characteristics of multi-project organizations that is most different from regular organizations, and hereby constitutes the need for different HRM approaches are: the temporality and the uncertainties for the employees, the continuous change in human resource configuration, the issue of a common pool of resources (Payne, 1996; Fricke & Shenhar, 2000; Engwall & Jerbrant, 2003; Blomquist & Müller, 2006; Huemann et al., 2007). The allocation of human resources in multi-project organizations should therefore be designed with these challenges in mind (Huemann et al., 2007).

2.3 Human resource allocation practices in multi-project organizations

The specific challenges that multi-project organizations face generates the need for a multi-project management approach that take account of these challenges and characteristics. The approach should include systems that enables human and material resources to move to and between projects and operations while considering the challenges caused by the multi-project environments. The current management theories, such as project management and portfolio management, are normative and often offers universal tools and solutions that could be described as one-size-fits-all. This means that the resource allocation methods suggested by project- and portfolio management theory does not consider the challenges that are particular to multi-project organizations, or any other type organization for that matter. A multi-project organization and an organization that only takes on projects sequentially will, according to literature and multi-project studies presented in this thesis, often experience different

challenges and might be influenced by different contextual conditions. In regards to the contextual conditions, we still have not established how they impact allocation practices, but several studies have suggested that there is a link between context and practice. (Blomquist & Müller, 2006; Teller et al., 2012; Martinsuo, 2013).

In their study Patanakul and Milosevic (2008) found that single-project managers are only responsible for the execution and success of their (one) project. Multi-project managers on the other hand are responsible for reaching the individual project goals, and for managing project interdependencies and resource distributions amongst projects (Teller et al., 2012). Such interdependencies have to be considered when allocation human resources to and between projects (Patanakul & Milosevic, 2008). The consideration can be made by the project manager on the project management level, or by the portfolio manager on a higher level in the organization. According to project portfolio management theory, it is the portfolio manager's responsibility to address such issues. However, Blomquist and Müller (2006, p. 62) found that project managers are increasingly taking on activities and roles that fall under the responsibility of portfolio managers. Hence, the portfolio focus is often passed down to the project managers, who incorporate such matters in their management e.g. in their allocation of human resources. It hereby seems as though project management in multi-project organization lingers on the interface between portfolio management and project management (Blomquist & Müller, 2006), giving the project managers additional responsibilities that they may not have prerequisites to take on.

Resource allocation from a project management and portfolio management perspective

Human resource allocation is a vital aspect of project management and portfolio success. Pryke and Smyth (2006, p. 3-4) consider the “allocation of resources to projects, monitoring performance and motivation” as the most vital human dimensions of project management. Harrison and Lock (2004, p. 6) emphasize “the achievement of project objectives” as project managements core, and goes on to say that this must be done ” through people and involving the organization, planning and control of resources assigned to the project”.

The different research streams for project-organizations have their own take on resource allocation in organizations and projects, and their thoughts and assumptions about resource allocation are well documented. The different theories have established their own tools, models and prescriptions for how to allocate resources in the organization or project. The

tools and models are allegedly recipes that ensure efficient and problem free allocation of resources, which in turn lead to successful project execution (Blomquist et al., 2010; Martinsuo, 2013). I am not contesting the validity of these claims, my demurral is simply that the approaches, tools and knowledge that is presented as universal truths does not give adequate weight to the complexity or context that multi-project organizations operate within. We should hereby question the appropriateness of applying techniques that are developed for functional- or single-project management, e.g. heuristic prioritization methods, to the multi-project organizations (Patanakul & Milosevic, 2009).

Söderlund (2012) refer to project management as rationalistic and tool-oriented, which is the description most commonly used when explaining the discipline. Project management could hereby be considered as a systemic, rational based framework for planning, management and control of projects, which to some extent proposes universally applicable tools and models for project execution. In respects to resource allocation and prioritization amongst projects, project management theory use specific tools, e.g. the Critical Path Method (CPM) for resource scheduling, resource levelling, crashing, fast-tracking etc. (Meredith & Mantel, 2012). Resource scheduling priority can be determined by heuristic techniques such as *minimum-slack-first rule*, *greatest resource demand* or *first-come first-serve* (Meredith & Mantel, 2012). Just like project management theory, the project portfolio management framework also offers models and tools for *how to*, however project portfolio management aim to allocate human resources in a way that optimize the entire portfolio, not only for the particular project (Martinsuo, 2013, p. 795).

Portfolio management is internally focused, however, portfolio management has recently been introduced to the area of costumer-delivery projects, widening the scope of use for this approach and making it a real contender for the management approach used in multi-project organizations (Blomquist & Müller, 2006). According to portfolio management theory it is the portfolio manager's responsibility to improve the company's overall results, hereby addressing issues concerning project interdependencies, resource requirement and re-allocation, project prioritization etc. (Blomquist & Müller, 2006). The roles and responsibilities of project managers and portfolio managers vary, depending on which theoretical framework is used, and resource allocation activities are often found in the interface between these. Deciding which management framework to practice is therefore highly governing for the company's operations and for the resource allocation practices.

Project management tools and methods are criticized for not addressing resource availability (Blomquist & Müller, 2006; Blomquist et.al., 2010). Resource availability is a real concern in multi-project organizations, as the resource-pool is shared between several ongoing projects and project managers must compete for the same resources, making it more difficult to crash or fast-track a project – i.e. making several of the suggested resource allocation methods unsuitable (Meredith & Mantel, 2012).

Portfolio management theory on the other hand is criticised for its assumption that practitioners are rational and obedient servants, which act solely in line with the overall interests of the organization (Martinsuo, 2013). Further, portfolio management assumes that all projects in a portfolio are competing for the same resources, that these resources are scares or insufficient and that they are only available through the organization (Martinsuo, 2013). In more recent times, some organizations solve their resource problem through cooperation with other organizations, suppliers or competitors (Martinsuo, 2013), rendering the theoretical rational at least partially incorrect. The most troubling assumption of the portfolio management theory is that companies are assumed to have complete knowledge about all factors that could possibly influence the project, including the resource needs and the best way of attaining such needs. As researchers and scholars have started to question these assumptions, several papers have looked at how context as well as complexity impact the portfolio performance (Blomquist & Müller, 2006; Teller et al., 2012; Martinsuo, 2013). Although recent research has started to focus on the contextuality of project portfolio management and the interface between managing portfolios vs. single projects (Arto & Kujala, 2008), there are few studies that look at how context shape practices, let alone resource allocation practices.

Multi-project resource allocation – formalization and structure

Organizational theory holds as a central construct that the way in which an organization is organizes determine the organization's actions (Christensen et al., 2007; Jacobsen & Thorsvik, 2007). Hereby, formality as a method of management and control is widely recognized within organizational theory and management theory (Van Der Merwe, 1997; Christensen et al., 2007). Several studies (Blomquist & Müller, 2006; Teller et al., 2012; Martinsuo, 2013) has found a positive correlation between formalization and organizational performance. In their study Cooper et.al. (2004) claim that having a clear understanding of

prioritizing amongst the ongoing projects is important for the project's success, hence prioritization can be seen as a *best practice* or a *how to* for project success. Cooper et.al. (2004) also found that a significant number of successful multi-project companies have a formalized management system, which includes formal resource allocation routines. Teller et.al. (2012) describes similar findings. In their study of the connection between formalization and project- and portfolio success. They found that single-projects and project-portfolios in multi-project environments with a high degree of formalization performed better than projects with little formalization, making formalization a success-factor for the allocation practices for human resources (Teller et al., 2012). Formalization is also associated with faster resource allocation and less conflict between projects over the allocation of resources, and that the need for formalization is greater for highly complex portfolios (Teller et al., 2012).

The structure and systems of the organization, and the extent of the organization's formalization, will play an important role in its decision-making and the actions taken by practitioners. As will the implicit rules and guidelines. Thus, structure and systems – implicit as well as explicit- and the degree of formalization are shaping the resource allocation practices (Cooper et al., 2004; Teller et al., 2012).

Multi-project resource allocation – discussion, bargaining and negotiation

The findings of Engwall and Jerbrant (2003) suggest that allocation of resources to and between simultaneous and successive projects is a highly complex process that includes interpretation, negotiation and trading. Fricke and Shenhar (2000) found similar complexities in their empirical study of managing multiple engineering projects, stating that “factors, such as division and assignment of resources, prioritization, and customized management style [...] play a major role in the success of multi-project management” (Fricke & Shenhar, 2000, p. 258)

Martinsuo (2013) suggest that the day-to-day portfolio management is less rational than the portfolio management framework assumes. This would imply that the systemic and rational-based framework of project portfolio management might not be completely adequate to inform the practices of human resource allocation in project-oriented companies. To complement the short-comings of project portfolio management Martinsuo (2013) and (Kester et al., 2011) suggests negotiation and bargaining as additional approaches to rational decision-making in multi-project companies. They proposes that adding these perspectives to the

management process could help respond to the uncertainty and complexity that is so typical for the human resource allocation in multi-project organization.

Resource allocation practices consist of decisions and actions (Kester et al., 2011; Blomquist et al., 2012). In their study of decision-making processes in project portfolios Kester et al. (2011) stated that decisions are either power-based, opinion-based, evidence-based or a combination of these. In evidence-based decision-making the information and assumptions are presented and the decision is reached through discussion. In opinion-based decision-making “personal experiences and feelings rather than facts” are the basis for decisions (Kester et al., 2011, p. 650). Kester et al. (2011, p. 650) describes power-based decision making as “[...] goals of some individuals or subgroups dominate other individuals, subgroups, or even company goals”. Hereby, the actual resource allocation practices and day-to-day praxis also consist of some degree of discussion, negotiation and bargaining, presumably through the use of power, positioning and networks (Kester et al., 2011; Martinsuo, 2013). Further, Kester et al. (2011) imply that power- and opinion-based allocation practices do not consider the repercussions for the portfolio as a whole.

Multi-project resource allocation – duration and number of projects

Cooper et al. (2004) also suggest that the duration of projects is of significance for the portfolio performance for multi-project organizations. The duration (short-term vs. long-term projects) seems to be important in terms of the project-context, more specifically, in terms of the composition of projects undertaken at the same time and how these interface with each other.

A good balance between the number of projects and the available resources indicates a high-performing portfolio (Cooper et al., 2004, p. 54). The notion that the number of projects undertaken impact on the human resource allocation practices is further supported by Adler et al. (1996), who stated that taking on fewer projects at the same time result in projects getting done faster and with less project slippage. Adler et.al. also found that improving resource utilization increases dividends.

2.4 Literature gap

As the research focus within project management and project portfolio management has shifted to focus on complexity and context, researchers have started to look at how contextual factors impact the portfolio performance (Cooper et al., 2004; Blomquist & Müller, 2006; Teller et al., 2012; Martinsuo, 2013). A new framework, project-as-practise, was introduced only a few years ago, which emphasise the importance of practitioners' experiences, knowledge and actions when making decisions and creating practices (Blomquist et al., 2010). This new approach to the management of projects, and the allocation of resources in and between projects and operations, focus on understanding how people in projects really act, what motivates and influence their behaviour. The project-as-practice approach will create important insight into how practitioners are influenced by various circumstances, and how they adjust practices to changes in the project-context. The project-context is vital for this project-as-practice approach, making the link between practice and context stronger, cementing the newfound research-focus on contextuality in project management and project portfolio management.

Although recent research has started to focus on the contextuality of project- and portfolio management and the interface between managing portfolios vs. single projects (Artto & Kujala, 2008), there are few studies that look at how context shape practices. Some studies have found links between various contextual conditions and the choice of human resource allocation practices in multi-project organizations. According to literature and studies done on the topic, human resource allocation choices and practices are influenced by organizational structure and the level of formalization, the duration and number of projects, the resource availability, employee capability, and interaction between managers. However, these studies have not been sufficiently replicated to form conclusive behavioural patterns or to build new theory on human resource allocation. I would like to see which of these contextual variables, if any, plays a role in the human resource allocation practice in my two case-organizations. Finding similar links between resource allocation practices and contextual conditions as the previous studies would contribute to build theory on multi-project resource allocation and help determine patterns and causal connections between context and practice. Hence, narrowing or filling the knowledge gap. At the same time, not finding the same contextual variables that other studies claim to affect allocation practices would be just as valuable, because it would give attention to the knowledge gap, and validate that closing the gap is important. It might also bring us one step closer to developing a new multi-project

management theory, one that suggests models and approaches founded on the particularities of multi-project organizations and the contextual conditions that affect their practices.

Little over a decade ago, the project management literature was still hung up on the study of single projects, working on the premise of limited interaction between projects (Fricke & Shenhar, 2000). Relatively little research has been done on the topic of how human resources are allocated to different projects, and the motivation behind the allocation practices. Another topic that has not received enough attention in the business management literature is the relationship between allocation practices and project context (Fricke & Shenhar, 2000; Engwall & Jerbrant, 2003; Huemann et al., 2007; Huemann, 2010; Patanakul & Milosevic, 2008; Patanakul & Milosevic, 2009). Today there is a growing interest in studying multi-project environments, but a multi-project management theory has still not been established.

Until recently there had only been done studies on the link between formalization and project performance in a single-project situation. Therefore, little data exists on the effect of formalization in multi-project environments (Teller et al., 2012). There is also little research on how the multi-project environment affect employees, e.g. how the organization induce pressure in the form of multi-role assignments, role-overload and role conflict (Huemann et al., 2007).

