Innovation of project management

Translation of the Half-Double methodology into a project practice

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Innovation of Project Management:

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Abstract:

Purpose: Thesis explores how contemporary innovation is done within project management by studying the value-creating effects of the recently developed project management methodology 'Half-Double' in the project practice of the Grundfos company.
Background: Half-Double methodology developed from an informal network started in Danish industry with a goal to bring radical change to the practice of how projects are managed. The methodology was first used in pilot projects in 2015, and one of the earliest project which took place was in one of the largest pump manufacturer on the world, Grundfos. The thesis explored how the methodology benefited the organization in the long term, and how the Grundfos practitioners translated its concepts into their practice.
Methods: Thesis is based on an empirical research with inductive approach; project managers as well as members of the pilot project in Grundfos were interviewed about their practice and their perception on the methodology. Additionally, two Half-Double consultants and two academic researchers gave their insights on the implementation and development of the methodology.
Results: Selected parts of the Half-Double methodology served the Grundfos practitioners as an inspiration for enhancing their practice. It was also seen that their project practice is strongly influenced by the context of their surrounding organization, with several accompanying challenges identified.

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1. Introduction

Ever since I was young, me and my friends would engage in some sort of creating. These would at first be some simple games that we might play just once, or perhaps some adventuring expedition in nature. Making our projects a reality was thrilling, engaging and exciting.

As we grew older, our projects became more and more complex. They would involve many more people, require more time and resource investments, and some decent planning done well in advance. Our goals became more ambitious, but so did the obstacles we had to deal with. We realized that someone has to pay attention not only to What we are trying to create, but also How we are trying to manage it. We realized some parts of our projects needs to be done before others. That we need to have a clear communication with all the people that are involved, and that a shared vision between all the parties is far from guaranteed. That not everybody is equally motivated or responsible to complete the project, and many more.

Some of these experiences came from observations, some had to be learned the hard way. But in each case, it was clear that larger the project, the larger the need for some common framework on how the things will be done, a framework that would ease and simplify the collaboration between all the people that wanted to help the project happen. We needed to set up and clearly pass on what is everybody doing and why. We needed to keep participants motivated, work efficient and satisfying, and try our best to make the project an enjoyable success.

At the time of course, we didn't think about these needs in terms of a project management model, most of our activities would be done by trial and error. It wouldn't be after much later, when some of us become employed by large organizations, when we would first come into contact with contemporary management structures for handling projects, and with advanced techniques for planning and controlling the processes that we wouldn't even think of in our volunteer ventures. Yet, despite having these elaborate project management tools, many teams within the organizations seemed to be struggling. We would see projects falling behind, project managers overwhelmed, people frustrated and demotivated.

Perhaps these were just singular experiences, caused by an exceptional context, nature of the work or by people with insufficient skills. But more often than not, I wondered to what extent the set up project managements rules and supporting tools are to blame. And if the people involved in the projects could experience the excitement of their creation as we did when we were younger, if these were perhaps set in a different way.

The premise of mutual influencing of actors and their tools is deeply rooted in fields like techno-anthropology (Børsen, Botin, 2013). The behaviour of individuals is described not as

made autonomously by humans, but as a product of the relationship of the individual and his tools. (Verbeek 2011). In the context of projects, the supporting project management tools, methods and models have therefore a significant impact on how people will act, and can enhance - or hinder - much of the project participants work, passion and ideas.

The ability to manage our projects well, and build our supporting frameworks for them adequately, is undoubtedly one of the most important skills of our lives. Various projects accompanies us throughout our professional careers as well as in our personal ventures. In fact, project became so omnipresent in the past decades, that some authors talk about a shift from a disciplinary society to a project one. Jensen, Thuesen & Geraldi (2016) describe this by showing how societies in the past were built upon planning and fixations, and the transformation we have undergone to a society where our activity plays the central role. It doesn't matter so much where we do the activity, nor where do we come from, as much as our potential to do things. Today, to be active is a premise to be seen; and our identity in society is becoming less defined by our position, but more by what we can do. And since projects are a good way to structure our activities, each of us manages a portfolio of projects, which includes career moves, hobby-related events or family vacations; there are so many opportunities for projects to pursue, that the major questions of our lives are now centered around which projects to go for and which to let go (Jensen, Thuesen & Geraldi, 2016).

The need for managing projects well increases in the context of organizations, where companies would often include more people and commit significant resources to make their goals happen. Projects became increasingly more present as a way to structure work across different industries (Bakker, 2010), and enable organizations to pursue further development and innovations (Jensen, Thuesen & Geraldi, 2016). There are indeed many incentives for organizations to structure their activities into projects, and it is likely that there will be even more so in the future. Projects are made to make a change. To create something new, within a mostly unrepeatable context. And companies need to figure out how to adapt to the new economic realities, which are progressively changing. As many authors demonstrated (e.g.: Brynjolfsson and McAfee, 2014, Campa, 2014, Cowen, 2013), technology is evolving with unprecedented speed, and there are many reasons to believe the future will be significantly different from the one in the past (Chrastecky, 2016).

Projects are a way to embrace innovation. To further develop, and to create something new. But how do we innovate our approach to managing projects? Which project management tools ease our collaboration, and what hinders it? Where is the need for embetterment?

This thesis was done with a goal to explore the contemporary innovation of project management. It does so by investigating present challenges of project management as described in literature,

and by conducting a case study of a new project management methodology which tries to overcome these challenges: The Half-Double. This initiative behind the methodology started in Denmark with an ambitious goal to make a radical change in how projects are handled, with first projects using this methodology done in 2015. The research of this thesis explores the context which the methodology tries to improve, it studies the development of the methodology, and examines its long-term impacts within an organization.

The thesis is structured into the following chapters:

Chapter 2 introduces the state of the project management discipline.
It gives an insight into its changing paradigm; a growing transformation of mindset, which also gave rise to the Half-Double methodology. It then continues to explore the most highlighted project issues described in literature, and gives a glimpse into what the present management has to deal with when trying to handle its projects.

Chapter 3 explains the case study and its research objectives.
The initiative of the Project Half-Double is introduced, as well as the case study and the place where it was conducted - the company Grundfos. Research goals are then clarified and delimited.

Chapter 4 presents the research design of this thesis.
It describes how the exploration of development of the project management discipline was approached, and how the empirical research was done in the Grundfos company.

Chapter 5 discusses the theoretical framework of project management and its development.
The emphasis is put on the evolution of project management approaches. Pre-models era is briefly discussed along with the development that lead to the establishment of major institutionalized project management doctrines. The underlying theories of these doctrines are then explained, and critiques that are put forward against it discussed. The chapter continues by describing alternative project management approaches, and examines how the initiative of Project Half-Double was inspired by them. Section concludes with a detailed description of the Half-Double methodology, it's proposed principles, methods and tools.
The purpose of the chapter is to map out the evolution of major parts of the project management discipline up to the most recent developments, and see how the Half-Double methodology builds on it.

Chapter 6 presents the insights gained from the case study in Grundfos.
The chapter is structured by several themes that emerged as important from the empirical research. It is seen how the Grundfos practitioners adapted the methodology, and discussed what challenges they perceive.

Chapter 7 discusses the implications of chapter 6.
Identified benefits and challenges are further discussed, and additional perspectives on the practice and the methodology development is brought in by Half-Double consultants as well as Half-Double related academic researchers.

Finally, **Chapter 8** provides a conclusion on the empirical research, summarizes the thesis and discusses limitations and future perspectives.

2. The Paradigm shift within project management

When we take a look at the project management discipline, we'll see that the idea to come up with new approaches and rethink the current practice is not something new. As Svejvig and Andersen (2015) showed, the academic literature that deals with the theme of 'rethinking project management' (term from Winter et al., 2006) can be traced as far as to 1983, with the research stream being active mostly since 2006. The rethinking literature proposes additional areas to be researched within project management, and offers new conceptualizations and perspectives that complement or challenge the established views on project management.

It is these established project management doctrines to which the rethinking research delimitself to. The discipline is considered to be majorly influenced by the heavily institutionalized project management doctrines which formally arose in 1960s and since then became gradually standardized in project practice. Denoted by Svejvig and Andersen as the 'classical project management' approaches, they are commonly presented by its most widely used methodologies such as the Guide to the Project Management Body of Knowledge (PMBOK - Project Management Institute, 2013) or 'Project IN Controlled Environments' (PRINCE - Office of Government Commerce, 2009). The innovative efforts which tries to rethink the current practice therefore often take the established approach of these classical methodologies as a starting point - as the current practice that they try to change or build upon.

This attempted transformation can be described as an effort to shift the paradigm in project management. Pollack (2007) explains that by paradigm, it is meant a set of assumptions, values and concepts that a given community shares, and through which it perceives the reality. He further explains that the established traditional doctrines are built on and follow what he described as the 'hard paradigm' within the project management discipline.

The Hard paradigm, with which the classical project management approaches are generally associated, Pollack depicts as based on positivist epistemology, deductive reasoning and quantitative or reductionist techniques. In the practice inspired by the hard paradigm, the focus then tends to be given on efficiency, on the control against predetermined goals and on delivery led by experts who 'know the best'. Moreover, the control over the processes and strong interest in how the underlying structures of an organization are built are in the center of attention of the projects done in accordance within the hard paradigm.