Further, there is a general lack of research on practice and far too few inductive studies on human resource allocation (Blomquist et al., 2010; Martinsuo, 2013). Another thing to consider is the transferability of empirical findings on multi-project resource allocation. As many of the studies on portfolio management has focused on research and development projects (R&D portfolios) (Blomquist & Müller, 2006), we have to ask ourselves whether the empirical findings of R&D portfolios is valid and appropriate for customer-delivery projects.

In my study I will explore the practices of human resource allocation in multi-project organizations. My goal is to describe what is really going on in regards of human resource allocation practices - the actual actions and decisions taken. Further, I will look at the organizational context to see which and to what degree contextual conditions influences the practices of human resource allocation. My aim is to help fill the literature gap on human resource allocation practices in multi-project organizations, and contribute to an understanding of how context shape practices in such organizations.

2.5 Analytical framework

After reviewing the literature on human resource allocation in project-oriented organizations and examining previous studies on human resource allocation practices, I am left with the impression that far too little attention had been devoted to the study of practice. Management theories offer normative, universal guidelines for how to prioritize amongst projects and how to allocate resources to and between projects. But these guidelines are not underpinned by descriptive studies of practice.

There is also a lack of knowledge about what influences and motivates the practices. Which conditions impacts the actions and behaviours of the people working in the multi-project organization? There have been done a few studies on how context affect practice, which has resulted in some notions of which contextual variables affect multi-project resource allocation. But because there are so few of these studies, I am inclined to suspect that 1) There might exist more contextual conditions that influence practices than those found in these studies, and 2) The contextual conditions found to affect practices does not necessarily have the same impact in every multi-project organization.

I am therefore intrigued to uncover which of the contextual variables, that previous studies found to affect human resource allocation practices, affect practices in my two case-companies. I am also eager to discover what other contextual conditions might influence the actions, behaviours, and choices of practitioners in their allocation of human resources to and between projects. Further I am of course curious to find and describe the actual practices, and to discover whether the practices used in the case-organizations are amongst the practices prescribed by project- and portfolio management literature or suggested by recent multi-project studies.

Moving forward I have developed an analytical framework to illustrate the conditions or factors that current literature and previous studied on the topic have stated to influence practices of human resource allocation in multi-project organizations. The four conditions listed in the framework - structure, formalization, context and practitioners - have all been claimed to affect practices in the organization, whereas some of these conditions have received substantially more attention than others. I will mainly focus on context, which has not been given much attention in previous studies. But before I continue, looking into how context affect practise, I want to make it clear that structure, formalization and practitioners are inherently a part on the context.



Figure 2.5A. Analytical framework (authors own figure).

To guide me through the in-depth interviews, in my endeavour to answer my research question, I have made a model that portray the main questions I want answered by the case-organizations. For each of the three areas – contextual conditions, organizational challenges, and practices – I want to know: Which of the conditions presented in current literature are present in this organization? And which other conditions, not mentioned in the literature, exist in this organization?



Figure 2.5B. Guide for developing the research design (authors own figure).

3.0 Research design and methodology

3.1 Design

My study is a comparative case study of the human resource allocation practices in two multi-project organizations. Case studies are generally useful when seeking qualitative, in-depth knowledge, and when internal analysis is more important than representativeness and generalizability (Gerring, 2004). A case study can produce explanatory insight (Babbie, 2010), it can also question and cast doubt on established theories and concepts (Repstad, 2007).

My thesis is an inductive study, thus I am not trying to provide empirical proof to support a theory or framework. Rather I am conducting my research with little preconceptions about what I will find, hoping to discover patterns in the respondents' actions and decisions. Hopefully, these patterns can result in general, transferable principles (Babbie, 2010). But in order to extend our understanding of such a complex phenomenon, where human behaviour is prominent, we have to somehow tie it to existing universal theory (Halvorsen, 2008).

I will conduct two case studies, studying the same phenomena in two multi-project companies, and then compare the findings of each case. My study will be explorative – I will describing the actual praxis and practices in the organization and analyse them in light of contextual factors. The two cases will have two very important things in common, the defining characteristics one can say, which is that both case are situated in a multi-project environment and both cases are multi-project organizations where projects are the main pursuit. Other contextual variables – e.g. degree of formalization, industry, resource availability and market demand - are different in the two cases. Studies that have been done on multi-project organizations over the past decade or so have insinuated that some of these variables might influence the allocation practices in such organizations.

Even though a case study only examines one single phenomena, e.g. resource allocation practices in company A or company B, and the number of participants are limited, it is still possible to use the case study as basis for more general theories (Babbie, 2010). Deriving theory from observed patterns of behaviour and empirical findings is an inductive research approach that is frequently used in qualitative field studies (Repstad, 2007; Babbie, 2010).

I would like to help build a new framework for the allocation practices for human resources in multi-project environments, and I hope my study will add to the current understanding of this phenomenon, and contribute to new or renewed theories for multi-project resource allocation.

The explanations we get are not universal and we cannot make absolute conclusions, but it is possible to discover patterns of behaviour which in turn “may point to relatively universal principles” (Babbie, 2010, p.80). Such discoveries are found through analysis of the data received from all respondents in each case. For me this means that it should be possible to find patterns of behaviour for the allocation practices for human resource that are transferable to other multi-project businesses.

I will be exploring the relationship between resource allocation practices and contextual conditions to see if I can find a connection between contextual factors and the choice of allocation practice. This would entail that the choice (intentional or unintentional) of resource allocation practice(s) may be explained by the factors in the organization’s context. I will conduct an explorative study where I describe the status quo in regards to allocation practices in the two case organizations, and I will then examine which contextual factor impact on the choice of allocation practices. Hopefully my findings can contribute to forming new theory that is specific for multi-project organizations.

Qualitative research is the methodological approach best suited to answer my research question, mainly because the phenomenon I am examining is highly complex and influenced by a number of variables. Other scholars whom have done research on this topic also believe a qualitative approach would provide a better understanding of project practices and practitioners actions in projects (Artto & Kujala, 2008; Blomquist et al., 2010). Qualitative research is well suited to uncover practitioners’ perceptions, experiences and motives (Repstad, 2007). It also provides an in-depth and holistic understanding of the phenomenon, accounting for all the features and characteristics of the phenomenon (Repstad, 2007; Halvorsen, 2008; Babbie, 2010). Ergo I have chosen to collect my data by using qualitative research methodology.

3.2 Measure and methodology

I am conducting an inductive study. This means that I am looking at a phenomenon (the practice of allocating human resources to projects) in a new context (different types of multi-

project environments), with the hope of contributing to the building of new or renewed theory on this phenomenon.

The scope of my study is to find out what practices are actually being used and why these practices have been chosen. Which variables in the company's context are shaping the praxis and practices for resource allocation in multi-project companies? To give more weight to the findings in each case I will compare two separate cases to see if similarities or differences exist. As the complexity and context of my two cases are different, similarities and differences in resource allocation practices will likely help explain which factors that impact the choice of allocation practice(s).

In regards to the measures of this study, I will work from Babbie's (2010, p. 164) definition of measurement as meaning "careful, deliberate observation of the real world for the purpose of describing objects and events in terms of the attributes composing a variable." Some phenomenon's or conditions are difficult to measure (Halvorsen, 2008). Practitioners' choices, actions, thoughts and motivations, which is what I will be examining, are such conditions. Numerical measurements, e.g. the number of times a situation has occurred or scoring statements according to an index, is not a good way to gain comprehensive and reliable knowledge about phenomenon's like these. Instead, I will simply ask the respondents a question and take their responses as my measurement (Babbie, 2010). Allowing the respondents to use their own words to describe such features would increase the reliability of the results (Halvorsen, 2008; Babbie, 2010). That being said, in order to get the respondents talking I have to initiate the conversation and guide them into the topic I am exploring. I have to get the respondents to reflect over their own actions and behaviours, so that I can collect their responses.

The questions I asked the respondents were predominantly wide and open-ended, and most of the respondents talked freely, with little interruption or guidance from me. To make sure that the respondents provided the necessary information I constructed an interview guide with a list of questions that I could tick off, as the respondent answered them. This made it easy to keep track of what the respondent has already talked about, and to ask follow-up questions when necessary. The questions in the interview guide were twofold, where some questions were meant to confirm or reject the suggestions and findings from prior studies, and some questions were designed to cover the existing knowledge gaps. A full overview of questions answered by the respondents is available in the interview guide (see appendix 1).

Questions I wanted answered were how human resources are allocated to the project - who decides on the number of work-hours and which actual, named people that are assigned to the project, and to what degree can the respondent himself influence this allocation process? I also wanted to know how the respondent behaves in order to resolve situations where the allocated resources were inadequate – situations where there is a mismatch between the resources allocated to his or her project and the actual resource need, situations of re-allocation and resource conflicts. I believed that the answer to these questions would give me the information I needed in order to derive the actual practices. In addition to this, I wanted to know how and which contextual factors affect the way that human resources are allocated in the department or organization, and how their own behaviour and interactions are influenced by various contextual factors.

As already mentioned, I am using qualitative research methodology to collect data for my study. I have chosen the in-depth interview as my method of data collection, based on its ability to reveal rich and detailed data about a phenomenon or situation. It also enable the uncovering of unpredicted data, data that I otherwise would not have asked about, but that might have great implications for the empirical findings. In addition, the amount of information I can accumulate during an in-depth interview is extraordinary. In-depth interview is hereby believed to be the best method for examining practices (Halvorsen, 2008; Babbie, 2010). However, I should keep in mind that in-depth interviewing is a demanding methodology that raises the issue of time-constraint (Holme & Solvang 2004), and carries risks for *research impacts* (Repstad 2007), e.g. respondents giving the answers that they think you want to hear (Kvale 2009).

I contemplated whether I should also use document analysis to supplement my findings in the interviews, but I decided against it. My experience is that any rules or procedures related to the allocation of resources in and between projects can easily be explained during an interview, which was the situation in both of my cases. The respondents in both cases explained which governing documents they have to adhere to, and what leeway these documents give them in their resource allocation praxis. My choice of not use document analysis was also based on the fact that I were only given restricted access to the internal governing documents.

I have taken several precautionary measures in order to reduce the risk of research impacts. One measure is to familiarize myself with the respondent's situation. Another is to be restrictive in regards of the background information I give respondents prior to our meeting,

hereby reducing their ability to give me pre-approved and prepared answers to my questions. Risks of adverse effects are further reduced by source triangulation to strengthen reliability and validity (Holme & Solvang 2004; Repstad 2007; Halvorsen 2008).

3.3 Sample

I have conducted two case studies, of two different multi-project companies, examining the same phenomena in both organizations. I will present the findings of each case thematically in chapter four, before comparing the two cases against each other and analysing the findings. The two cases will share two common denominators, which are the grounds for this thesis, namely that both cases are companies where projects are the organization's main pursuit, and that they operate within a multi-project environment. The organization's other traits, or contextual variables, will differ in the two cases.

The two organizations were selected based on their perceived complexity and context. After a thorough literature analysis, I identified several conditions that presumably influence the allocation practices in multi-project organizations. These conditions, or variables, are described in more detail in chapter two, and include project size, number of projects running simultaneously, the organizational structure and degree of formality. The notion was to choose two organizations that represented opposite value on these variables.

Finding similarities and differences in the two cases' resource allocation practices that coincide with the presence or absence of contextual variables could have immense implications for the overall analysis, and could contribute to a newfound understanding of or perspective on human resource allocation practices in multi-project organizations.

The first case, company A, is a large project-oriented organization within the construction industry. It is a global company with operational branches in several different countries. The Norwegian branch, with its almost 3000 employees, has four divisions, in addition to a support structure, and offices at various locations in Norway. The company has a definite organizational structure. Positions, roles and responsibilities are clearly defined and described, and employees told me they are aware of their leeway in making decisions. I would characterize this company as highly formalized, with an extensive management- and control-system, and an abundance of documents that instruct and restrict behaviour.

The projects carried out in company A (in the Kristiansand division) vary in size and duration. The respondents inform me that their projects range from a few hundred thousand NOK to several hundred million NOK. Project duration range from a few months to three years, but the majority of projects last between one and two years. The client base, and the type of construction and renovation assignments are also quite diverse, but all projects are within the construction industry. It is the project size and duration that decide how many employees that are assigned to working on the project.

The second case, company B, operates in the knowledge industry. The organization is substantially smaller than company A, though the Kristiansand offices has roughly the same amount of employees. Company B has a little over 40 employees, several of which are in part time employment. The company also have access to a number of external resources that are not formally affiliated with the organization, but are people who can be commissioned on a project basis if necessary. Company B delivers projects with a price that ranges from 50 thousand NOK to approximately 45 million NOK, where roughly 80% of the projects have a budget under 200 000 NOK. The project duration varies from a couple of months to four years, but most of the project has a duration of less than a year.

I chose these particular companies based on their perceived level of formalization, my assumptions of the size and duration of projects as well as the types of products/services that the company delivers. Formality is associated with clearer directions for resource allocation and absence of resource conflict. Highly formalized organizations are also believed to have better portfolio performance than organizations with low formalization (Teller et al., 2012). Project size and duration, along with the number of projects carried out simultaneously, has been said to impact the execution and success of projects, particularly bottlenecks, delays and resource availability (Adler et al., 1996; Meredith & Mantel, 2012).