For some, these concepts might seem as a norm which the project management follows for a long time. However, as Pollack tells us, there is a growing acceptance of what he describes as

'the soft paradigm' of project management, in which different values are put up to the spotlight. Contrary to the objectivistic views of the hard paradigm, the soft paradigm is associated with an "*interpretive epistemology, inductive reasoning, and exploratory, qualitative techniques, which emphasise contextual relevance rather than objectivity",* which leads the practice based on this view to "*emphasise learning, participation, the facilitated exploration of projects",* and the general interest is put more on the underlying social processes (Pollack, 2007:267).

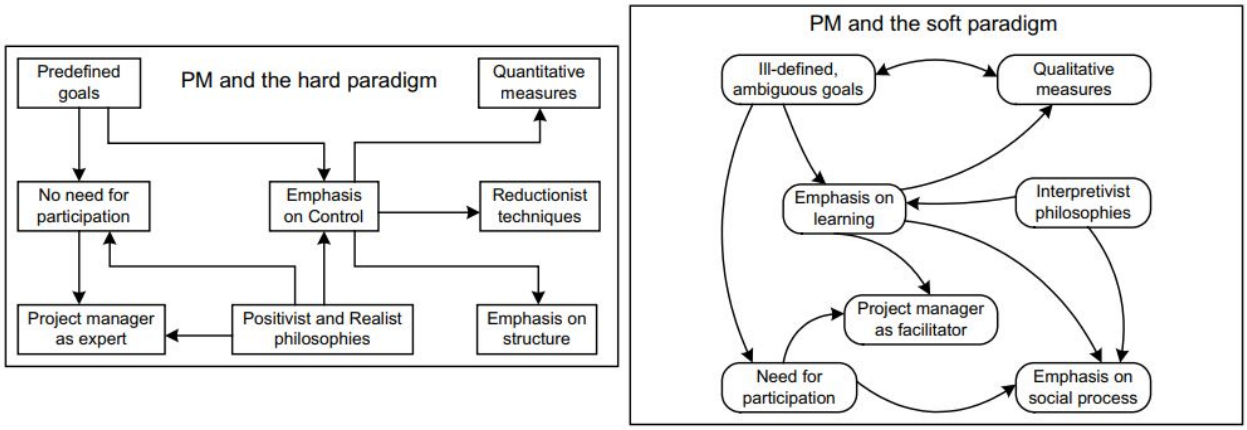

Table 1. Interrelationship between the attributes of the hard and soft paradigms. (Pollack, 2007:267)

The shift generally proposes putting some values like openness to learnings, perception to social process and being adaptive over the established ones, that are associated with the traditional control-focused approaches. One could say that the shift is foremost the shift of the mindset, on what is the direction with which the project management should be done.

The contemporary propositions on changing the project management practice mostly follow the soft-paradigm. In their review of literature dealing with this theme, Svejvig and Andersen (2015) confirm the growth of the soft (or subjectivistic) paradigm by noting that the majority of contributions dealing with changing the practice fall under this category. Authors of these contributions often highlight the need to go beyond the traditional views on project management, and the need for rethinking the practice.

The first question to examine will be why is it proposed that the practice needs to be rethought. Chapter 5 describes the development and criticism put forward against the classical project management methodologies specifically, but before that, we will take a more broad look at the challenges that are described when it comes to conducting projects, and which leads some authors to look for new ways on how to do projects.

2.1. Contemporary challenges of project management

2.1.1. Perception of project failures

We start by examining the perceived success of projects within organizations. How often do we end up satisfied with the end result of the projects we have started? It seems that even though projects are seen as a viable way to embrace change, its success is far from guaranteed. Many authors discusses the apparent low success of project outcomes across various industries.

Flyvbjerg (2009) for example shows that overruns in infrastructure projects, both in expected costs and required time, are largely prevalent and constant. In IT industry, project failures are described as a common thing (e.g., Waterige, 1995, Lehtinen et al., 2014), yet precise numbers are not easy to find. One example could be the often quoted 'Chaos reports', produced by a private consulting company The Standish Group International, Inc. Chaos reports show that only on average 28,8% of projects from the software development sector between the years 2011-2015 were rated as 'successful' (Hastie, Wojewoda 2015). 'Successful' meant projects completed on time and on budget. Average of 54,2% was classified as 'challenged', meaning projects that were completed, but over time, over budget and with fewer features than originally specified. The rest of the projects was abandoned.

It may seem that only a one third of projects completed successfully is an alarming rate, however, it is important to highlight that the Chaos reports were substantially criticised in the past. The definitions of project success there do not describe the context of the projects, it disregards the actual usefulness, profit or user satisfaction, they do not account for cost underruns and overruns in functionality, the 'success' itself is dependant on the project estimation process of the company (which can easily be altered), and perhaps most importantly, Standish kept the actual data and sources hidden, and therefore contains unknown biases (Eveleens, Verhoef, 2010). Eveleens and Verhoef also disclosed (2010:36) that the Standish declared that data in chaos report should be considered as 'Standish opinion'.

But even if the the Chaos reports have little research validity, its widespread acceptance and its use for demonstrating how unsuccessful software projects are (Eveleens, Verhoef, 2010) at least indicates that the notion of projects being considered largely unsuccessful is hardly uncommon.

2.1.2. General explanations of project failures

Why projects fail? Flyvbjerg (2009) categorizes three main general causes, and describes them as Technical explanations, Psychological explanations and Political-Economic explanations.

Under technical explanations, which he says are the most commonly used to describe and reason for a project failure, he categorize things like imperfect forecasting techniques, inadequate data, honest mistakes, the general problems with predicting the future, inexperience of the planners, etc. In short, we could say that technical explanations account for the ever-present human mistakes or lack of skills and knowledge. But there are more reasons why projects might not fulfill our criteria for success.

The psychological explanations remind us of the cognitive biases that tend to be part of our forecasting process, as phenomena known as optimism bias and planning fallacy influence managers to lean towards unfounded optimism rather than rational assessment of potential gains, losses and risks. These biases were described by Kahneman and his colleagues, as they tell us that many of the ventures didn't pay off because off the *'delusional optimism: We overemphasize projects' potential benefits and underestimate likely costs, spinning success scenarios while ignoring the possibility of mistakes.' (Lovallo, Kahneman, 2003:1).* Many cognitive biases which might influence our daily decisions in projects were described by Kahneman et al . For example, we are subjects of anchoring, as we draw our analyses on the initial proposals, where we accentuate the positive, and don't properly adjust in the future, when we have more realistic informations available. We tend to neglect capabilities of our competitors. We exaggerate our abilities and our control by taking credit for positive outcomes, but contributing negative ones to external factors, while denying the role of a pure chance, which makes us assume that we can overcome all future project problems. We are drawn to approving highly over optimistic proposals. We reward optimism while interpret pessimism as disloyalty, and many more. (Lovallo, Kahneman, 2003). It is therefore apparent that some of our projects might end up a failure simply because we tend to be overly optimistic, and the set goal was just plainly unrealistic.

Last but not least, Flyvbjerg also gives space to discuss political-economic explanation of project shortfalls. These explanations describe situations where the underestimation of costs and overestimation of benefits of a projects happens deliberately and strategically. Agents do this for instance to succeed against their competition to gain funding for their project, or they simply intrigue in order to gain a better position within an organization. Flyvbjerg highlights this as lying and deception, and explain these actions exists because its political and economic agents

believe it pays off to them. (Flyvbjerg, 2009)

Summing up, generally, project are seen that they can end up a failure because of human mistakes, lack of knowledge or experience, but also because they were started under unreasonable and overly optimistic assumptions, or even because some agents were deceptive about the project realities for their personal gain.

2.1.3. Defining project success

There is also the problem with defining the project success itself. The project is often considered a failure, at least on paper, when it doesn't meet the criteria set by its authors. But what impacts the execution of project really had? And even if the set criterias are fulfilled, does it mean that value was created?

Some authors argue that project managers put too much emphasis on the aspects of time and budget when judging whether the project was successful, and at expense of other important criteria (Wateridge, 1995). Ika (2009) discusses this prevalence of success measurement within the established 'iron triangle' of project management (the time, the cost and the quality), and points out that often these criterias were fulfilled, yet projects were considered failures. He therefore advocates that distinction needs to be made between 'project management success' and the 'project success'. The project management success deals with internal efficiency, whereas the project success means effectiveness with all concerns related to the project, and the former does not guarantee the latter (Ika, 2009).

There might be many reasons for why project can fail despite good management, simplest being that the project outcome is plainly not desired by its intended receiver (eg. customer or a stakeholder). Simply put, even if we managed to do the 'How to' part perfectly, it does not mean that the 'What are we trying to achieve' was meaningful or valuable. But the measurement or even prediction of the final impact, or realities such as stakeholders satisfaction might be subjective, subtle and difficult, hence the tendency to measure project success by tangible and easily measurable dimensions like budget and time (Ika, 2009).

2.1.4. Theoretical foundations of project management

Lastly, and perhaps most importantly, the challenges discussed in projects are related to the 'tools' that we create to manage our projects - the methodologies. As it was mentioned, the

discipline is seen to be influenced mainly by the classical project management approaches, however, some authors criticize its theoretical foundation.

Firstly, the theories on which classical approaches are built are not explicit. In general, there has been noted the surprising lack of discussion on the topic of theoretical foundation of project management, and argued that this fact substantially hinders the discipline (Koskela and Howell, 2002). Although not explicit, Koskela and Howell (2002) explain that underlying theories of the classical approaches can be deduced from the core statements that are being put forward by major project management institutions such as the Project Management Institute (PMI), which stands behind the PMBOK guide. They also argue that these theories suffer from serious deficiencies, as they are based on faulty understanding of nature of work in projects. They further describe that the consequence of this leads to project not achieving set goals in a satisfactory way. The theory-associated problems within an organization are then either solved informally, or - especially in complex and speedy projects - the faulty theory is even counterproductive, causing self-inflicted problems that undermine the performance (Koskela and Howell, 2002).

Other challenges with the theoretical framework of the classical project management approaches can be found, for example Packendorff (1995) points out that PMBOK's assumption of general applicability of its knowledge to all sorts of project, industries and environments, has to omit individual characteristics of group or organizations. This can go even to the point that '*in the literature, genuinely unique projects like military operations are treated in the same way as "repetitive" telecommunications projects, where the product is unique but the process is standardized in corporate project management handbooks*' (Packendorff, 1995:324). He also highlights that project management textbooks offer plenty of normative advices, despite the lack of sufficient empirical evidence of what is actually happening in the companies. He suggests that different types of project require different types of theories, which needs to be build on extensive empirical fieldwork. Lastly, he points out that projects are often 'seen as tools', corresponding to the notion of organization 'as a machine', in which the motives for the participation of individuals are overlooked. For example, within this theoretical view, the individuals are not supposed to have motives when they join the projects, instead, they are assumed to be motivated by the project manager. This and other idealistic views and assumptions on project work does not correspond with the practice, and in reality, as he describes, project are met with many problems - they are being carried out for unclear reasons, undertaken for the process itself rather then for the outcome, and pursued despite changed circumstances that make the project obsolete or even undesirable (Packendorff, 1995).

The specific theories and the its criticism are further described in chapter 5. So far however, it is apparent that many contemporary project have to deal with various challenges: the theoretical

foundations of classical approaches are largely criticized for its shortcomings, projects are evaluated on criterias for its management instead of what value they have created, project failures seem common, and not only projects plans meet problems in execution, but they might be started under overly optimistic assumptions or even for questionable political-economic reasons.

In light of this, it is unsurprising that new initiatives which tries to rethink the project management approaches arise, in trying to better meet these challenges. This thesis will explore the impacts of one of these initiatives: the project Half-Double.

3. Case description: The Project Half-Double

The Project Half-Double was selected for the study for its ambition to radically change the project practice. Its goal was to develop a new methodology for project management, which would better deal with the project challenges and would be better suited for the present turbulent and changing world (Adland et al, 2018).

The development of this methodology started out from an informal network in Denmark, which in 2015, with the combined efforts from a consultancy firm, several private organizations and three universities, started an initiative known as 'Project Half Double' (Svejvig, Grex, 2016). This initiative was inspired by a 'Rethinking Project Management' research stream, which started in the United Kingdom over a decade ago in order to further develop the field of project management and improve the real-world practice. It was also inspired by lean management thinking, as well as by works such as Hamel's (2009), who called for a new mindset for management (Svejvig, Grex, 2016).

The goal of the methodology is to create 'double the impact in half the time' - meaning increasing the success rate of projects, as well as speed with which new products and services are developed. The methodology consists of three core elements - *Impact, Flow* and *Leadership* - each with three proposed methods and three practice-supporting tools for implementing them within a project. The main focus of these elements is on value creation, social processes, learnings, complexities, lean and agile thinking, front-end loading and leadership (Svejvig, Grex, 2016). Simply put, the overall desire is to shift focus in how project are handled, and bring an ambitious change of practice within the field of project management. As the official handbook states, *'With the Half Double methodology, we will influence projects in the same way Lean influenced production."* (Project Half-Double, 2018a, ch2:8).

The association behind the Half-Double initiative is lead by the Implement consulting group, who published a handbook describing the methodology (Adland et al, 2018), and who also managed the collaboration between the companies where the methodology was first used in its pilot projects, and the universities (Aarhus University and Technical University of Denmark) that evaluate the outcome of those projects (Gerstrøm et al., 2017). The consultants from the Implement group have also supported the pilot projects within the companies. The Half-Double Project was also supported by the Danish Industry Foundation, which is an independent philanthropic foundation, with financial contribution of DKK 13.8 million (Gerstrøm et al., 2017).

Between June 2015 and June 2016, seven pilot projects were conducted in various danish organizations in private sector: Grundfos, Siemens Wind Power, Lantmännen Unibake, Coloplast, Novo Nordisk, GN Audio and VELUX. Four additional pilot project were done in Novo Zymes, SAS Ground Handling, Food Services DK and Linak from July 2016 to June 2018. The project types varied from product development, IT project, E-commerce projects, supply chain projects and to projects facilitating an organizational change. In most of these projects, the authors reported that Half-Double methodology created positive impact and benefited the project and the company. In two instances however, namely in Grundfos and in Siemens Wind Power product development projects, the methodology is indicated to have a little effect from using the Half-Double methodology. (Svejvig et al., 2017).

For this reason, Grundfos' pilot project was selected as preferable for a case study on impacts of this new methodology. The reasoning was that the research will be more fruitful within an organization that reported lower positive impacts, as more knowledge might be gained on potential challenges then within a company where the evaluation was great.

3.1. The Pilot project in Grundfos

Grundfos is a world's major pump manufacturers company, founded in 1945 by Poul Due Jensen in a city of Bjerringbro, Denmark. It produces variety of pump types and electronics for its controlling systems, including the circulator pumps, submersible pumps and multi-stage pressuring pumps as well as electric motors for them (Gerstrøm et al., 2017). Grundfos employes over 18,500 people with a turnover over 25 million danish krone (3,434 milion euro) in 2017 (Grundfos, 2018).

As documented in the Half-Double Addendum report by Gerstrøm et al. (2017), the pilot project started in September 2015 and was finished in June 2016. The project was done in Grundfos' Research & Technology department as a frontloading project. Frontloading projects are done in order to investigate uncertainties and gain learnings prior to the product development projects, and its outputs are documentations about the products business viability (which include reports on potential product's business evaluation, innovation profile, design ambition, product family master plan, design journals and transition readiness assessment). In other words, these projects start out with ideas and hypothesis, which are then explored and tested. If the concept proves to be promising, the findings serve as a basis for the following product development projects done in another department.

The goal of the project was to *"safeguard an increased market share whilst maintaining its leading position as world class pump manufacturer*" (Project Half Double, 2018c) and one the main goals for employing the Half-Double methodology was to reduce the time for completion from the expected 9 month to 6 months.

Since the Half-Double methodology was at its early stage in the Grundfos pilot project, not all of its concepts were present at the time. Company would choose only its parts through the selection of so called 'Leading stars' (discussed in chapter 5.2). Most of the Half-Double methods were however reported as present by the Grundfos practitioners and the supporting consultant, albeit in some cases with different structuring. The individual methods and which one of them were missing in comparison to the present state of the methodology is further described in chapter 5.3.

Out of the seven earliest Half-Double pilot projects, five were evaluated as having 'higher impact' from the methodology. The pilot project in Grundfos was one of the two reported as having 'lower impact' from it. As noted by Gerstrøm et al., 2017, no impact effect of the Half-Double methodology could have been documented at the time in comparison to the reference projects. However, the report further informs that *"Grundfos has gained important and useful insights from participating in Project Half Double"* and that *"Half Double practices such as the pulse check, visual planning and colocation were reported to work well and to contribute beneficially to running the pilot project. Therefore, they will now be employed in other Grundfos projects."* (Gerstrøm et al., 2017:9)

The report further indicates that none entire fulfilment of the key performance indicators set for the project was documented, including its highlighted goal for reducing the time for project completion. However, as documented by Svejvig et al. (2017), the Half-Double methodology had its results in Grundfos, and the failure to achieve the Impact was due to the portfolio management decisions. As they proposed, the speed to reduce the time to impact needs to be valued, and in case of this frontloading project in Grundfos, the speeded up process would not bring any additional value, as the output would sit on the shelf before the beginning of the production development phase, which had a fixed start in September 2016.

It could therefore be be argued that the pilot project failed in the terms of KPI's evaluation, however it was stated that the methodology brought value to the organization overall.

3.2. Research objectives

It is this indicated value creation, which goes beyond the standard KPI evaluation, that serves as a research objective for this thesis. The goal is to understand what benefits are actually created by the methodology in the project practice, and for the organization. Evaluation by key performance indicators creates one type of insight. However, to study the project organization in practice, and see how the methods and tools influence each involved actor creates a much more elaborate knowledge.

Within this context, the research objective of this thesis therefore can be summarized as follows:

"How did participation in the Half-Double pilot create value for the Grundfos project management practice?"