I chose company A because for its high degree of formalization and that the projects this organization takes on are chiefly high-price and long duration ones. Further, I chose company A because of the similarity in the projects they deliver. I chose company B because of its perceived low formalization, and the relatively modest project size. The extensive variety of projects that company B carries out stretches across a multitude of industries, hence the organization's resource requirements are highly segmented. By choosing case-organizations that have quite different features I can better identify and understand the contextual variables that impact the human resource allocation practices.

The selection of respondents is key for a successful study. There are several reasoning's to base the selection of participants in a qualitative study, e.g. homogeneity or maximum variations (Holme & Solvang 2004). The most important criteria for all qualitative research is however that the respondents are affected or involved in the topic of research, and thereby hold particular knowledge about that topic (Holme & Solvang 2004).

In this study I seek to disclose the *praxis* and *practices* for human resource allocation in and between projects and operations in a multi-project organization. I want to uncover the actual actions taken by practitioners in relation to allocation of resources, and how those actions are influenced by various factors. The most important criteria for selecting participants to my study is that the respondents are involved in the allocation of human resources in the organization.

According to general project management theory I would say it is a justified assumption that project managers are involved in the allocation processes for human resources. How resources are allocated, and who has the deciding power for the allocation vary between projects and organizations, but project managers are always involved in some capacity, and therefore I consider the project manager to be a natural place to start my exploration. During my initial contact with company A my thoughts of choosing project managers as respondents were confirmed, and I was given the name of two people I should speak with.

During my interview with the first project manager (PM) in firm A it became clear that I also needed to talk to the project-department manager. The first PM explained that it was the project-department manager who settled disputes over general resource availabilities and disputes over concrete personnel who were considered as particularly competent and sought after. Using the snowball method I got this PM to contact the project-department manager on my behalf, and he agreed to let me interview him. The project-department manager confirmed that my choice of respondents in company A was a good one, and he believed that these project managers would give a representative picture of the human resource allocation practices in case A.

Due to the highly relevant information the project-department manager in company A provided I decided to also interview the project-department manager in company B. It turned out that the project-department manager in company B also had a lot of information that informed my findings further. In respects to my choice of respondents in company B, I based my decision on the knowledge I had about the different projects and on recommendations

from the project-department manager. This enabled me to interview project managers working in projects with different duration and size.

I believe that having a sample pool that includes both project managers and project-department managers has led to stronger reliability of the data I collect.

3.4 Summary

This research design is developed with respects to the objectives of my thesis. Though the aim is to discover patterns that can result in general, transferable principles, which in turn can be used as basis for more general theories, it is important to not take these findings as universal truths. Human resource allocation practices in multi-project organizations is still a new area of research within project management, and the results presented in this thesis should be viewed in light of this.

I used normal standards for safeguarding anonymity and privacy, and used multiple sources to strengthen reliability and validity. Qualitative in-depth interview was chosen as the method of data collection based on its ability to reveal rich data, and uncover unpredicted data about the phenomenon I am examining.

4.0 Findings

In this chapter I present my findings from the two case organizations, company A and company B. My goal was to discover the actual practices for human resource allocation, and to find how contextual conditions affect these practices. During my in-depth interviews in the two case-organizations I discovered that there are a variety of practices for how human resources are allocated to and between projects. I discovered that these allocation practices can be gathered into three main categories that say something about the characteristics of the allocation practices. The three modes of human resource allocation is **Formality, Culture, Ad-Hoc**. Formality include allocation practices that are based on the organizational structure or formalization, culture I would say is self-explanatory, and ad-hoc allocation include practices that might appear random or coincidental, where the outcome will vary from time to time and be difficult to predict. The findings are arranged according to these modes of

allocation, describing how the allocation is done within these three categories. I then present findings on the contextual variables claimed by the literature to impact human resource allocation, and the contextual conditions that my respondents say impact their actions.

4.1 Company A

The structure of human resources allocation – a dual level of human resources

In company A, projects consists of two levels of human resources - the project administration, and the production level. The project administration is led by the project manager (PM) and consists of one engineering manager and two production managers (in charge of their own line of production). The product administration operates as a management group for the entire project and are responsible for the production level, which is divided into two lines of production. Over the project you find the department manager (DM), who pairs the project with the project manager.

The allocation of human resources to the project administration is done in two steps; first the DM allocates a project to a project manager, then the remainder of the project administration is allocated to the project. In regards of the allocation of a PM to the project, this is “somewhat random”. When it comes to the allocation of people to the project administration, there are slightly different perceptions on how this is done. The DM states that he is the one who allocates the human resources to the project administration “I am the one who put together the team, it is my responsibility”. The PMs confirm that the department manager is the one who decides which people are to work in the particular project administration, “it is the department manager who has the final say” but they also claim to have a word in this allocation process. Further, the PM states that the allocation of human resources to the project administration is dependent on the availability of human resources. “You [the PM] can ask for [specific] people, but you are at the mercy of who is available at that time”. Another PM states “I request the members of the project administration team, I name specific people, but I am still dependent of the availability of these people”. The general perception of the allocation of human resources to the project administration is that the PMs request specific people, and if these people are available the DM then assigns them to the project, “if there is many people available the PM can pic”.

Allocation of human resources to the production level of the project is quite different than that of the project administration. The DM give the PM a mandate where the project specific responsibilities and requirements are made clear. In this process the DM give instructions for the amount of human resources for the production level of the project, while the privilege of allocating the specific people belong to the PM.

“It is the project administration that handles the allocation on the production level.”
(A3),

“We have a staff meeting every two weeks where we discuss all the projects and their [HR] needs. All the PMs participates in this, and here we discuss named people, when they are available... If we are at a stand still, the DM makes the decision of which projects have priority and which projects have to resolve their staffing problems in other ways, e.g. contracted personnel.” (A1).

The functional personnel, the people working on the production level, are divided into permanent teams.

“We have organized the personnel in the production lines into permanent teams of 5-10 people. You have to allocate the whole team [...] we do not discuss each single person on that level.” (A3).

The exception is for key personnel that either holds particular skills or positions. These people are often allocated separately from the team they belong to, “we then have to allocate individuals on the basis of the project needs.” (A3).

This way of organizing the workers on the production level of the project was introduced a few years ago “because it was an ever ending discussion [between PMs] to get that particular person on their project.” (A1).

Human resource allocation through organizational structure and formalization

Human resources in company A are allocated through structure and formalization. All the respondents I interviewed stated that there were a range of governing documents, instructions and guidelines for the allocation of personnel and for re-allocation when resource conflicts or shortages. There are both general and project specific instructions and role descriptions etc. The DM describes that:

“The job description is one thing, a position is a title, but a position could contain different roles and responsibilities. For example, a project manager could have another role than being a project manager. Then I have to adapt the instructions he needs.

When we start a new project I give the project manager a mandate, a mandate that is tailored to the particular project he is managing.”

According to one of the PMs I talked with, the human resource allocation practices:

“Are rooted in the whole organization. At the same time, we are all reasonable people, we are measured on project performance but we are also measured on regional and district [level]. It’s not like we only care about our own project and hold on to *our* people. [...] I think the routines are good”.

But another PM claims that the re-allocation at production level is not specifically mentioned in the governing documents, saying that “the re-allocation of people, that is not specified in any governing documents, as far as I know.” This PM suggests that the re-allocation of people on the production level is more of a custom, established by the general project-mandate that gives the PM freedom to do what is in the best interest of the project.

Conflicts, bargaining and negotiation

When I asked the department manager about what leeway project managers have in regards of resolving resource conflicts and re-allocation issued, he firmly said “none!” He then went on saying that in his assessment issues do not escalate to conflicts, they are discussed and then resolved. The PMs appears to agree, stating that conflicts “are solved through dialog” (A3), and that “There is little conflict related to the staffing of projects. Positioning and power-play does not occur, and I have never experienced fighting over operational personnel or teams.” (A1).

However, the PMs clearly have a different opinion than the department managers on how they handle re-allocation of human resources. The PMs claims that they have some leeway to discuss amongst themselves and re-allocate people between projects.

“Sometimes there is direct communication between the projects, via e-mail or telephone [asking to re-allocate human resources]...If there is an urgent need that cannot wait until the next staff meeting. If someone calls me and ask me if they can get my key employee for one week, than it is up to me to say yes or no. They cannot

make me. I should [and do] think about what is in the best interest for the business...
But your own project is always closest to your heart.” (A3).

But this freedom to decide on re-allocation of human resources amongst their own projects only exist on the operational level. All issues concerning human resources on the project administration level must go through the department manager. And, though the department manager try to facilitate an open and inclusive dialog between the respective projects, he is the one who makes the final decision. In his own words, he is “almighty”. The department manager put it like this:

“I am almighty. For better or worse. It is my decision and I have to decide whose needs are most important. In the case of two simultaneous project start-ups, I must consider the trade-off, what causes less harm. I base this [decision] on my knowledge of those people it concerns. It is my judgement.”

Though the general notion is that conflicts are rare, disputes over particularly attractive or essential people do happen.

“There is a pool of human resources within each of the production lines, which you pick your project team from. It can be somewhat of an internal struggle between the ongoing projects over the same people. And then it may well be a battle for who gets which people.” (A3).

In these cases, PMs use a form of bargaining and negotiations.

“Some people are always negotiating. It is a way of announcing their needs. It is part of the business –*you can have him 50% of the time, but then I want her full-time*. I think we do this because we are negotiating in so many situations. We use a mix of dialog and negotiations.” (A3).

The PMs report a significant variation in the use of bargaining and negotiation amongst the project managers in company A, stating that though they all use a hint of negotiation in the interaction with each other, some project managers tend to rely more heavily on it than others. However, there is an unspoken understanding that favours -in the form of re-allocating people, letting go of key personnel ahead of time, and cross-project sharing of human resources (splitting a person’s position into two fractions of 50%) – are returned.

This culture of returning favours and negotiating the re-allocation and early-release of project production teams and key personnel is connected to the interdependencies between projects.

Not only are the projects sharing a common pool of human resources when staffing the projects, they also have to worry about re-allocating their functional personnel to other projects once their current project is completed.

“A very concrete issue of interdependence between projects, on the production level, is grant leave. If I at the end of my project have 10 workers that I cannot send on to another project, I am responsible for paying their grant leave for one month. That is a substantial cost, so naturally I am interested in finding a new project for them. So in this sense we are highly dependent on each other [the other projects], to cooperate. Then you suddenly want to send your people to another project, then your team is the best, and you start calling other project managers to ask them to take over your team. [...] Sometimes they [the other project managers] wants to take over your people ahead of time, and sometimes you can't seem to get rid of them and you end up paying for the grant leave. That's how it works...” (A3).

Organization culture and human resource allocation

The organization culture in company A is very much geared towards dialog and cooperation. The PMs explained that there exists a tacit, implied agreement about how resource conflict are resolved, which is through dialog, and there is an implicit understanding that the outcome of such dialogs should benefit the business as a whole, and be acceptable for everybody. The department manager also seems to focus on dialog and consensus, claiming that conflicts “does not escalate! There is a discussion and then we reach an agreement.”

One PM explains that the way the organization is structured and the consistent understanding of the limits and responsibilities of each employee, has led to a culture of cooperation and consideration.

“There is little conflict associated with the staffing of projects. This is embedded in our production and our governing documents. Key personnel have to be re-allocated etc. This is something everybody understand, so we do it.”

“If you are stubborn and don't let go of your people [re-allocate them] then you won't get them back either, people won't do you any favours. It's as simple as that. But I

think the main reason is that people understand that it is for the greater good. Everybody understand that this is the best solution. It benefits everybody.”

While another one say:

“In times where there are few available people, and you feel that it is critical that you get one particular person or team on your project... then discussions can occur. But it’s all resolved by next morning. Essentially it all works out.”

“[Conflicts] are solved through dialog, on the lowest level possible. It’s in our culture and the collegiate cohesion. It serves no one to add fuel to a conflict, most issues can be solved by dialog. [...] everyone tries to be solution oriented.”

Further, there is a culture for bargaining and negotiation in the organization, and a deeply rooted acceptance of reciprocity and returning favours. Bargaining and negotiation is how many of the PMs handle issues related to re-allocation, resources shortages and paying for grant leave. As one PM explain it “there is a mix of dialog and negotiation”.

The department manager have a conviction about avoiding delays; “We work hard to avoid delays.” When I asked if delivering on time was more important than delivering within budget he firmly stated: “Absolutely. Without doubt. It is what our clients expect of us.”

The PMs has a somewhat more nuanced perception of this. One of the PMs is clearly in agreement with the department manager, saying that

“It’s rare that we deliver after schedule. I would claim that we never do that, have a situation where we pay liquidated damages. I have never done that and I do not know anyone who have done that. We’d rather infuse a whole lot of resources to deliver on time. It wouldn’t necessarily cost more to pay the liquidated damages than to allocate more human resources to the project, but it is the notion of delivering on time.”

Another project manager states that delivering on time by heavy resource infusion is a financial issue;

“It’s a calculation, it’s a question of cost, delayed delivery has a cost, but you can easily calculate the cost of delivering on time [by infusing resources] v.s. delayed delivery. There is just as much focus on delivering projects that makes money as there is on delivering within the deadline.”

The PM goes on explaining; “Frankly, we rarely have a problem delivering on time. If we have a project with a short deadline, we design the progress plan to accommodate the deadline, scheduling a higher amount of human resources.”

The department manager also has a philosophy about trying to avoid re-allocating human resources from one project to another.

“There is no point in moving the problem, we have to solve it where it is. The human resources we need we allocate from our local office, central office, or we could solve the problem by hiring personnel [from an agency] if none of our own employees are available.”

However, the explanations presented by PMs in company A makes it pretty clear that the department manager’s philosophy is not shared by the project managers or other people working in project administration.

Human resource allocation as ad-hoc practices

Most of the human resource allocation in company A can be said to be based on organizational structure, formalization and cultural principles. Little human resource allocation is done on an ad-hoc basis. Ad-hoc allocation processes would include a randomness in the way people are allocated to and between projects, that allocation practices are arbitrary and vary from case to case.

The PMs I interviewed describes that the allocation of people to a project administration is partly based on suitability; who is best qualified to take on the project-specific tasks and responsibilities. However, they also feel that human resource allocation to a project administration is very much based on the availability of people.

“There is no conclusive formula [for human resource allocation practices] that is valid in every setting. You have to use your brain. [...] it is not random, but it is based on whom is available, it is [also] based on economics, competence and complexity.

All the respondents I interviewed made it clear that the company never assigned a person to a task or position that he or she was not qualified to perform.

How contextual conditions impact human resource allocation practices

I have presented findings on how people in company A allocate human resources to and between projects. I have described how the department manager and the project managers act, and rendered their views on how their actions and decisions are influenced by formalization, organizational structure, and an inherent cultural understanding. I will now present the respondents thoughts on which contextual conditions impact the human resource allocation practice, and how the context shape practices. As one of my respondents said, the context “is very important. It matters greatly. It provides guidelines”

The people I interviewed told me quite a bit about how the organizational context and the project complexity shape their actions and allocation practices for human resources. I was told that resource availability is a serious challenge in this organization, and that availability is a factor that influence behaviour, allocation practices, and the consistency of the project. One PM told me that in company A “it is a challenge to have enough [human] resources at the right time.” This PM then went on explaining that:

“You can end up in a situation where you have to share your resources. For example, the production manager has to split his attention on three different projects. This can be challenging. Financially speaking it is good, at this moment in time, but it might not be good in the long haul.”

The availability of human resources is linked to the project context in several areas. One of these is the economic situation and market conditions within the industry, another is the size and duration of projects and the number of simultaneous projects.

The organization has to adapt to the overall economical context and the reduced market demand, which is the current situation. For company A this has entailed a reduction in staff. This adjustment is challenging, as you want to have enough people to execute the ongoing projects, enough people to be able to take on new projects, at the same time as you do not want to have a number of employees that have nothing to do. One of the PMs explained it like this:

“The challenge is, for my supervisor, to adjust the size of [this division], especially after the downsizing. How many employees should he keep? How many people do we need? And the current situation is that we are too few people left., depending on

whether we are luck, or rather unlucky, and get a lot of projects that are in the same phase at the same time.”

This PM revealed concern about the available human resources in relation to the project load of the company. Parallels were drawn to the number of projects taken on by the company, and the duration of these projects i.e. if the projects taken on by the company differ in the duration there is a chance that these projects will end up in the same phase at the same time, herby creating a demand for human resources that might not be compatible with the size and skills of the resource pool.

Another PM said that the project’s duration affect how he allocate human resources in the project. He told me that the number of work-hours for a specific task would be decided by the DM, after the DM and the PM has discussed the project requirements, and then allocated to the project. The number of work-hours assigned to the task remains constant, but the number of people needed to fulfil the task will depend on the completion date. The PM goes on explaining how the project’s duration affect the allocation of human resources on the production level and on the project administration level:

“If the task takes 1000 work-hours and you have 6 months, than you may need 10 people. If you have 3 years than maybe you only need 2 people. So the duration clearly affect the human resource allocation in the project. Definitely.”

“You may have to use a lot of resources at the [project administration level] and do the planning early i.e. you use most of that [resources] early in the project, and less during the operational stage. How you allocate human resources is highly project-based, and that has to do with the duration of the project, but it does not always have to do with the size of the project.”

The size of the project and the project’s technical demands is also listed as complexities that interfere with how a project is run, and how human resources are allocated to that project.

“There are several way for a project to be complex. The size of it may constitute complexity, that the project is very big. There may be technical complexities, where we deliver new innovations, and we have to do a lot of research. And some projects are complex in their relationship with the costumer.” (A3).

Further, there seems to be consensus on the fact that the economy, demand and the overall situation in the industry where company A operates impact the human resource allocation practices. One of the PMs I interviewed told me that his actions and approach to allocation of human resources is shaped by several contextual conditions, including the market situation, the economic situation and the availability of resources. He states that

“It depends on the current context. If there is more than enough people to choose from when you start your project, then you can pick-and-choose as you please. But if the resource pool is completely drained, than you have to be firm in your demands. This applies to both the project administration and the production level. If human resources are scares you have to articulate your needs, you won’t get it served on a silver platter.”

“If there is few people available, if there are many projects running simultaneously, I have to be very clear in my requests. But, of course, if the market is tough, and we have to reduce our cost as much as possible in our bid, than we also have to incorporate that into the project administration. Than the department manager has to change his way of thinking a little bit, to put together a project administration that is qualified, but not over- or under-staffed.”

Another PM stated “You don’t decline a project offer because you might not have an available production manager”, saying that even though there might not be sufficient resources in the organization projects are still being accepted, mainly due to the economic conditions and reduced demand in the industry.

4.2 Company B

Human resource allocation practices - Structure and formalization

Company B has a flat organizational structure where different roles, tasks and responsibilities fall under the employee’s position or tittle. My respondents told me that the project manager title is a role description rather than a position title, meaning that the person that is project manager in one project may at the same time be an advisor or a researcher on another. Each role has a general instruction, but the overall formalization in company B is relatively low.

The people I interviewed told me that the allocation of human resources to projects is based on competence and experience. They also seem to agree that projects often result in competencies and experience that provides the grounds for new projects in the same area of expertise.

“We staff the projects on the grounds of professional competence and experience within the particular discipline. Because a project often includes several different tasks, in large projects we sometimes allocate employees that can help less experienced employees develop experience. That is a strategy of ours. However, generally allocation is grounded on professional assessments. [...]

“Our clients are often highly competent and have extensive background knowledge. Therefore, they are interested in very particular knowledge, and we have to link them with employees with specific knowledge that would benefit the client. Often it is quite obvious which people are equipped to be working on a project. That’s why most [project managers] only have 2 or 3 projects they work on.” (DM).

In company B the selection of projects are done on the basis of the competence and experience of the employees, and on the availability of these employees. Projects are acquired when the customer accepts the company’s bid. The bid is created by the project manager, before the project is a reality, and it includes estimates and calculations for human resources. In the process of creating a bid for a potential project, the project manager:

“Identifies a team, with human resources from the organization, but also including external resources, to staff the project. In this process of exploring, you quickly ascertain the availability of the human resources you want. Then the question is; if the human resources you want on the project is not available, is it worth the trouble of making a bid?” (DM).

If company B wins the bid, and the project is a reality, a project management group is established by the PM. When I asked the respondents who decides which human resource will be allocated to the project, I got several different answers. One PM told me that it was the DM that allocated the resources to his project.

“It was my boss [the department manager] who picked the people on my project. I was fine with that. I was OK with the people he allocated. There were never any

discussions. My boss wanted it like that and I thought his suggestions sounded reasonable, so it was OK.”

Another PM I interviewed had a different perception of the allocation of human resources to projects, telling me that it is the PMs themselves who decides which human resources to use on their project.

“I go directly to the person, asking him whether he is interested in working on my project, and whether he is available. I then tell him that I have to clear this with his supervisor, and then I talk with his supervisor. If the supervisor is fine with this, me and my colleague continues to talk directly about how we should solve [the project].”

It is clear that company B has a low degree of formalization, with few rules and governing documents. It is also quite evident that there is little enforcement of such rules, and that employees are free to implement their own personalized management approach.

“There is always a project description or a bid as the project foundation, because the client normally demands that. But, from that [start-up] document to the project delivery there is enormous variation in the formality of the documentation, that being milestone plans or progression plans etc. Sometimes there is nothing at all. Sometimes there are some correspondence via e-mail, saying *you have 50 hours to do that*. And sometimes there is a good description of roles and plans. I think it depends on the project size, or the project managers own experience. All these formal aspects should always exist, in every project, regardless of it’s size. But it’s doesn’t always exist.”

Resource availability, interdependencies, challenges and re-allocation

Due to the nature of the business of company B and the customer’s expectations, the organization’s human resources are highly educated, skilled and competent. The human resources are also quite segmented in their field of expertise. Customer’s expectation for quality and the segmentation in employee qualifications means that for any given project there really are just a few employees that are suitable to work on that project. One PM describes the situation like this:

“It’s not necessarily easy for them [the project managers] to find people that can assist them in their particular field. The organization is highly segmented in their disciplines.

In regards of the employee expertise, there might not be that many people who can assist you. Maybe only 2 people have the necessary experience.”

In connection with the limited pool of resources that a PM or a DM can allocate from, these resources are often unavailable.

“The people you need are often very busy, or busy doing other things in that time period the project is to be executed. There are considerations to be made. But the way we normally solve this is to use external human resources. That way we can partake in the project. We make different types of agreements with human resources outside the organization.” (DM).

The DM also tells me that many projects are passed up due to lack of available resources in the organization, stating that “there are many projects we could have bid on, but we don’t, because we don’t have the capacity. It’s pretty common, it happens all the time.”

On the subject of resource availability and organizational capacity, the respondents make conflicting statements. One PM say that though it is not easy to staff a project, considering the segmentation in the employees’ qualifications, resource availability is not really a problem because human resources can easily be re-allocated from other projects or external resources can be hired. Another PM say that the unavailability of resources, i.e. that the human resources that have the capability and experience to run a particular project is busy with other projects, determine which projects the organization pursue. While yet another PM feels that the issue of resource availability is outside of his scope, that it is the DM’s problem.

Re-allocation of human resources from one project to another is also a topic with differing opinions. One PM do not think re-allocation is widely used in this company. Another PM is giving contradicting statements when talking about re-allocation. The PM is saying that re-allocating human resources is easily and widely done, at the same time as saying that they don’t move people because the clients don’t like it when people involved in the project are replaced. To comply with the clients’ request about not replacing people involved in the project, re-allocation is done by absolving the employee from some of their tasks, freeing-up some time that could be allocated to another project. The tasks that are most commonly absolved are administrative tasks, because “It is easy to remove administrative responsibilities, everyone could do them. The expertise on the other hand, that is individual, and is not easily be transferred” (B3). The PM and the DM have a face-to-face dialog and talk about how to free-up time and re-allocate resources.

“The project manager is responsible for requesting additional human resources, and voicing the resource need. Then the department manager reach a decision, in cohesion with the project manager. [...] This conversation is face-to-face, and the project manager is highly influential. ” (B3).

This PM also informs me that the way in which this company is organized makes it easy and quick to re-allocate people, which the PMs appreciate. But it also “makes it a bit random or mercurial whom are working on the project, considering human resource development and career progression.”

Human resource allocation practices - personal relationships and networks

One PM I spoke with said that he often experience discussions and disagreements between PMs over specific human resources. In these situations, the management have to step in and make sure that the specific human resource does not get exhausted. However, the same PM later stated that “there are hardly ever disagreements, people are solution oriented.”

I was also told that personal relationships and networks are used when staffing projects in this organization. The DM said that:

“Everyone whom works here uses their professional networks extensively in the development and execution of projects”

“We tend to be path dependant. It is easier to work with people we have cooperated with before. It is a lower risk, you know what you get, you know what the other person is capable of. It is an investment to work with new people.”

All my respondents appeared to agree with this statement about personal experiences shaping human resource allocation practices. One of the PMs said:

“I normally pick people I have worked with before. [...] I staff my projects with people I know to be punctual, people that I know delivers and that I know will be able to do the particular tasks I need done on my project.”

Culture and ad-hoc practices

Everyone I interviewed said that the general attitude in this organization is to cooperate and help each other when possible. They described an easy-going atmosphere where you are awarded a great deal of flexibility and independence. One PM described it like this:

“My impression is that it is easy to talk to people in this organization. They are flexible, it is easy to get them to be creative and envision new opportunities. So far I haven’t experienced any obstacles.”

“As long as I prove that I make money, [acquire projects] that might expand the company’s profile or scope, as long as I contribute to the transaction costs, they [the organization] are happy to have me. And I can suggest whatever project I want, as long as it’s serious”

Another PM talked about the culture of delivering, i.e. how people are considerate of the interdependencies between work packages in the project.

It was also made clear that face-to-face dialog is widely used, and that there are few guidelines or instructions telling the PMs how to interact or allocate human resources to their projects. Further, it appears that a lot of the allocation decisions are based on the PM’s personal experience. The DM appears to believe that giving the PMs freedom and flexibility is in the best interest of the company, stating:

“We could have introduced a system where we give instructions, but that would not work in praxis. If the respective project manager tells me that he is not interested in doing something, and his reasoning is sound, then I don’t pressure him. I am not interested in an instructive management model in this organization.”

“You cannot manage an organization like this using command authority. That would only lead to conflicts and frustration. The only way to manage an organization like this is to facilitate a certain type of behaviour. That everyone understand their roles, the content of their roles, and that the roles is dependent on our tasks. [...] we change roles often.”