To set some specific directions to reaching the objective, additional subquestions are posed:

- How were the main three core elements of the Half-Double methodology perceived among Grundfos practitioners, and what effects did they create?
- What other knowledge and learnings from the Half-Double benefited the company?

Moreover, it is the ambition of this thesis to encompass the context of the contemporary development of the project management discipline along with this case, in order to understand how present innovation in project management is done. For this reason, third subquestion is proposed:

- How does the Half-Double build on the development of the project management discipline, and in what way is the methodology evolving?

The following chapter will discuss how was the research to answer these questions designed.

4. Research Design

In order to explore the value created in Grundfos' project practice, and find out what effect were created within the organization, the study takes its basis in an empirical approach. It is highlighted that the project management discipline severely lacks more empirical evidence to support its claims, and which are needed to better understand the nature of project organizations (Packendorff, 1995), with other authors stressing the need for a practice-driven research approach, where the project would be studied from a 'bottom-up perspective', starting from individual actions, from which broader concepts for the discipline can be derived (Hällgren et al, 2012).

This served an inspiration for this thesis' research design. Whereas traditional project management process studies are criticized for focusing on an overall structure and the people in charge, thus sacrificing learnings on activities and perspectives on what the individual project actors actually do in their project work (Hällgren et al, 2012), the research of this thesis focuses on the bottom-practice level, exploring the perceptions of not only the project managers, but including the project members as well.

The project management model here is viewed as a technology which mediate actions and shape decisions (Verbeek, 2011), and the research objective is to find out how this tool create (or hinders) value for its practitioners. The research design therefore takes on an inductive approach when exploring the project practice and the impacts of the embetterment efforts of the Half-Double methodology. The goal is not to provide conclusive answers on how we should manage our projects, but to get an insight into how different parts of the Half-Double methodology alter the project practice compared to the older models used earlier, and how is this alternation perceived and reflected upon by the people who use the methodology.

4.1. Research in the Grundfos Company

The starting point for the research were the three core elements of the Half-Double methodology; *the Impact, the Flow* and *the Leadership* (described in chapter 5.3). Each of these elements provided a framework, based on which discussions about the Grundfos' project practice could been constructively held. Since the understanding of individual actions required to gain an emic perspective, meaning getting the viewpoint from within the social group, other methods of organizational ethnography (as described for example by Neyland 2007 or Whitehead 2004),

such as observation of project managers' practice, were at first considered as well, however the options for engagement with the Grundfos company ultimately delimited the research to several intensive interviews with 4 project managers and 2 team members of the Half-Double pilot project.

In general, Grundfos representatives were welcoming to the idea of enabling research about their project management approaches and sharing their experience with Half-Double. All of the project managers were members of the Research and Development department, where the front-loading projects take place. This included the project manager leading the Half-Double pilot project, and his superior at the time, along with two other project managers. Out of all these project managers, two had hands-on experiences with the Half-Double methodology, and the other two had heard about it, but did not practice it. This enabled to get an insight into how projects within the company are handled with different project management models and experiences, and compare the two perspectives on the currently perceived challenges in the practice. In addition, 2 members of the pilot project team were interviewed. These were experienced engineers, working for Grundfos for more than two decades, and the questions for them were adapted to have a perspective better suited for their role in the project, asking how the practice changed for them with the Half-Double model and how their work conditions and workflow were affected. Brief supervised observation of the project rooms and different departments of the company was also provided, giving an insight into the local project environment.

It was stated upfront each interview that the identity of all the interviewees would remain anonymous, to encourage them to speak freely about their practice, their organization and experiences. The interviews had a semi-structured character - with the Half-Double core elements as the center points, talking about its proposed principles, methods, tools - and their effect on the pilot project in Grundfos. The semi-structured approach was taken since it wasn't clear to what degree the interviewee would be familiar with the Half-Double concepts, enabling adaptation as the interview took place, and also giving possibilities to engage in themes relevant to the research objectives that arose from the flow of discussion, which otherwise might not be uncovered with a set of predetermined questions (Neyland, 2007). In case of interviews with project managers not familiar with the Half-Double, the questions were adjusted not to use the Half-Double terminology, but the structure and the practice-exploring focus remained similar.

A brief summary of the interview structure with examples of questions asked can be seen in table 2.

Structure / Research question	An example of questions asked
(Introduction)	*(Explanation of the research, familiarization with their role at Grundfos, recording consents and anonymization)*
Identifying 'the old practice' (familiarization with the project management practices before the Half-Double pilot project)	*(...) What were the most important things about the structure you had? How did it look like? How do you think it worked?* ...
Overall perception of the Half-Double methodology	*(...) When you have first learned about it, what was your first impression of it?* ...
Discussing the Impact (subthemes: the concept, the 3 methods, the 3 tools and its use in practice)	*(...) How does the process of 'designing a project' usually look like in your projects?* ...
Discussing Flow (subthemes: the concept, the 3 methods, the 3 tools and its use in practice)	*(...) What kind of tools do you use to organize / communicate / visualize your project planning? What is your reflection on it?* ...
Discussing Leadership (subthemes: the concept, the 3 methods, the 3 tools and its use in practice)	*(...) How is leadership perceived in Grundfos? What is the role of a project manager here, from the social perspective?* ...
Discussing what changed in Grundfos after the Half-Double pilot project	*(...) Will you keep using some of the tools and methods that Half-Double introduced? Elaborate why.* ...
Important aspects for managing future projects	*(...) What are the biggest challenges you experience with doing your projects nowadays?* *Do you plan to change the way of doing projects in some way in the future?* ...

Table 2: A summary of the interview guide used in Grundfos

Along with the focus on the three core elements, differentiation between the roles in the project and exploring whether some perceptions on the model would be different because of it was another important aspect of the interview guides. The ambition was also to include the upper management in the research, getting the perspectives not only on the levels of team members and project managers, but also on the level of high management which makes the portfolio related decisions. However, this proved to be difficult with the high occupation of upper managers of such a large organization, and the portfolio level of project management remained out of scope of this research.

4.2. Understanding the contemporary project management development

The first two subquestions of the research objectives, focused on exploration of learnings and change of practice resulting from the Half-Double pilot project in Grundfos, were addressed. However, to answer the third subquestion, additional perspectives had to be brought in.

The goal of the third research question is to describe the development of the project management discipline on the case of the Half-Double methodology, and get insights into its background and evolution. Since the Half-Double can be seen as an attempted innovative tool, the desire is to understand how it builds on its predecessors, and their criticisms. Starting point was therefore a literature search to gain a knowledge on the general developments of the discipline, which are discussed in chapter 5.1.

Furthermore, the Half-Double methodology is industry-driven, bringing together variety of experts like ceo's, project managers and consultants, but also research-driven, supported by academics from three universities (Svejvig, Andersen, 2016). Bringing in additional perspectives from these areas provided an option to get insights into how the authors of the methodology envisioned the model, and its translation in the cases such as in the Grundfos pilot project. Their perspective therefore enlightened some of their experiences with Half-Double, and its evolution.

Attempts were made to establish a connection with relevant people both from the consulting company Implement, organizing the efforts behind the project Half-Double, and the academic sphere supporting the pilot projects evaluation and related research. Two consultants engaged with the Half Double agreed to participate in the research, as well as two academic authors responsible for majority of research done in relation to the Half-Double initiative. The consultants interviewed were:

> *Nicolai Elborough Boston*, one of the Implement senior consultants, who was also directly involved with the pilot project in Grundfos and helped facilitate it,
>
> *Emilie Harding Boisen*, consultant with Implement who facilitated another Half-Double pilot project in FoodService Danmark.

Interview with Nicolai Boston was lead with the focus on Grundfos pilot project from the consultant's perspective, as well as with discussion on the Half-Double development and its potentials, since he is present in the 'higher circles' within the Project Half-Double, responsible for example for training of 'reflective project Half-Double practitioners' - which is a training

program offered by the Implement consultancy.

Interview with Emilie Boisen focused more on the reflection of the Half-Double usage in other than Grundfos environments, lead with a goal to get a better understanding on how the Half-Double is done and how the consultants are trying to implement it in practice.

Another perspective to involve was that of the academics contributing to its research-driven development. These interviews were among the first to take place, which provided an opportunity to get familiar with the methodology and its underlying principles prior to engaging the actors in Grundfos. The main reason for approaching them however was to get an insight into what ideas, concepts and principles are behind the Half-Double development, how were these translated into the Half-Double model, and how is the Half-Double evolution reflected upon, both in relation to the Grundfos pilot project, as well as outside of it. The academics who agreed to participate were:

> *Per Svejvig,* associate professor at Aarhus University and an experienced project management consultant, and
>
> *Sara Grex*, associate professor at Technical University of Denmark, who was also involved with the core circles of Half-Double initiative from its beginnings.

Both Per Svejvig and Sara Grex were responsible for the evaluation of the Half-Double pilot projects, and wrote several articles in relation to Half-Double[1].

The interview structures with both implement consultants and academical representatives were built on a similar semi-structured approach as the guide for the Grundfos research, starting with

[1] These articles are:

'The challenges of evaluating and comparing projects – An empirical study of designing a comparison framework.' (Svejvig, P. & Hedegaard, 2016),
'The Danish agenda for rethinking project management.' (Svejvig, Grex, 2016),
'How Agile Methods Inspire Project Management - The Half Double Initiative' (Heeager, Svejvig, Schlichter, 2016),
'How has Agile Methods Inspired an Industrywide Project Management Initiative?' (Heeager, Svejvig, Schlichter, 2016b),
'Four Approaches to Project Evaluation' (Laursen, Svejvig, Rode, 2017),
'The Collaborative Project Owner in Theory and Practice: Examples from Project Half Double' (Frederiksen, Svejvig, 2017), and
'Accelerating time to benefit: Deconstructing innovative organizational practices in five project' (Svejvig, Geraldi, Grex, 2017)

the themes of development for Half-Double and its core elements. However, each case was adjusted to the interviewee position and contextual experience, and space was given to the areas which arose from the discussion as relevant to the research objectives. Again, a brief overview is provided in the table 3.

Structure / Research question	An example of questions asked
(Introduction)	*(Explanation of the research, familiarization with their role in Half-Double development or experience, recording consents)*
Intentions behind the Half-Double methodology	(...) *How did the methodology developed since its early beginnings?* *...*
Development / Facilitation practice of the Impact concept	(...) *How were the requirements like 'defining Business Impacts' and 'Behavioral Impacts' developed?* *....*
Development / Facilitation practice of the Flow concept	(...) *What success did you have with motivating people through visualization?* *...*
Development / Facilitation practice of the Leadership concept	(...) *On what do you base the Half-Double's leader role and its engagement propositions on the project, team and individual levels?* *...*
Future perspectives	(...) *Looking forward – Do you think Half-Double will change in any way?* *What do you think is the biggest challenge for the Half-Double now?* *...*

Table 3: A summary of the interview guide used for the interviews with academic and consultancy representatives

In total, 10 interviews were conducted between 26.4. and 16.5., with some follow-ups occuring in June 2018. The interviews were transcribed and coded inductively around the center themes that arose from the interviews, with the analysis built upon the descriptive data, quoting respondents in their own words, with the intention to *'facilitate the reader's understanding of the world under study'* and '*letting the data tell their own story'* (Patton, 2002, p. 457).

Next chapter will introduce the first insights into the evolution of the Half-Double methodology by describing the preceding developments of the discipline of project management.

5. Theoretical Framework

When dealing with any kind of innovation, one must first understand the context of the present state. What does the embetterment aim for? What kind of present realities does it try to change? And how these realities came into existence in the first place?

To see how the Half-Double build on the development of the project management discipline, we'll explore how the dominant classical approaches became formalized, on what theories are they based on, and what arguments are put forward against them.

Since the aim here is to explore the innovative development of the discipline, alternative project management ways which gained momentum in recent years, such as Agile and Lean inspired approaches, are then discussed. After that, we will take a look at authors and research streams which propose to rethink the project practice, and the ways we think about projects.

Based on these developments of theoretical background in project management, we will continue the discussion on how it influenced the Half-Double methodology. Having a better insight into the thinking that shaped this methodology, the individual principles, methods and tools of the Half-Double are then explained in detail.

First, we will take a look into how an approach that is seen often as prevalent came into existence, along with the formalized discipline of project management.

5.1. State of the art: Project management in the innovative context

5.1.1. Project management throughout history: Development of the classical approach

Projects do have a long history. It could be argued that the field of 'Project Management' is relatively young discipline, since the term wasn't used until 1950s. However, some forms of temporal collaborations that were established in order to create what we would today call 'A Project' accompanied humanity for a long time.

Cleland and Ireland (2006) describe it by showing that throughout history, projects existed in some rudimentary form to create a change within a society, or in order to deal with a change. In that sense, they describe the great leaders of history as managers entrusted with creation of various ventures. These could be constructions of significant structures, leading armies to a war,

conduct exploratory expeditions, managing political organizations, and so forth. The need for planning which resources will be required for these projects and in what way they would be used was ever present, and in some cases, this planning needed to be rather sophisticated.

However Garel (2013) argues that at these points, there was no management model as such. He proposes that history of project management should be studied through its models rather than singular practices, as it allows researchers to focus on organizational representation and the gradual diffusion of the project related activities.

He sees the first transactions from singular practices to early management models at the of the Middle ages. Up to this point, improvisation proved to be increasingly ineffective when dealing with complex construction work, such as building of large cathedrals. As he describes, it was this improvisation from which a more rationalized approach emerged, and the thinking gradually transformed from intention to design. Another shift he describes happens in the era after the French Revolution. The state-run institutions of the time would give rise to the engineering departments, educating elite groups of builders that were supposed to systematically apply scientific instructions under the influence of academic circles.The authoritarian project methods were developed, and the knowledge and practices codyfied. (Garel, 2013).

A significant need for controlling techniques on things like processes and costs would emerge especially in the turn of the 19th century, with increasingly more elaborate construction projects like railroads or dam building unfolding. Garel explains that engineering institutions of the time have already had variety of project management techniques at their disposal, such as cost estimates, prototype designing, operating methods, construction site management, supply chain management, contract negotiations and others (Garel, 2013: 667) but this knowledge is usually monopolized, isolated and not yet standardized. At the time, *"Everyone lives on his own splendid island, convinced of the extreme singularity of his expertise"* (Navarre, 1993, p. 189, cited in Garel, 2013). Garel also notes that in this period, firms do not have a dedicated models for projects, and these are therefore conducted as any other operation.

Some authors of the time are already recognized for their contribution to management development, such as Henry Fayol, who in 1916 described five functions of a manager (to plan, to organize, to coordinate, to control, to direct or command) or Henry Gantt who developed the famous scheduling Gantt chart (Young-Hoon, K., 2005). Marry Parker Follet, pioneer of field of organizational theory, in 1920 also writes about benefits of participative management, stating that leadership comes from ability rather than hierarchy, and advocating for empowerment for and building upon knowledge of the workers (Cleland and Ireland, 2006).

It is however in the 1950s and 1960s in North America, where the discipline of project management begins to be formally established and gradually standardized. In 1959, an article published in Harvard Business Review titled "The Project Manager" by Paul Gaddis gained attention among growing project management community, with more articles on the themes of management of temporary organizations following from other authors in the subsequent years (Cleland and Ireland, 2006). It was the progress of the Cold War, which lead to an increasing number of large military projects. Some of these would later serve as reference points on which first standardized project management models were built. As Garel describes, one of these tools was 'The Program Evaluation Review Technique' (PERT) developed within U.S. military rocket programs in 1958, which would rapidly spread in the following years. At that time, similar model of "The Critical Path Method" (CPM) developed by the DuPont and Remington Rand companies was tested in construction of a chemical plant. However, it is the formation of major project management institutions that are highlighted as having the capital role in shaping the development, formalization and institutionalization of project management.

In 1969, The Project Management Institute (PMI) was founded in the United States by several volunteers, with a goal of establishing an organization for exchanging the experiences and discussing issues within the project management (Garel, 2013). It was built upon highly technical core of experts, as it brought together professionals from large engineering companies as well as public institutions like NASA. Garel explains that the highly technical culture that accompanies PMI developed through analysis of methods and 'best practices' of some of the contemporary projects, like the Apollo space programs. The widespread use PMI's proposed practices throughout the next decades is contributed to several factors. One of them is its support by large U.S. Government Departments, that would require PMI standards in certain tenders. Institutions like Department of Defense, Department of Energy or NASA forced its suppliers to adapt the same monitoring tools, which affected the subcontractors all over the world. Moreover, the practices dissolved from the public institutions by engineers leaving the sector and becoming private consultants, offering customized solutions for businesses across industries. The institutionalization was further strengthened by adoption of ethic charter and certifications of project managements, offered by the PMI since 1984 (Garel, 2013). Lastly, the the practices codyfied in PMI's Guide to the Project Management Body of Knowledge (PMBOK) is being published since 1987, with its sixth edition released in 2017 (Project Management Institute, 2017).

Garel concludes with recognition of the influence of PMI association as the '*... world's leading not-for-profit membership association for the project management profession'* (Garel, 2013: 668), and in 2017, the PMI reports having over 1.2 million PMI certifications held worldwide, 500 000 members in 207 countries, and more than 5 million copies of PMBOK Guide in circulation (Project Management Institute, 2017).

Of course, that does not mean that the PMI represents the only approach to project management. In a similar matter, a method 'Project IN Controlled Environments' (PRINCE) has developed as a standard for managing projects within the United Kingdom's government, building upon an earlier methodology called PROMPT II (Project Resource Organisation Management Planning Techniques) (Office of Government Commerce, 2009, Bentley, 2012). It gradually dissolved beyond public sector as well as UK's borders, and with its 1996 updated version PRINCE2, it has since became another major doctrine in project management, with over 250 000 accredited professionals in more than 50 countries worldwide (Hinde, 2018).

Comparison of PMBOK and PRINCE2 suggest both approaches have many similarities in features addressing areas like Scope, Cost, Risk and Quality management in projects, with some differences like eg., PMBOK having higher focus on interpersonal skills, and PRINCE2 containing underlying management principles (Karaman, Kurt, 2015).