The PMs seems to correspond with the DM’s opinion, describing the human resource allocation practices like this:

“ I think that each project manager has established their own routines for how to conduct a project, for how to share documents, for how to create documents in the project group, and for how to configure the project. I think there are a multitude of ways to conduct a project, and that the employees repeat their patterns. So we are left with a spectrum of methods for conducting projects.”

This PM believe that the human resource allocation practices are individual and that the individual PM will use the same allocation practices and the same approaches on all his projects, regardless of the size or duration of the project. Another one of the PMs gives me the same answer, concluding that “I think each project manager always use the same approach, their own.”

How contextual conditions impact human resource allocation practices

In regards to project size, the DM tells me that there is a linear relationship between the project’s budget or cost, and the number of people working on the project. There is also a linear relationship between the project size and duration. When I asked the respondents about the implication of the projects size or duration on the resource allocation practices I did not get a clear answer. The DM said that the advantage of large projects is that the transaction costs are smaller, and less time is spent on planning and preparations. He also said that larger projects “provide financial stability and enable better organizational planning and development.” However, he did not mention whether these conditions affect the allocation practices, or if the company actively pursue projects with a long duration.

On the notion of project size and duration it appears that some PMs prefer long projects because it provides predictability i.e. secure income, other PMs prefer smaller projects because that enables them to work alone. Only one PM declared that the project duration directly impacted the process of allocating human resources:

“I want to know that I have a stable resource throughout the entire project. That is important to me. I do not want to have to replace the staff. This is related to the clients’ wishes, they want to engage with the same personnel throughout the project. So I would chose human resources that is available to partake throughout the entire project duration.”

This PM also addressed the relationship between project size and project complexity. Large projects often have several external collaborators, entailing more interdependencies between work packages, both internally and externally, and a higher degree of formalization. In his opinion, these complexities constitutes a need for an experienced PM that establishes routines and support systems.

What's more, the PMs told me that their choice of human resource is influenced by how busy the he or she is. In times where the PM is not that busy he is more inclined to allocate unexperienced people, as part of their integration into the organization. he is also more inclined to use employees that he does not have any personal experiences with.

4.3 Summary

During my in-depth interviews in company A and company B, I discovered similarities and differences in the way of acting and thinking about human resources. Company A portray a high degree of formalization and a strong culture of cooperation and respect for the formal allocation structures. Company B also depict an organization culture where cooperation is central. I'm almost inclined to sat that company B's culture of cooperating and helping each other is more intense than that of company A. However, it appears that this willingness to help is very personalized, meaning that people readily assist the colleagues whom are part of their personal or professional networks, but they are not quite as eager to invest in those outside their networks. In company A, on the other hand, it appears that the personal relationship between the PMs does not affect their attitude for helping each other, or interfere with the allocating or re-allocating process.

Company B has a low degree of formalization and an organizational structure that give the individual high level of freedom. The PMs are given free reigns to allocate human resources and to sort out resource requirements and re-allocation on their own, resulting in a spectrum of human resource allocation practices. In company A the options available to the PMs, regarding allocation and re-allocation, are more restricted.

Through my study of these two companies, I gained knowledge about the human resource practices that exists in the company, and I got a better sense of which conditions influence these practices. In the next chapters I will describe these practices, compare the two cases, and

give a detailed analysis of how human resource allocation practices are influenced by contextual conditions.

5.0 Discussion

The point of my study is to discover the actual practices for human resource allocation that exist in multi-project organizations. I also strive to find which contextual conditions influence these allocation practices, and how human resource allocation practices are affected by contextual conditions. My research question, as presented in chapter one, is:

What are the human resource allocation practices in multi-project organizations, and which contextual factors influence these practices?

During in-depth interviews in my two case-organizations I discovered a variety of practices for how human resources are allocated to and between projects. I found that these allocation practices can be gathered into three main categories that say something about the characteristics of the allocation practice. In this chapter I first describe the different allocation practices, i.e. *formality*, *culture* and *ad-hoc*. I then discuss which contextual conditions impact the human resource allocation practices in the two organizations, comparing theory with empirical findings. Lastly I present the outcome of my analysis; a model for the three categories of resource allocation practices and their links to the contextual variables. During my discussion, I will present several propositions. These propositions are the most significant empirical findings from my study. The propositions suggests the relationship between the contextual variables and the practices for human resource allocation. Some of my propositions coincides with findings from earlier studies on the topic, others contributes in filling the knowledge gap in literature on allocation practices for human resources and the contextual implications on these practices.

5.1 Human resource allocation practices

As previously mentioned, I found that all practices for allocating human resources can be gathered into one of the three categories *formality*, *culture* or *ad-hoc*. I found traces of all three allocation practices in both organizations, but they presented themselves in different ways, and in varying degrees. Since uncovering and describing the actual practices is an

important part of my research objective, I would like to dedicate space to discuss these findings first, before I start discussing how context affect practice.

Formality

The organization's structure is said to be instrumental for the organization's actions (Van Der Merwe, 1997; Jacobsen & Thorsvik, 2007; Christensen et.al., 2007; Teller et.al., 2012).

Working on this premise, the organizational structure of multi-project organizations is shaping its resource allocation practices.

Payne (1995), and Hendriks et.al. (1999) stated that most multi-project organizations has a matrix structure, which is also the case for company A and company B. The matrix structure is said to be well suited for organizations that carries out multiple projects and hereby depends on the same pool of resources, but this structure is also prone to conflicts due to its possible biases (Payne, 1995; Jacobsen & Thorsvik, 2007; Kerzner, 2009). Both company A and B are showing little signs of conflict, which is a-typical for matrix organizations. The lack of conflicts might be accredited to the newly introduced formalization system in company A and the easy access to external human resources in company B. External resources will be discussed in section 5.2.2.

The high degree of formalization in company A involve concise rules for how practitioners should act in any given situation, and just as Teller et.al. (2012) predicted, these rules has given visible reductions in conflicts and disputes in the organization. It does appear that the assumed conflicts brought by the matrix structure, e.g. conflicts between different managers over who gets which resources, is curbed by the fact that there is so little room for the managers to act independently from the organizational systems. If formalization actually do counsel out the predicted bias of the matrix structure, I would expect there to be more conflicts in company B, which has very low degree of formalization. But company B appears just as conflict-free as company A.

The absents of conflict in company B is likely associated with the resource availability and how PMs acquire human resources. PMs in company B have access to an external pool of resources that is affiliated with the organization through acquaintances, networks and prior collaborations. The easy access to these external resources reduces the biggest challenge for the matrix structure, which is the dispute over priority and over who gets which resources. As

there is no longer a lack of resources, there is no need for the managers to bicker about the resource allocation. Conflicts are also rendered meaningless by actual allocation practices used in company B, which are networks and personal relationships. If it is the human resources themselves that decides to sign on to a project, it seems more productive to use your energy on convincing the respective person on joining your project than on fighting with another PM.

Though conflicts in company B are not prevented directly by formalization, I would argue that the formalization, however low it might be, is what enables and motivates the ad-hoc allocation practices. In addition, the praxis of using external resources should be seen as system in the same category as formalization.

Company A has two main human resource allocation practises; 1) allocation and re-allocation through the formally established procedures, channels and arenas, and 2) re-allocation of human resources on the production level without the proper mandate from the DM, outside the assigned channels, approaching the respective PM directly. Now, the first allocation practice is an example of a formality based practice for human resource allocation, while the second practice is anchored in organizational culture. Though this second practice is not formality base it does not operate far outside the official allocation, the outcome of the allocation is pretty similar but the channels used are different.

The re-allocation in company B differs significantly from the re-allocation in company A. In company B the PM approach the colleague directly to see if he is interested in participating on the project. The PM then contact this colleague's supervisor to determine which of the tasks should be transferred to someone else, in order to free up time that this colleague can use on the PM's project. My findings show that the re-allocation process is much easier in company B, in part due to the organizational structure, the absents of formalized allocation procedures and the autonomy that PMs have. In company A, on the other hand, where the formalization is very high, the formal process for re-allocation is a little slower, resulting in an un-sanctioned but implicitly approved re-allocation practice. It is apparent that both of the human resource allocation practices in company A are shaped by the organizational structure and formalization – one is a formally described practice, while the other is a solution to a system failure.

The re-allocation practices in company B are visible confirmation of the flatness of the organization structure and the low degree of formalization. Structure and formalization is

shaping the human resource allocation practices in the sense that the absence of rules and instructions give room for culturally induced allocation procedures and ad-hoc allocation practices. Company B does not appear to have a formalized selection or prioritization system for the projects they run, the only criteria is that the projects align with the organizations strategy and areas of expertise. Further, the PMs are expected to procure their own projects and are responsible for their own revenue, factors that fit well with the loose management style practised in company B.

Most multi-project organizations are allocating human resources from the same pool of people, creating an environment where prioritization and resource availability are typical issues that needs to be addressed (Payne, 1995; Engwall & Jerbrant, 2003; Patanakul & Milosevic, 2008). Due to their external resource pool, resource availability is not a major concern in company B, hence the lack of a proper prioritization system doesn't seem to pose any problems. Neither does the absents of governing documents, ruler and instructions. The general lack of fundamental systems, and the seemingly indifference to follow the few rules that do exist, does not appear to challenge the resource allocation, nor does it create noteworthy conflict in the organization.

Formality based allocation of human resources constitutes that people are assigned to projects, or moved to-from- and between projects after project start-up, through formally established procedures and using formally assigned channels. As argued above, it is pretty evident that a high degree of formalization causes the organization to deploy human resource allocation practices based on formality. Both my findings and previous studies on resource allocation in multi-project organizations supports the claim that formalization is influential to choices, actions and practices of resource allocation. However, I am intrigued by the possibility that formalization is a mediator variable. I found several contextual conditions to affect the practitioners' human resource allocation practices via formalization. Formalization hereby act as the link that explain why a certain contextual variable have effect on the choice of resource allocation practice(s). This will be discussed further in paragraph 5.2.1.

Culture

Practitioners' action and behaviour is claimed to be influenced by a number of factors, e.g. their personal experiences, educational background and power base, the organizational structure and systems, organizational culture, project duration, size and prioritization etc.

(Cooper et.al., 2004; Blomquist & Müller, 2006; Blomquist et.al, 2010; Teller et.al., 2012; Martinsuo, 2013). An organization's culture, and the human behaviour within that organization is mutually reinforcing each other, creating practices that are a product of organizational culture at the same time as they upholds the culture.

For company B this means that the attitude displayed by the DM and other members of management, to give the practitioners free reigns to allocate human resources at their own accord, will incline the practitioners to exercise this freedom, and then they will demand it. The practitioners now conduct their projects, including human resource allocation, in a way that is not compatible with a hierarchical and formalized organizational structure, forcing the management to continue to give them autonomy. The culture in company B is one of *freedom with responsibility*, meaning that the PMs have the privilege to staff their own projects, using whatever allocation practices they see fit. This is based on the fact that it is the PM that stakes his reputation on project success, and it is the PM that is responsible for procurements and revenues.

The culture in company A is clearly influenced by the high degree of formalization and hierarchical authority. The practitioners appear to respect and follow the rules and guidelines stated in the organization chart and project execution map etc. The organizational culture is characterized by a deep-rooted acceptance of the limitations set by the organization's structure and systems, and that any additional leeway is at the mercy of the DM.

As mentioned in the section above, there is one official and one un-official practice for re-allocating human resources in company A. The un-official allocation practice has developed as a corrective measure to the cumbersome re-allocation routine prescribed by the governing documents. This re-allocation practice is both a response to the inadequate procedures for allocating human resources to and between projects after the initial start-up, and a display of the organization's cultural focus on cooperation, delivering on time, and focus on the totality of the business and not just the individual projects.

The organization culture in company A is very much geared towards dialog and cooperation. As the PMs explained it, there exists a tacit, implied agreement about how resource conflict are resolved, which is through dialog. And there is an inherent understanding that the outcome of such dialogs should benefit the business as a whole, and be acceptable for everybody. Dialog is the culturally and structurally approved form of communication, and disagreements are stopped before they escalate into conflicts. It is in the effort to resolve disagreements

peacefully that the PMs in company A engage in bargaining and negotiations. In addition to the up-front negotiations over human resources, the implicit understanding is that favours and goodwill will be repaid. The result is an inherent drive to accommodate colleagues' requests, and an inclination for cooperation.

An interesting discovery I made is that the culturally based allocation practices for human resources are not the primary allocation practices, but serves as additional practices that supplement the organization's main allocation practices. It might look as if the culturally based allocation practices will have close proximity to formality based practices in organizations with high degree of formalization, and be more similar to ad-hoc allocation practices in organizations where ad-hoc practices are predominant. Whether or not this is specific to these two case-organizations, or if it is representable to a broader set of multi-project organizations is not possible to determine at this point. But if it is in fact a representative finding, the implication would be that the contextual variables that drive an organization to use formality based or ad-hoc allocation practices are so powerful that they also pool the culturally based practices in that same direction.

It is said that multi-project organizations put a great deal of pressure on the people working in projects, that they often have too many roles and responsibilities, and that resources and time is not dedicated to each specific tasks (Payne, 1995; Fricke & Shenhar, 2000; Engwall & Jerbrant, 2003; Huemann et.al, 2007) This is seldom the case for company A. The reason is not because the employees are *well cross-trained*, like Fricke and Shenhar (2000) suggests, but because the company is organized in a way that put less pressure on the employees (e.g. the employees on the production level only work on one project at the time, they report to the same middle-manager on all projects and have a relatively stable team of colleagues. Further, they have clear roles and limited responsibilities).