Other project management frameworks were developed and used in parallel, for example the sequential planning 'Waterfall' model (Benington, 1983), or created in attempt to change the practices, for example the Agile methodologies (Beck et al., 2001) like Scrum (Takeuchi, Nonaka, 1986), or the process-based Lean methodologies (Gabriel, 1997) - some of which are discussed later in the chapter.

However, this section puts forward that these classical approaches presented by PMBOK and PRINCE2 are seen as the most widely used methodologies in the world (Karaman, Kurt, 2015). They were developed by a highly technical core of experts, often with ties to engineering institutions, and this technical culture is apparent even from the structuring of their methodologies. The proposed methods are based in what was by them analyzed as 'best practices' from their engineering projects, and spread across industries which adapted their ways of handling projects.

5.1.2. Critique of the implicit theories of the classical approach

Since the classical approaches plays such a major role in the project management discipline, attention needs to be given to the theories which are in their background. As we will later see, the authors attempting to rethink the project management practice often do not want to disregard and abandon the knowledge gathered be these doctrines, rather, their argument is that this knowledge needs to be expanded and augmented (eg., Hällgren et al, 2012, Winter et al, 2006).

As Koskela and Howell (2002) in their analysis pointed out however, in relation these project management doctrines (presented by PMBOK Guide), the discussion on the topic of underlying theories is surprisingly scarce. The classical project management approach supported by its Guides is often presented as the collection of 'best practices' and 'de facto standards' (Svejvig, Andersen, 2015), without descriptive theories reasoning why these practices are the best available. The PMBOK Guide itself starts with a disclaimer that the PMI institute only administers the process of developing consensus, and it does not evaluates nor guarantees the informations and judgements in its publications (Project Management Institute 2013). Koskela and Howell note that this can lead to the perception that there are not theories in the background of these approaches. The argue however that these guides are in fact based on management theories, but they are embodied in the guides only implicitly.

Their analysis is based on the PMBOK guide, which, due to its apparent prim among classical methodologies, will be used for the description on the theoretical background of classical approaches of this section as well.

As an intended comprehensive framework for managing projects, the PMBOK Guide (5th edition) consists of description of 47 'Project Management Processes', divided according to the phase of project into the 'Process Groups' (Initiating, Planning, Execution, Controlling and Closing). All the processes are further categorized into 13 'Knowledge Areas', that are to represent a complete set of concepts, terms and activities within the specialized area of project management. The overview of the division of all the PMBOK processes is depicted in the table 4.

The various processes describe techniques, tools and 'good practices' on how to handle the different areas of project management, and on which there is *'a consensus about their value and usefulness'* and which are *'applicable to most projects most of the time'*, with the organization/project team responsible for determining which processes used in what situation (Project Management Institute 2013:2).

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Table 4 - Project Management Process Group and Knowledge Area Mapping (Project Management Institute 2013)

The analysis by Koskela and Howell describes that four management theories can be observed in the background of this guide: A theory of projects and theories behind the three main parts of project lifecycle (planning, execution and control). Since their analysis provides a needed theoretical framework for the further discussion, their work will serve as a basis for the structure of this section.

The theory in which the concept of project is based is identified as a theory of transformatory system of production. Basically, the project is seen as a Input-Output system: there is a set of resources (inputs), on which the transformation process operates, which results in creating an output. The origin of this theory can be traced to the discipline of economics, and noted by Koskela and Howell as a dominating production thinking throughout the 20th century.

The other three theories are describing the management part of projects. The theory on which planning processes are built is based on the 'management-as planning' perspective, where organization is clearly divided into the management and effector parts, and the management purpose is to centrally create, revise and implement plans. This strongly assumes a causal connection of management actions and the organization's outcomes, as the plan is de facto considered to be a synonym with an action.

Second management theory describes the execution phase of projects. Koskela and Howell note the strong emphasis that PMBOK has to the planning phase of the project compared to other phases like execution, as most of the proposed processes focuses on the planning part the most (which can be seen as table 4.). Nonetheless, in execution, they the processes are similar to the job dispatching theories in manufacturing, where the allocation of assignments is done to the available workers (or machines) by use of logical rules. In classical project management however, the decisions who to allocate are largely done in planning phase, and the execution phase largely limits itself to mere top-down communication: the authorization to start work. Since the publishment of Koskela and Howells' analysis however, the PMBOK was updated to also include a new Knowledge area, the 'Project Stakeholder Management'. This area aims to expand the the communication between the project management and the project stakeholders as well as the application of interpersonal skills (Project Management Institute 2013).

Last described theory on management of control processes is explained to have roots in the 'cybernetic model of management control'. This management model consists of these premises: *a) "There is a standard of performance, b) Performance is measured at the output (or input) c) The possible variance between the standard and the measured value is used for correcting the process so that the standard can be reached."* (Hofstede 1978, cited in Koskela and Howell, 2002). In summ, the controlling processes monitor the performance, and adjust resources based on the reported deviations from the standard.

It is noteworthy that the theoretical background of the project management discipline seems to be rarely in the center of attention. However, as the field grew, it did draw more attention from the academic circles, some of which would challenge the leading doctrines and their assumptions.

To present a more comprehensible structure, the following overview is divided into the central critical points that can be found in relation to the theoretical background of the classical project management approaches. Again, Koskela and Howell seem to be one of the leading and oldest figures pointing out several shortfalls which can be seen in employing classical theories, however more critical points can be found by several other authors as well.

An overview of the critiques can be summarized in the following points:

A. <u>The discipline of project management is hindered by the fact that theories on which they are built are not explicit</u> (Koskela, Howell, 2002). In their earlier works, Koskela and Howell (2000: 18-34) explain that the explicit theory serves many important functions:
    i. It provides *explanation* of observed behaviour
    ii. It enables *prediction* of future behaviour
    iii. It provides *direction* for further progress
    iv. It enables *testing* of the theory
    v. It provides base on which *tools and methodologies* for analysis, control and design of the processes *can be built*
    vi. It provides a *common language* or framework that enhances understanding and collaboration within an organization or a community
    vii. It enables more efficient *learning*, especially to novices of the field
    viii. It enables to *transfer* the practices into different settings in which they can be used

    The resulting consequences of the theory not being explicit is, among others, the hampered renewal of the project management discipline (Koskela, Howell, 2002).

B. <u>The research on which the project management is built is not sufficiently empirical.</u> (Packendorff, 1995) It is argued that the project management is often considered a discipline within its own right, providing normative advices despite sufficient empirical evidence. Packendorff explains that often the case-histories are either success stories of the advocated approaches or failure stories explaining how the approach was misused or not present at all. Similarly, Hällgren et al. (2010) argue that traditional project management researches starts with the examining the model from which the action is derived, and propose that it instead needs to be researched from the perspective of the practice, beginning with individual actions, after which the model can be proposed.

C. The general applicability assumption omits the individual characteristics of an organization and of the project, (Packendorff, 1995). It is argued, that in practice, '*the differences in outcome and process are disregarded in favor of alleged similarities in the planning and implementing of projects',* with the question raised, if there is such a thing as a *"single, consistent, unambiguous empirical phenomenon that can be labelled "the project"*? (Packendforff, 1995:324) A valid question, as the projects are inherently unique, done in a mostly unrepeatable context. Indeed, researchers note that project success does not depend only on the traditional project management success factors, but also greatly on the management style and the adoption of the right techniques to the right project (Shenhar, 2002). As Shenhar describes his experience with project management research, *'We have seen many projects fail because managers assumed that their current project would be the same as the previous one.'* (Shenhar, 2002:1)

D. The transformatory theory of project management alone does not sufficiently address the task linkages and time uncertainties (Koskela and Howell, 2002) This argument notes that the transformatory input/output view of projects does to sufficiently takes into account the uncertainties connected to task interdependencies, which affect the time of production. Rework for example is observed to be a significant part of development projects expenditures and time. Within the design of large construction projects for example, up to two and a half rework cycles are observed (Cooper, 1993, in Koskela and Howell, 2002). Moreover,

E. The transformative theory of project management assumes that the customer requirements exists at the outset (Koskela and Howell, 2002) However, research suggests that in many projects, significant uncertainties remains about the output even in the start of execution, and the business or the customer value cannot be taken as unproblematic. The argument is that large projects are driven to realization by the development of commitments, dependencies and expectations, rather then by the delimitation of basic intentions and restrictions set in the initiation (Sahlin-Andersson, 1992, in Koskela and Howell, 2002).

F. The management-as-planning theory omits the individual agencies and motivations of the effectors agents (Koskela and Howell, 2002) As mentioned earlier, the updated editions of PMBOK do attempt to address the stakeholder management, providing instructions not only to allocate them effectively, but also to analyse their needs and interests, addressing their issues and monitoring the relationships. Question remains as to what extend this update affected the practice. The classical approaches were criticised in the past as putting too much emphasis on the rationalistic view of management, which lead to projects being treated as a tools, and organizations thought about as machines, where the

subjective rationality or motives are rarely recognized (Packendorff, 1995). The critique of management-as-planning theory notes that it is not generally possible to maintain a complete up-to-date representation of current circumstances on to which a plan to change them could be built. Another argument is that the theoretical, absolute separation of management and execution does not correspond with reality. Moreover, this model has implications that the outputs of management planning are not questioned by the effectors. The plans might therefore be pushed onwards without taking the realities of the production systems into account. The management part of the organization can thus be distant to the realities of the effector part of the organization (Koskela and Howell, 2002). On this notion also stands the next critical point of the classical approach:

G. The dispatching theory of production assumes the unproblematic push of the plan execution in project management (Koskela and Howell, 2002), as discussed above. The assumption that everything is ready at the time of project authorization leads to many tasks to be chronically delayed due to the lack of inputs or resources. The effectors then have to rely on their tacit knowledge, improvisation and management through informal structures. Another point highlights that the dispatching theory assumes that authorized tasks are fully understood, being done precisely according to the plan. The process is imagined as starting an engine, where the resources are utilized and the absolute commitments are a given. The realities described by different perspectives however propose that action is done by commitments which people make, rather than by obeying commands issued by central control. Besides the need for a two-way communication, the commitment of the executors is highlighted as an important factor to consider, as the actual work cannot be done without it (Koskela and Howell, 2002).

H. The cybernetic model of management control does not andress the root cause of production deviation (Koskela and Howell, 2002). This is because according to the model, the performance deviation is to be addressed by adjustment of resources, which do not deal with the cause behind it. The argument here explains that the model diminishes the potential for the knowledge gain and the possible performance improvement, which could be achieved if the deviation is directly addressed and learned upon.

I. The classical management theories have a morally negative influence on the management practice (Ghoshal, 2005). This critical point is not aimed at project management directly, it is however addressing the overall managerial practices, which are arguably an inseparable part of it. Ghoshal writes that the contemporary management theories have a negative effect on our business culture. As he explains, the theories, taught mostly through business schools, teach their students things like that managers are not be trusted

in their jobs due to the agency problem, that the opportunistic behaviour needs to be prevented by tight monitoring and control, and that companies not only have to compete among themselves, but also with their suppliers, their customers, their employees and their regulators. Even if people did not attend business schools, these notions are ever-present, shaping the normative and intellectual order of everyday decisions. He argues that these theories are built on a pretense of knowledge and affected by an ideology-based vision which bears negative assumptions about people and institutions. This results in theories with excessive truth claims, which, when taught as a norm, becomes self-fulfilling, shaping behaviour of managers worldwide, and freeing them from any sense of moral responsibility. Ghosal proposes that in order for things to change, the curriculum taught needs to be radically changed, giving space to a more holistic business approach as well as discussing the underlying ethics. He argues that we need to combine the teaching of 'what is' with the imagination of 'what ought to be'.

Most of the points highlighted especially by Koskela and Howell seem to bear the notion that the management and production theories applied in practice were developed in early 20th century and have not changed much since. However, as argued in the introduction chapter, the nature of work has change dramatically in the past decades, and therefore projects might not only be insufficiently understood, but also met with new challenges.

Accordingly, with the classical doctrines being criticized for its shortfalls and insufficient depiction of realities within projects, alternative and enhancing approaches were discussed, proposed and developed, increasingly more so in the recent years. The next sections will describe the major ones: the Agile and Lean approaches to project management.

5.1.3. Agile approaches

One of the major alternative approach to the classical one begins with the publishing of the Agile Manifesto by Beck et al. in 2001. Though some of its frameworks existed prior to it (Highsmith, 2002), the Agile Manifesto, written together by a group of software developers, is seen as a significant moment for the spread of agile methodologies (Heeager et al., 2016). The main aim of the agile approaches were to find better ways how to develop software. As the IT industry constantly evolved with the turn of millennia, there was an increasing need for a project management approach that would enable to better deal with the rapid change. The agile approach therefore aims to reduce the cost of transferring informations among the project team, preferring personal interactions, and to reduce the time between decision making and seeing consequences of that decision, by employing iterative scheduling (Cockburn, Highsmith, 2001).

Unlike the PMBOK, which focuses on delimiting the actions needed for a successful project realization, Agile stream puts more emphasis on the underlying principles with which the project should be driven. These include putting emphasis on customer satisfaction, on adaptive and iterative work, in trust in and co-location of the project team, self-organization and simplicity (Beck et al., 2001).

The intent to shift the mindset from the classical way of thinking is also apparent from the defined four core values for the agile work process:

1) *Individuals and interactions over processes and tools*
2) *Working software over comprehensive documentation*
3) *Customer collaboration over contract negotiation*
4) *Responding to change over following a plan*

Although the items on the right are seen as having value, the manifesto deems the items on the left as more important (Beck et al., 2001). The 'Agility', which can be seen as an *"ability to both create and response to change in order to profit in a turbulent business environment"* (Highsmith, 2002:xxiii) is seen as the underlying notion of this approach, with the change acceptance, focus on team, customer and product quality being described as its cornerstones (Heeager et al., 2016).

With this mindset, number of Agile methodologies was developed in the past years, which with some variation of practice provide specific tools and techniques on managing the workflow. These include for example Scrum (Schwaber and Beedle, 2001), Kanban (Kniberg, 2009) or eXtreme programming (Beck and Andres, 2004).

Notably, Agile methodologies do not claim an universal applicability to projects, unlike the classical ones. Some authors behind Agile admit that their approach might not be suitable for every organization. Cockburn and Highsmith (2001) highlight that the environment of the organization plays an important role, as the agile change embracing processes likely won't work in an organization that is based on process-centric, non collaborative or change resisting structures. Some organizations adapt the so called hybrid approaches, combining parts of the agile methods with more traditional process models like the waterfall model (Conforto, Amaral, 2016).

It is indicated, that agile approaches do have their results in their fields. The Chaos reports, although with aforementioned questionable validity, suggests that the Agile methodologies have a higher success rate in software development projects compared to the traditional approaches (Hastie, Wojewoda, 2015).

5.1.4. Lean thinking

Another management approach comes from the Lean production thinking, inspired by the famous Toyota production system. The Toyota system gradually developed from the need to catch up with the American production after the World War 2. The lack of resources led the authors of the approach to experiment with the embetternment of assembly production, aiming to reduce waste both in activities and resources. They have developed a system in which the final needs for the assembly line served as a starting point - and resources were being pulled 'just-in-time'; producing only when needed and only the number that is needed (Ohno, 1988). It was this waste reduction approach on which Womack et al. based their famous book 'Machine that changed the world' (1990), which gave rise to the term 'Lean'. As they describe, the automobile industry developed from the 'craft production', in which highly skilled individuals created a single item at a time, based on the customer's wishes. Since this approach had too high costs for many people to afford, 'mass production' developed in the beginning of the twentieth century as an alternative, producing high volume of standardized goods. However, this method required many extra resources to ensure the smooth production of expensive machines, and provided rather boring and despiriting employment for most of the semiskilled workers. The 'lean production' aims to combine advantages of both craft and mass production, pursuing the decline in cost of production, aiming for zero defects, zero inventory, and enriching variety of products. (Womack et al., 1990).

It is argued that the lean thinking could be of significant use not only in continuous production systems, but in projects as well. The lean thinking can be translated into them in an effort to improve the work processes and the outcomes. The benefits put forward are, for example, in focus on value generated by the project from the customer's perspective, in giving attention to the project work environment where the various waste is reduced, and in being respondent and close to the customer's realities (Moujib, 2007).

It is this clear end-focus on the value creation from which notably sets the Lean approach apart from the classical ones. The outcome of the project is not assumed as given from the outset, it is more thought about as needed to be learnt upon. The value represents a benefit to the customer at the right time for an appropriate price. But most importantly, the value is always specified from the point of view of the customer. It is the customer who knows better than the producer of what is valuable to him (Womack, Jones, 1996).

Other parts of the Lean approach highlight the need for waste reduction in the workflow. This is done by the identification of *Value stream*, where task interdependencies are examined internally as well as externally - like in actions of suppliers - and adjusted to eliminate those that do not add

benefits.. The goal is to create a 'Flow' of work, where unnecessary processes and obstacles are identified and removed, and production done only in response to the customer's *pull*. (Womack, Jones, 1996)

Unlike the classical approaches, lean is based on the constant questioning of the current workflow. It not only adjusts resources to optimize work efficiency, it aims to identify the root cause and remove it. The ultimate goal described by Womack and Jones is the pursuit of perfection: the understand what is the end-value created from the customer's perspective, embetter the working process and create only what is needed. The process is not seen as unproblematic, on the contrary; it should be learned and constantly reflected upon.

Some parts of the lean production thinking might be more difficult to directly implement within project management, like the continuous pursuit of perfection, as project are always at least to some extent unique and deal with mostly different challenges with different teams and customers, however, one can learn, for example, from the smaller, incremental cycles within the project (Lloyd, 2013).

The lean approach therefore can be seen as radically different to the classical management theories of transformatory production, offering alternatives to the production theories of dispatching as well as its control theories, and also providing and alternative on conceptualizing projects and its outputs.

5.1.5. Future perspectives: Calls for a change

Lastly, this section will discuss some of the propositions and calls for a change in the research, practice and conceptualization of managing projects. Growing shift in this conceptualization can be seen from the 'rethinking' literature. Svejvig and Andersen (2015: 282 - 285) identify six main categories in which various authors propose further development. Overview of these gives a good glimpse into the direction through which the discipline of project management might further evolve.