In company B the employees do experience a great deal of pressure. They work on multiple projects simultaneously, have different roles and responsibilities in each project, and have insufficient reference points to allocate their own time and capacity to each of the projects. It does not seem likely that any of this pressure would be resolved by increased cross-training, like Fricke and Shenhar (2000) suggests. If anything, broadening their competence by cross-training them might possibly make their workload even heavier, because they would then be qualified to perform a broader range of tasks. However, Fricke and Shenhar's (2000) discovery that practitioners whom are cross-trained in multiple areas of expertise can move more easily between projects - hereby decreasing the stress on the individual practitioner and

improving the resource availability by widening the pool of resources – could resonate with the situation in company B. Respondents in company B declared that practitioners' skills and qualifications are highly specialized and highly segmented. Some of the respondents argued that this segmentation in the employees' competence is a major reason why human resource allocation is difficult in the organization. Whether this lack of cross-trained staff, and the high segmentation in human resources' skills affect the project execution or success is another matter, one that I cannot answer.

When it comes to considering interdependencies and resource availability, the structure and cultural understanding in company B asserts the responsibility to the PM. The human resources that constitute the project-team are generally conscious of the interdependencies between work-packages, more so that the interdependencies between projects. In company A interdependencies and resource availability are concerns that should be handled by the DM. But like Blomquist and Müller (2006), I also found that PMs often takes initiative to solve these tasks amongst themselves, only informing the DM after-the-fact. The organizational culture stress the importance of finding solutions that work for all parties, delivering on time and repaying favours. So, in situations where there is an urgent need, or needs that can easily be sorted out between PMs on a lower level, the PMs takes it upon themselves to resolve these issues outside the formal channels. Hereby the culture allows, or justify the use of a human resource allocation practice that is not grounded in the formal structure of the company.

Ad-hoc

Ad-hoc allocation is the generic term I have given to all the human resource allocation practices, actions and decisions, which entail a variation in the outcome each time it is practiced. Kester et.al. (2011) explained that the reason human resource allocation practices differ from project to project is that the practitioners' power-base in the project-organization is never rigid and may vary from project to project. In multi-project organizations, the project manager has to interact with other project managers, functional managers, department managers and so on (Blomquist & Müller, 2006). If you combine the project managers need to engage with other practitioners and the shifting power-base, you find that resource allocation practices constitutes a multitude of possible outcomes.

Amongst the allocation practices for human resources that are discussed in the literature I would consider bargaining and negotiation (Kester et.al., 2011; Martinsuo, 2013), power positioning and networks (Kester et.al., 2011) to be ad-hoc- allocation practices. I would also consider dialog, persuasion, discussion and the reaching of a mutual agreement to be ad-hoc practices. However, these modes of human resource allocation can only be considered as ad-hoc practices if they are not part of the organization's formal systems and structure, and that they are not a product of the organizational culture. The common denominator for ad-hoc allocation practices is that the outcome depends on the practitioners and resources involved - in addition to the various contextual factors.

I would argue that bargaining and negotiation is a form of ad-hoc allocation, because you never quite know what the outcome of a negotiation will be, hence the outcome will therefore be different each time. However, in the case of company A the bargaining and negotiation is more a manifestation of the organization culture. The deeply rooted understanding that resource problems are discussed and solved through dialog and mutual agreement lead to negotiation as a way to reach a mutually beneficial conclusion, or an agreement. Further, the highly formalized organisation structure give little room for alternative allocation practices, meaning that negotiations over re-allocation of human resource must be done within strict systemic frames. I would therefore suggest that bargaining and negotiation in company A is a form of communication, one that eases the cooperation and make the project managers feel they have a little bit of leeway in the otherwise very formalized resource allocation procedure.

Company B uses a great deal of ad-hoc allocation methods. Ad-hoc practices commonly used includes allocation through networks, personal relationship, persuasion and dialog. The PMs personal experiences is influential for the human resource allocation practices, as personnel is chosen based on the PM's experience, history and knowledge about the particular person. The PM is claimed to adapt his allocation approach according to the respective human resources he want to acquire. It is also claimed that the allocation practices used depends on which PM is conducting them. In other words, the choice of which human resource allocation practice is used depends on the practitioner (the PM) and the human resource(s) he wants to acquire. This entails a large range of possible approaches, resulting in an outcome that is difficult to predict.

The extensive use of networks and personal relationship is connected to specific contextual conditions, namely the client's demand and expectations. My findings imply that the industry and the academic discipline influence the use of ad-hoc methods. The industry which

company B operates within holds great expectation for the quality of the products they deliver, meaning that the employees in this organization has to be highly educated and experienced. They are expected to be autonomous, using their own networks and be responsible for their own revenue, which creates pressure that probably shape the PM's use of ad-hoc practices for staffing their projects. Dialog is another practice commonly used where PMs use persuasion i.e. the PM use their influence, reputation and personal relationships to persuade colleagues and associates to commit to the project. Dialog, persuasion and networks are all allocation practices where the outcome will differ from case to case.

My findings indicate that the practitioners' power-base is very strong, that their expertise and networks make them so unique and valuable that they are given freedom to allocate human resource in whatever way they'd like. I would therefore suggest that the reason why practice differ from project to project is explained by the practitioners' invaluable competence, rather than the shift in power-base, like Kester et.al. (2011) stated.

All the resource allocation practices in company B starts with the PM contacting the human resources. How the PM approaches and interact with the human resource is the actual process of resource allocation. But the fact that it is the human resource(s) themselves – the employees - that decide whether to join the project or not, the PM have to be flexible in his approach to them. It is hereby easy to see how the PM's personal relationships, networks and professional reputation motivates the employees response to such an invitation, and how it influence the human resource allocation practices.

Two implications can be derived from this situation: 1) the pressure that the employee is put under – being responsible for not overstretching themselves, and taking on multiple roles - is enormous and would maybe constitute what Huemann et.el. (2007) describes as role-overload, and 2) the outcome is ad-hoc practices to solve the resource allocation issues, e.g. power plays, persuasion, using personal and professional networks. My discoveries regarding human resource allocation practices in the two case-companies has resulted in the following proposition:

P1: All human resource allocation practices can be divided into three main categories; formality, culture, ad-hoc.

5.2.0 Contextual conditions that affect the human resource allocation practices

The studies of Payne (1996), Fricke & Shenhar, (2000), Engwall & Jerbrant (2003), Cooper et.al. (2004), and Huemann et.al. (2007) found a number of problems that multi-project management must overcome including; project interdependencies, limited resources, having to share the available resources with other projects, priority setting and resource re-allocation, competition between projects (for shared resources), and short-term orientation. Resource availability is listed as a main challenge for human resource allocation, claiming that the challenges can be traced to the issue of needing and sharing the same resources in an organization i.e. the issue of a *common pool of resources* and *project interdependencies* (Payne, 1995; Engwall & Jerbrant, 2003; Patanakul & Milosevic, 2008).

With this in mind, I wanted to examine which challenges my two case-organizations faces, and how these challenges influence human resource allocation practices and behaviours. By arranging all the possible practices into three groups or modes of human resource allocation (see figure 5.3A.), the impact of contextual conditions and challenges on the choice of allocation practice becomes clear (see figure 5.3B.).

5.2.1 Formalization and structure

Formalization is one of the contextual conditions that has been found to influence human resource allocation choices and practices. Cooper et.al. (2004) and Teller et.al. (2012) found a positive correlation between having a formalized management system, including formal resource allocation routines, and portfolio success, claiming that multi-project companies with a high degree of formalization performed better than projects with little formalization. Formalization was also associated with faster resource allocation and less conflict between projects over the allocation of resources.

The structure and systems of the organization, and the extent of the organization's formalization is expected to play an important role in its decision-making and the actions taken by practitioners, which is absolutely the case for both of the companies in my study. In company A the hierarchical structure and the heavily regulated systems provides clear boundaries for practitioners to work within. Practitioners are undoubtedly shaped by organizational formality, and their decision-making power is clearly curbed by the high formalization. It appears as though company A's structure and systems, in collaboration with the organizational culture, facilitates very specific and predictable allocation practices for

human resources, and that the strong formalization curb conflicts and unpredictable behaviour.

In company B it is the lack of formalization that most strongly shape the human resource allocation practices. The flat organization structure and the absent of rules and instructions most definitely enable the practitioners to form their own allocation practices. The result is a wide range of ad-hoc allocation practices where the outcome is unpredictable.

This unpredictability is scary, because it makes it difficult to develop, plan and control the project and the portfolio. It also makes it more difficult for the DM to supervise his employees, make sure that no one is taking on too much work, and avert conflicts before they develop. Said in another way; the lack of formalization give room for ad-hoc allocation practices, these ad-hoc practices encourage an organizational culture where the practitioners are authoritative and autonomous.

In the case of company B, this has led to a spectrum of methods for conducting projects. The spectrum of human resource allocation practices appears to be influenced by the PMs' personal experiences and educational background. It is however difficult to determine which other contextual factors that may impact the PM's choice of allocation practices. The organizational culture clearly plays an important role in the choice- and use of human resource allocation practices, but besides organizational structure and formalization it is difficult to point to specific contextual conditions that have a particularly strong impact on the culture in company B. The only other factor that seems to have a significant effect on practitioners' behaviour and choice of allocation practices is the demands and expectations of clients, which is the topic of section 5.2.3.

As I briefly talked about in section 5.1., formalization appears to be a mediator variable, meaning that formalization facilitates the casual connection between some contextual variables and the allocation practices used in multi-project organizations. For example, I found that changes in market conditions in company A's industry shape PMs' allocation practices because the high degree of formalization makes it difficult to respond to market changes quickly and adequately, this un-ability to adapt might lead to reduced workload for the organization, which again often lead to employee lay-offs that reduces the pool of available resources. I also suspect formalization to be a mediator variable for customer expectation, where demands and expectations from clients steer human resource allocation practices towards ad-hoc practices, with formalization being the intermediate link.

Formalization hereby appears to be the casual pathway between allocation practice(s) and some contextual conditions. This is an interesting finding, because the literature on human resource allocation only states that formalization impact's resource allocation and improves portfolio performance. The current literature does not specify that formalization is a mediator variable that serves to clarify the relationship between contextual conditions and human resource allocation practices. The notion of formalization as a mediator variable could open up for the possibility that other contextual conditions has causal connections to practice, via the degree of formalization in the organization.

The findings described in the section above has lead me to these three prepositions:

P2: Formalization is a mediating variable.

P3: Organizations with low degree of formalization mainly allocate human resources using uses ad-hoc practices.

P4: Highly formalized organizations mainly allocate human resources through formally established practices.

5.2.2 Resource availability

Resource availability is a real concern in multi-project organizations because the resource-pool is shared between several ongoing projects. PMs must compete for the same resources, making it difficult to use traditional resource allocation methods (Meredith & Mantel, 2012). Scholars have begun to criticize the traditional tools and methods for not addressing resource availability, inspiring a string of studies into the impact of resource availability on project success. As mentioned earlier, these studies found that lack of available resources impact project execution and portfolio success.

What is lacking, in my opinion, is studies on how the availability of human resources influence the human resource allocation practices – does the availability of human resources motivate practitioners to choose certain types of allocation practices? It strikes me at pretty obvious that having a sufficient number of human resources available to you throughout the project reduces the amount of in-process inventory and schedule slippages. And of course this improves the portfolio performance. What is not so obvious is **how** the availability of human resources shapes the decisions and behaviour conducted by PMs and DMs when it comes to allocating or re-allocating people to-from- and between projects.

My findings from company A and company B imply that vast and easy access to external human resources leads to ad-hoc allocation practices. The lack of available human resources internally in the organization can be solved by hiring external personnel. If the PMs and DMs have easy access to such external resources the availability of personnel does not have to be considered when making a bid or staffing a project. Further, un-sufficient access to resources and resource scarcity also incline practitioners to use ad-hoc allocation practices, such as negotiations, persuasion and personal relationships. However, as we saw in company A, which has high levels of formalization, resource availability tends to have a weaker effect on human resource allocation practices when allocation is anchored in formality. In other words, in highly formalized organizations resource availability influence how practitioners behave and approach allocation problems, but their actions stay within the boundaries provided by the organizational structure or set by the organizational culture, and the outcome is generally the same.

The vast access to external human resources is a contributor to the extensive use of ad-hoc allocation methods. The use of external resources on a project basis strongly reduce the largest and most common problem for multi-project organizations, which is depending on a common pool of resources. The DM in company B told me that due to transaction costs external resources have to be people that the organization have worked with before, they have to be affiliated with the organization in some way. In one sense all the external resources are then part of an external pool of resources, that all the PMs in company B can use. This external pool of people appears to eliminate the need for quarrelling and bargaining with other PM over scarce resources due to two reasons: 1) The external pool of human resource is very large and it is therefore no scarcity to address. 2) The external human resources are connected to the organization through personal and professional networks, therefore the external resources are in no way inclined to accept the request to participate in any of the projects that company B carries out. Which means that they accept participation request due to personal relationships with people in company B or a professional interest in the projects. In this sense, the allocation of external human resources is done through personal relationships, professional reputation and networks – which all entail some sort of negotiation and persuasion to work out the practicalities of the arrangement – all of which are ad-hoc allocation practices.

Company A also have access to external resources, either through transferring personnel from other branches in the firm or by temporarily hiring external personnel via agencies. The

difference from company B is that company A has a more elaborate system for acquiring external human resources, and it is the DM who have to approve the acquisition of external resources. The respondents in company A told me that using external human resources is not that common, at least not at the current time. It appears as though the financial situation and the number of projects the company has going, and the number of prospective projects, impacts the use of external human resources. Access to external resources lighten the pressure on the internal pool of resources, which in turn entail fewer issues related to resource scarcity and availability. As explained earlier in this paper, the access to human resource influence practitioners' action and choices i.e. it influence which human resource allocation practice is used. From this I can derive that the financial situation, the market demand and the number of simultaneously running projects also affect the allocation and re-allocation of human resources in company A.

In company A the authority to allocate people to and between projects is given by the organizational structure and formal hierarchy. On the project administration level the allocation practices does not change depending on whether human resource are plenty or scarce. On the production level, the first allocation practice, which is a result of a highly formalized system, is not impacted by the resource availability. The use of the second allocation practice, which is a culturally based practice, is influence by the lack of available resources. On this note, I suggest the following propositions:

P5: Resource availability influence the choice of human resource allocation practices.

P6: Easy access to external resources reduce dependence on the common pool of resources, and contribute to the use of ad-hoc allocation practices.

5.2.3 Customer demands and industry

The literature on multi-project resource allocation does not mention the industry or customer demands as influential for human resource allocation practices. According to general project management theory a project's main purpose is to meet stakeholders' needs and expectations (Burke, 2003) and project-organization has gained its popularity on its ability to adapt to consumer preferences and provide customized products and solutions (Karlsen, 2013). The apparent absence of studies which explores the connection between customer demands and

resource allocation is alarming, especially considering my discovery that customer demands has the strongest influence on organization culture in company B.

The expectations provided by the industry or the customers is recognized as impacting on the organizational culture, which is evident in both companies I examined. I found the demands of the clients to be most influential to behaviours of PMs in company B. In company B there is an invariable focus on quality, that quality is the most important aspect of a project, and quality demands determine the employees' eligibility for working on the respective projects. Quality seems to be the pillar of the organization, bringing with it a strong culture of *allocation by qualification*. This cultural focus on quality is a result of the clearly articulated demands of clients and the inherent expectations of the clients and the industry.

The specialized products that company B delivers, and the highly competent and demanding clients ordering them, is claimed to shape the choice of which particular people to bring onto the project. This in turn influence the allocation methods used by the PMs to get the particular human resources they want. The allocation methods deployed are all ad-hoc methods, but the choice of which ad-hoc allocation practice to use depends on the person doing the allocation, i.e. the PM, and the human resources he wants to attract.

Further, there does appear to be a connection between the expectations and demands from clients and the way in which company B is organized. In order to accommodate clients' expectations the PMs in company B needs to be able to use external expertise on a project-to-project basis. I think it is safe to say that it would not be profitable or even possible to employ a permanent staff that reflect the quality and expertise that the customers request. In that sense, it would not be unreasonable to say that the organization structure and level of formalization is a product of external circumstances, such as the expectations and demands from clients, the industry and discipline. Again I find that formalization might be a mediating variable that help determine the connection between customers expectation and the use of ad-hoc allocation practices in company B. I am hereby proposing the following:

P7: Clients' demands and expectations impact organizational culture and structure to accommodate the use of ad-hoc allocation practices.

5.2.4 Market conditions

As presented in the previous chapter, I found that the economic situation and market conditions within the industry affect the human resource allocation practices in company A. The overall economic situation has affected the market demand in Company A's industry, which entailed a reduced demand for the products and services that company A delivers. The change in market demand has reduced the number of contracts available for company A to bid on, hereby reducing the number of new projects that company A has taken on. The changes in market demand has also led to fewer projects carried out simultaneous, and caused the organization to downsize. Changing demand for products and services is very much the name of the game, and should be expected. It therefore strikes me as curious that the literature does not mention how changing demands and expectations may impact resource allocation in multi-project organizations. After all, the project's flexible and ability to adapt to a changing environments are fundamental reasons why organizations use the project-format (Burke, 2003; Karlesen, 2013).

It is important to point out that the organizational structure play an important role in the downsizing of company A. The comprehensive organizational structure, and the fact that they mostly rely on internal human resources instead of external resource, is a major contributor to why company A had to reduce their staff. In company B, where they use a great deal of external resources to staff projects and where fewer practitioners have full-time positions, shifts in market conditions or the overall economy is stated to have miniscule impact on the organization or the allocation practices. Company B is composed to give the necessary flexibility to accommodate changes in demand and capacity – company A is not. It therefore seems as though formalization is the mediation variable that connects the changes in market conditions with the choices of allocation practices. Formality based allocation practices builds on rigid systems and structure, systems that are cumbersome in responding to changes in market demands and the overall economic situation. The implied connection between allocation practices, highly formalized systems, and ability to respond to market conditions, leads me to propose that market conditions have a real effect on resource allocation practices.

Further, the downsizing has left company A even more vulnerable to shifts in market conditions. Their inability to pick-and-choose which projects to take on might in turn affect the size and duration of the projects. According to my respondents, it is no secret that large, long-lasting projects are preferred, as these provide more consistency. When the organization find themselves unable to choose projects based on their longevity or organizational capacity,

they risk losing this consistency. They also risk putting more pressure on their staff. The market conditions in the industry hereby affect the human resource allocation in company A by reducing the pool of resources, reducing the number of simultaneous projects, and reducing the consistency – which all are found to be conditions that shape practitioners actions.

I have found that several contextual conditions affect the practitioners' human resource allocation practices via formalization (or lack of formalization). Changes in market conditions is one of these contextual conditions. In company A, PMs' allocation practices are affected because the rigid systems and high degree of formalization makes the company less flexible in its encounter with changing market conditions. Because highly formalized organizations tend to use formality based allocation practices for human resources, organizations with formality based allocation practices will likely be affected by market conditions. It appears possible that it is the formalized organizational systems, which often entail formality based allocation practices, that is the reason why market conditions has such an impact on the organization. I hereby suggest this preposition:

P8: Organizations that use formality based allocation practices are likely to be more affected by changing market conditions than organizations that use other allocation practices.

5.2.5 Project size and duration

Cooper et.al. (2004) suggest that the duration of projects is of significance for the portfolio performance for multi-project organizations. The duration (short-term vs. long-term projects) seems to be important in terms of the composition of projects undertaken at the same time and how these interface with each other. Like one of the PMs in company A put it; if the organization in January takes on three projects with different duration, by September project 1 and project 2 might have ended up in the same phase as the existing projects Z, X and Q. A project-oriented organization should aim at obtaining a steady and sable portfolio that more or less holds the same workload at any given time. This has to do with the organizational capacity and available resources. Taking on projects with different duration is demanding in terms of planning and scheduling, it makes it more difficult to maintain a consistency in staff, and it might leave the organization more volatile. In this sense, the balance between the number of projects and the available resources is key (Cooper et.al., 2004).

Company B has solved these issues by having a staff that is responsible for their own revenues, having a large number or part-time employees, and having easy access to an external resource pool that they can tap into whenever necessary. This enables company B to keep a consistent staff, not having to worry about the project duration and potential bottlenecks or slippages.

The organizational structure and the absent of a readily available external resource pool makes company A more affected by duration and number of projects. Project duration does affect PMs allocation practices for human resources. Because it is work-hour that are allocated to the project specific tasks, the duration of the project determine how many people are required to work on the specific task. Project duration together with resource availability also affect the order in which tasks and work-packages are executed. According to respondents from company A this puts a strain on the allocation of human resources, and it shapes practitioners behaviour.

Though company B is less affected by project duration and number of projects carried out at the same time, the project size has a small impact on the allocation process. Because the clients are concerned with consistency in the team working on their project, the PM is inclined to allocate human resources that can commit to the whole course of the project. Further, the proportional relationship between project duration, the size, and the number of human resources working in the project team, entail an additional criterion for determining which people are qualified to work on the particular project i.e. prior experience from working on large projects with a lot of interaction between team-members. Based on these findings I have come up with the following proposition:

P9: Project size and duration impacts the human resource allocation practices.

5.3 Model for human resource allocation practices

Based on the findings in my study of human resource allocation practices, along with the various praxis and practices for resource allocation presented in established literature and studies on project management, I have created a model for categorizing the available human resource allocation practices and illustrating which contextual condition impact the modes of allocation practices.

I have derived three different modes for *doing* resource allocation in a multiple-project environment; **Formality**; **Culture**; **Ad-Hoc**. Together, these three modes should be able to capture all actions taken and all practices that exist in the process of allocating human resources in a multi-project setting. What's more, this model is a way of categorizing human resource allocation practices, not limit the organization's allocation choices. An organization can hereby be deploying practices from all three modes simultaneously. Kester et.al. (2011) stated that organizations tend to use a combination of different decision-making practices, and I found that they also use a combination of resource allocation practices. The notion of three broad categories that signifies the drive, or main reasoning, behind the human resource allocation practices provides an orderly overview of the allocation practices described in management theories and discovered in empirical studies. The model is open enough to accommodate new practices, which should be able to fit in one of the three categories.

The three modes of human resource allocation practices are:

- 1) **Formalization** - resource allocation through organizational structure, systems, formal rules and regulations.
- 2) **Culture** - resource allocation through informal practises, implicit rules, norms, discourses and culturally established rules of action
- 3) **Ad-Hoc** – random resource allocation that is specific to the respective situation or project. The outcome will vary from project to project and it would be difficult to predict. Human resource allocation is done by dialog and persuasion, bargaining and negotiation, displaying power, using leverage or professional reputation, using personal relationships or networks.

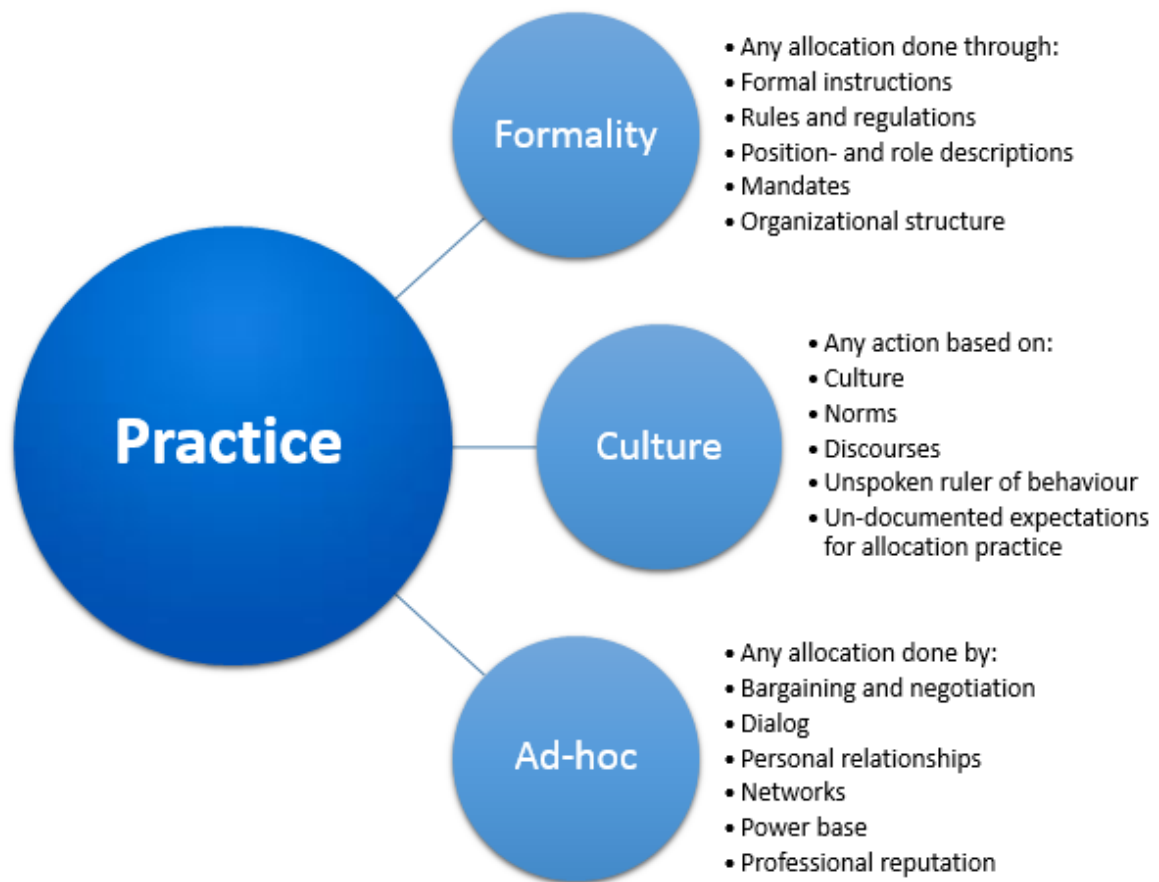


Figure 5.3A. Model of human resource allocation practices. (authors own figure).

The model above (figure 5.3A.) gives an indication as to which human resource allocation practices you could expect to find in a given organization. The final results of my study is presented in figure 5.3B., which illustrates which contextual conditions that affect human resource allocation practice(s) in multi-project organizations. The model also refer to the propositions presented earlier in this chapter.

Modes of human resource allocation practices

Contextual conditions affecting allocation practices

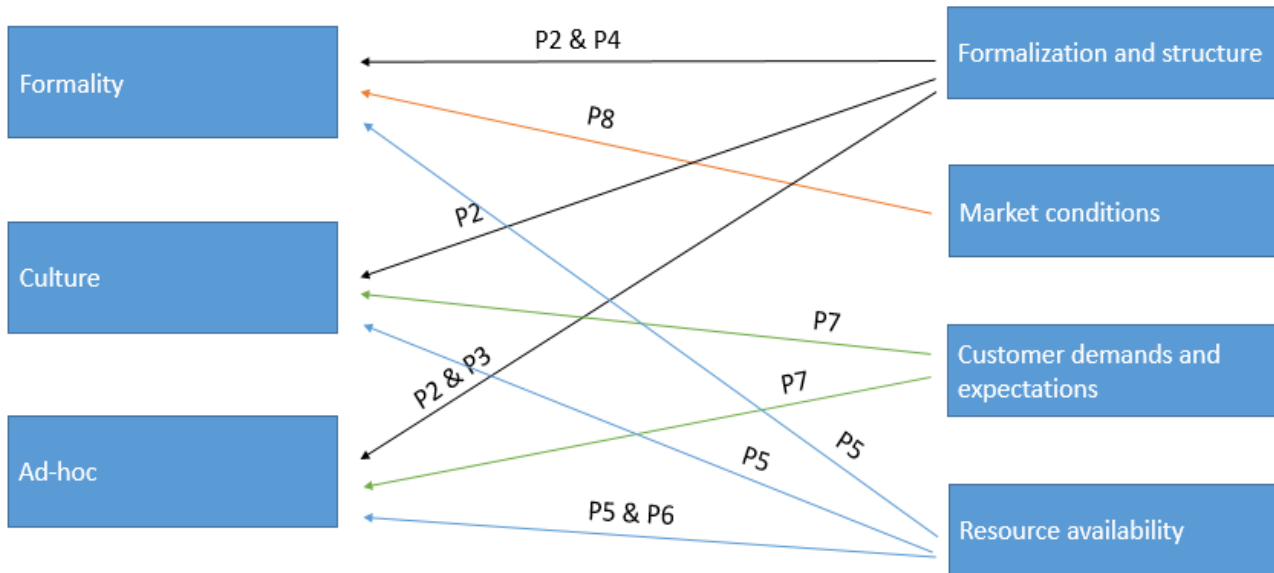


Figure 5.3B. Model of contextual impact on human resource allocation practices. (authors own figure).

6.0 Concluding remarks and further research

In my concluding remarks I would like to address some of the limitations of this study. I took extensive precautions to avoid possible adverse effects of qualitative interviews (Repstad, 2007). I tried to hinder respondents from preparing standardized and company-approved answers to my questions by being vague in my initial contact with the respondents, and also in the pre-interview summary. I described my research objectives in a very general way, giving the respondents a minimum of theoretical background on the topic of my thesis. I enabled the respondents to give me their own perceptions and experiences by asking open-ended questions, trying to minimize my own interference. In my efforts to avoid influencing the respondents' answers I experienced that some of the respondents needed additional

explanations and clarifications to understand the actual content of my questions, forcing me to reveal more information than I originally intended. The consequence is that my respondents received different amounts of information about my research objectives and the existing literature on the topic. Though this could potentially have a leading effect on the respondents, in my observations it did not appear to influence their answers. I believe I got the respondents honest opinions and personal reflections of the practices and the contextual influences in the organization.

Another limitation is the small pool of respondents used in this study. It is possible that a larger number of respondents could have revealed variations in the practices used to allocate human resources or the contextual conditions impacting these practices. However, the snowball sampling method informs us to stop collecting data when saturation is reached. I am confident that saturation was reached in company A. I am also confident that I retrieved the necessary and representative information from company B, though I believe that company B is so segmented that I would not have reached complete saturation before having interviewed the whole organization.

My interviews were conducted and transcribed in Norwegian. Though I experienced no problem translating them into English, I am aware that any translation entail a risk of losing or adding meaning or impact to the citations. In that respect I would like to point out that the respondents' dialect, distinctive words and expressions were concealed by the translation into English. That being said, I believe that my method of quoting and re-telling is within the guidelines presented by Gibbs (2007).

Results and further research

Through my study I found that the allocation practices for human resources in multi-project organizations can be gathered into three categories; formality, culture, ad-hoc. Each of these categories can be seen as an umbrella term that illustrates the characteristic traits for the allocation practices that belong in the respective category. In respects to the contextual conditions, project size and duration, resource availability, and access to external resources appears to be factors that impacts the resource allocation practices in multi-projects. Thus, my findings supports the suggestions put forth by Patanakul and Milosevic (2008) and Cooper et al. (2004) in earlier studies that project duration, and resource availability affect human

resource allocation. But where Patanakul and Milosevic (2008), Cooper et al. (2004), Engwall and Jerbrant (2003) found that that lack of available resources – known as the common pool of resources – is the most significant characteristic of multi-projects (and that tis often lead to conflicts), I found that in addition to affect the choice of human resource allocation practices, access to external resources reduce dependence on the common pool of resources, and contribute to the use of ad-hoc allocation practices.

I also found that formalization has a profound impact on human resource allocation, and the organization in general. According to my results, organizations with high degree of formalization use formality based practices for human resource allocation, while organizations with low degree of formalization use ad-hoc practices. These findings are important because they tell us **how** formalization impacts the organization's resource allocation, rather than just saying **that** formalization impacts the organization and its performance.

What's more, formalization appeared to be a mediating variable. This entail that other contextual conditions, e.g. market conditions or customer demands and expectations, impact the allocation practices via formalization, where formalization operates as an intermediary. This is a very interesting result, because no previous study has found or explored formalization as a mediating variable. Further, it might help explain why a particular contextual variable might influence practice in some organizations while not in others. I recommend that formalization as a mediating variable be the subject for further studies, as such an intriguing discovery deserves studies that are devoted to examining the phenomenon in its entirety.

Though I consider the proposition that formalization is a mediating variable as my most important findings, there were another proposition that also stood out as particularly interesting. I found that human resource allocation practices, and the considerations PMs makes when staffing projects, are influenced by customers' expectations and demands. This might strike you as logical - that you listen to and adapt to the client's requests for the product they are buying – but this is something that no previous studies have found, or bothered to report on. The significance of this finding is linked to two of the fundamental rationales for organizing work and assignments in projects, namely that the project format enables the organization to deliver custom-made products (Karlsen, 2013), and meet stakeholders' expectations (Burke, 2003). Further, it appears as though the impact customer demands have on the organization embraces several aspects of the company.

The extent of the lengths company B has gone to in order to accommodate their clients' demands is quite remarkable, and it has been prescriptive for the organization's structure, culture and degree of formalization. Customer expectations has been significant in shaping the resource allocation practices in company B, but appears less influential for the allocation practices in company A. I therefore encourage further studies on how customer demands and expectations affects the resource allocation practices in multi-project organizations. I also urge that further research is done on the significance of market conditions on human resource allocation practices. Just like customer expectations, shifting market conditions are considered amongst the principle reasons why organizations use the project-format in the first place.

I acknowledge that my study has a limited empirical basis, having explored only two organization. Furthermore, the two case-organizations have profound differences on areas such as structure, culture and the products/services they provide. However, the most significant findings derived from this study are validated and supported by both cases. The variation in how influential customers and market conditions are on practices underpins my encouragement for further study on this. My proposition that formalization is a mediating variable appears to be supported by several of the discoveries made in this study, though, I strongly encourage that further study is done on this area also.

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Information was also gathered from the internet page of company A and company B.

Intervju guide

Tema	Åpne spørsmål	Oppfølgingsspørsmål
<p>Resource allocation practises: models of resource allocation in and between projects in a multi-project organization.</p> <p>1) allocation through organization structure, routines, systems</p>	<p><i>Kan du fortelle litt om hvordan ressursallokeringen foregår i denne organisasjonen/prosjektavdelingen</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Finnes det systemer eller retningslinjer for ressursallokering i og mellom prosjekter? <input type="checkbox"/> Finnes det dokumenter som gir retningslinjer for dette? <input type="checkbox"/> Fortell hva disse systemene innebærer <input type="checkbox"/> Hvem har vedtatt / iverksatt disse systemene? <input type="checkbox"/> Til hvilken grad følges disse systemene? <input type="checkbox"/> Hva er din personlige oppfatning av ressursallokerings systemene, opplever du dem som nyttige/meningsløse/realistiske? <input type="checkbox"/> Hvordan føler du at dine kollegaer opplever slike systemer og retningslinjer for ressursallokering i og mellom prosjekter?

Tema	Åpne spørsmål	Oppfølgingsspørsmål
<p>Resource allocation practises: models of resource allocation in and between projects in a multi-project organization.</p> <p>2) allocation practises anchored in organizational culture, norms, implicit knowledge</p>	<p>Kan du fortelle litt om hvordan kultur, normer, holdninger og uskrevne regler spiller inn på ressursallokeringen i denne organisasjonen/prosjektavdelingen</p>	<ul style="list-style-type: none"> • <input type="checkbox"/> • <input type="checkbox"/> • <input type="checkbox"/>

Tema	Åpne spørsmål	Oppfølgingsspørsmål
<p>Resource allocation practises: models of resource allocation in and between projects in a multi-project organization.</p> <p>3) Ad-Hoc allocation practises; power struggles, coincidental resource allocation</p>	<p>Ressursallokeringen i organisasjonen/ prosjektavdelingen:</p> <p>* Foregår den alltid på samme måte? Er den lik for alle prosjektene?</p> <p>* Hvordan varierer den i så fall?</p> <p>– hvilke faktorer/ forhold bestemmer eller avgjør hvordan allokeringen av mennesker og arbeidstimer / stillings-brøk skjer?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Hvordan går du fram for å få med deg de menneskene du trenger til ditt prosjekt? <input type="checkbox"/> Hvem må du krangle med for å få de (navngitte) personene du ønsker? <input type="checkbox"/> Hvordan forholder du deg til funksjonell leder/ linjeleder/ avdelings leder? <input type="checkbox"/> Bruker du samme framgangsmåte i alle prosjektene dine? <input type="checkbox"/> Hvilke forhold spiller inn på dine valg i henhold til måten du «gjør» ressursallokering i dine prosjekter? <ul style="list-style-type: none"> - Prosjektets omfang, kundenes krav etc <input type="checkbox"/> Hvordan blir ressursene – delt inn i stillingsbrøker (hele eller oppdelte) – antall arbeidstimer – i de ulike prosjektfasene?

Tema	Åpne spørsmål	Oppfølgingsspørsmål
<p>Kontekst og variabler.</p>	<p>Kan du gi litt fakta / bakgrunns informasjon om organisasjonen og prosjekt-utførelsen</p> <p>Kan du kort si noe om suksess i forhold til prosjekt gjennomføringen?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> organisasjons struktur <input type="checkbox"/> størrelse på prosjektene <input type="checkbox"/> varigheten på prosjektene <input type="checkbox"/> antall prosjekter som kjøres samtidig <input type="checkbox"/> portfolio performans: <ul style="list-style-type: none"> - gjennomføring innen tidsfrister, mye forsinkelser? - gjennomføring innen budsjett-rammer, kostnadsoverskridelse? - i hvilken grad er dette grunnet god/dårlig ressursallokerings praksiser?

Tema	Åpne spørsmål	Oppfølgingsspørsmål
<p>Utfordringer i Multi-project management og multi-project resource allocation</p>	<p>Kan du fortelle litt om utfordringer for ressursallokeringer i organisasjonen/ prosjekt-avdelingen?</p> <p>* Utilstrekkelig med menneskelige ressurser og mangel på nøkkelkompetanse og nøkkel-personer.</p> <p>* Avhengighetsforhold mellom prosjekter og mangel / tilgang til ressurser</p> <p>* Priority setting and resources re-allocations</p> <p>* Competition between projects</p> <p>* Short term problem solving - brannslukking I stedet for langsiktige løsninger</p>	<p><input type="checkbox"/> Hvordan skaffer du den kompetansen du trenger til ditt prosjekt?</p> <p><input type="checkbox"/> Hva gjør du dersom nøkkelpersoner ikke er tilgjengelig</p> <p>- Tar du til takke med andre? Venter du til nøkkelpersonene er ledige?</p> <p><input type="checkbox"/> Hvem avgjør hvilke mennesker som skal jobbe på ditt prosjekt – antall personer og stillingsbrøker/ arbeidstimer/ navngitte personer.</p> <p><input type="checkbox"/> Hvordan kan du selv påvirke dette?</p> <p><input type="checkbox"/> Opplever du at du underveis i prosjektet kan miste personer pga større eller umiddelbare behov i andre prosjekter?</p> <p><input type="checkbox"/> Hvordan påvirker det at dere kjører flere prosjekter samtidig allokeringen av ressurser?</p> <ul style="list-style-type: none"> - Avhengigheter mellom prosjekter - Behov for samme kompetanse/ mennesker, tildeling av stillingsbrøk mm. - Dersom to prosjekter trenger samme nøkkelpersoner, hvordan løses det – prioritering? forhandling? Sjefen bestemmer? Maktkamp mellom prosjektledere for tilgang på ressurser? Utnyttelse av nettverk og bekjente? <p><input type="checkbox"/> Fører du lik praksis for alle prosjektene</p>