The areas with which the rethinking literature deals with, as summarized by Svejvig and Andersen, are:

- Contextualization of project management. The area suggest the necessity to look beyond a single project within an organization, as the contextual environment can severely limit the given project. As many organizations, for example, juggle many projects at once, this

might have a significant influence on a single given project. The portfolio management hence plays an important role, and the techniques to manage a single project are not necessarily transferable to the management of multiple projects.
In the summary, literature in this category proposes to look beyond isolated projects, and see the context of the organizational strategy and environment as well.

- The social and political aspects of project management. The literature addressing this topic discusses the power structures, identities and emotionality influencing the projects, for example how emotionality can influence the project managers decisions and behaviour, or the significance of social learning within project teams.

- Rethinking practice. Authors of this category propose an alternative techniques and methods for the project practice. Highlighted is also the topic on education of project practitioners, that would go beyond the focus on mere technical skills. As the amount of complexities and uncertainties increases in project work, some argue that the standardized training of traditional approaches is not sufficient to deal with it, stressing the need for more reflective project practitioners, that would be able to adapt plans in turbulent environments. Another discussion is on the topic of giving more freedom to employees to experiment in areas like task management or unstructured work practices.

- Complexity and uncertainty of projects. Research in this area describes the increasing uncertainties and complexities of projects and their environment. The need for developing methods to deal with these realities are discussed, and several approaches and theories proposed, such as evolutionary management or self organization (Saynisch, 2010 in Svejvig, Andersen, 2015).

- Actuality of projects category consists of literature that discusses the in previous chapters mentioned lack of empirical research within project management, and calls for example, for a more practice-driven approach (Hällgren et al., 2010) where the bottom-up perspective and individual actions are put in focus. The underlying argument is that in the contemporary project management, there is an abundance of normative advices, despite of not being well understood 'what is actually happening in projects' (Packendorff, 1995).

- Broader conceptualization. Here Svejvig and Andersen categorize literature that offer an alternative approaches to the discipline of project management, for example how the project success can be defined from a subjectivist perspective.

Notably, Svejvig and Andersen also describe that the rethinking literature indeed generally assumes the dominance of the traditional project management approaches, yet we don't know to which extent the practitioners actually enact it. As they argue, experienced practitioners might be aware of the shortcomings of the traditional perspectives, and find the ways to circumvent them in practice. The increasing volume of the rethinking project management literature is apparent especially in the recent years, and the arguments behind them might already be diffused in some form among the practitioners. There is therefore a danger that the assumption of dominance of the traditional approaches as a rationalized myth, and the practice in fact might look different (Svejvig, Andersen, 2015).

One of the most notable agendas on the proposed change of practice is he paper presented by Winter et al. (2006), that describes the findings of a research network, funded and established by the UK's Engineering and Physical Sciences Research Council in 2003. Concerned by the shortcomings of the contemporary 'rational, universal, determinist' models, this network produced a framework through which they propose to enhance the present thinking. The framework proposes 5 main areas to address: 1) project complexity, 2) social processes, 3) value creation, 4) project conceptualization and 5) practitioner development. Some of these point correspond to some extent to the arguments described earlier in the chapter, but a brief overview of the network's findings can be summarized as follows:

1) In conceptualization the theories about project management practice, it is proposed that the simple life-cycle model of projects often depicted in textbooks of the classical approach, and assumed as 'an actual reality' within project practice, does not correspond with the complexities present at many levels of the project. The direction therefore suggest to acknowledge these complexities and develop models and theories that would enable to deal with them in a better way. Moreover, it is proposed to present these new models and theories as only partial, as being part of a more complex realities.

2) When dealing with the project practice, the proposition is to shift from the image of projects as apolitical production processes, consisting of linear sequences of tasks and using codified procedures and techniques into a view that focus on social interactions, flux of events and human actions. To view the projects as social processes influenced by stakeholders relations, politics and power.

3) Another point, corresponding with the lean thinking, highlights the need for a shift of primary focus from simply creating product, processed and measured correspondingly to the hard paradigm of production, to creating a value. It is proposed that new research should explore the strategic selection of project, and recognize different forms of value.

4) Next direction deals with the need for a broader facilitations of projects, that conceptualize the multidisciplinarity and the multiple purposes which projects might have. It describes a need for an acknowledgement that the objectives of a project are not always clear or well-defined, and proposes a conceptualization in which the projects are permeable and open for adaptive renegotiations.

5) Last proposition describes the need of shift from training project practitioners that can follow detailed procedures and methods embodied from the hard project management paradigm, to a development of learning which would enable the practitioners to be more reflective, adaptive and pragmatic. The arguments are that the classical training helps the practitioners only in some areas of their work: in others, they have to rely on their experience, trial and error, and intuition.

The Lifecycle Model of Projects and PM	**➡ Theories of the Complexity of Projects and PM**
Projects as Instrumental Processes	**➡ Projects as Social Processes**
Product Creation as the Prime Focus	**➡ Value Creation as the Prime Focus**
Narrow Conceptualisation of Projects	**➡ Broader Conceptualisation of Projects**
Practitioners as Trained Technicians	**➡ Practitioners as Reflective Practitioners**

Table 5: Directions for the future research proposed by the EPSRC Network, 2004-2006. (Winter et al., 2006 : 642)

Authors conclude with stating that the points put forward by the network are meant to be an agenda for future development, not the agenda, as the purpose is to inform and inspire the future research (Winter et al., 2006).

Another notable agenda for rethinking the project management can be found in Gary Hamel's 'Moon shots for Management' (2009). Similar to the UK network, it describes the outcome of combined efforts of group of scholars and business leaders that get together in United States in 2008. The goal of the group was to create a set of 'Moon shots' for management innovation - a new mindset for the contemporary world. Similar was also the starting point from which the initiative emerged: the prevalent management approaches were seen as outdated, therefore new

ones have to be developed in order to meet requirements of the tomorrow's world. As Hamel describes it, '*all too often, scholars have been content to codify best practice instead of looking beyond it* (Hamel, 2009: 92).

25 'Moon shots' - challenges for contemporary management to overcome - were put forward by the group. Most of them are easily transferable to the sphere of projects, albeit with some adjustments to the its temporal nature. Hamel describes that the general agreement within the group was that 10 of these challenges are the most critical ones. An overview of these can be seen in table 6, along with a simplified explanation of its core idea.

1 **Ensure that the work of management serves a higher purpose.** Management, both in theory and practice, must orient itself to the achievement of noble, socially significant goals.

2 **Fully embed the ideas of community and citizenship in management systems.** There's a need for processes and practices that reflect the interdependence of all stakeholder groups.

3 **Reconstruct management's philosophical foundations.** To build organizations that are more than merely efficient, we will need to draw lessons from such fields as biology, political science, and theology.

4 **Eliminate the pathologies of formal hierarchy.** There are advantages to natural hierarchies, where power flows up from the bottom and leaders emerge instead of being appointed.

5 **Reduce fear and increase trust.** Mistrust and fear are toxic to innovation and engagement and must be wrung out of tomorrow's management systems.

6 **Reinvent the means of control.** To transcend the discipline-versus-freedom trade-off, control systems will have to encourage control from within rather than constraints from without.

7 **Redefine the work of leadership.** The notion of the leader as a heroic decision maker is untenable. Leaders must be recast as social-systems architects who enable innovation and collaboration.

8 **Expand and exploit diversity.** We must create a management system that values diversity, disagreement, and divergence as much as conformance, consensus, and cohesion.

9 **Reinvent strategy making as an emergent process.** In a turbulent world, strategy making must reflect the biological principles of variety, selection, and retention.

10 **De-structure and disaggregate the organization.** To become more adaptable and innovative, large entities must be disaggregated into smaller, more malleable units.

Table 6 - Overview of the most critical 'Management's Grand Challenges' by Gary Hamel. (Hamel, 2009: 94)

The group aims for overcoming the limits of present practices without losing the benefits they provide. Hamel notes that it might be difficult for many organizations to let go of the accustomed practices and control, as some might not imagine achieving goals without it. He argues however, that even though things like managerial control is critical, it often comes at the expense of initiative, creativity and passion - which he sees as essential for an organizational success. The challenge the paper describes is to find ways to unshackle human capabilities, limit senseless bureaucracy and enhance the sense of managerial responsibility. Responsibility which would take on the long term view of success, serving the higher purpose, 'the ethos of community'.

Hamel concludes with noting that the present 'technology of management' tragically often hinders the qualities that makes us human. The aim for the new management mindset therefore should be to *'make every organization as genuinely human as the people who work there' (Hamel, 2009: 98)*

As we can see, many of the call for a change in practice advocates a shift away from what is seen as traditional, controlling management practice to a perspective that is far more socially and adaptively oriented. The agendas has similar directions leading away from a rigid control and proposing to rethought the stakeholder empowerment.

5.2. Influence on the Half-Double Development

The shifting paradigm of project management, and the need for a rethinking mindset can clearly be seen in the Half-Double methodology as well. Description of the Project Half-Double (PHD) explains that we do not need methods that are based on thinking where things are constant and calculable. Instead it argues that '*We needed human behaviour, cooperation and dreams enter to the equation'* (Project Half Double, 2018).

The background of PHD, its inspiration and development is to some extent discussed in an article 'The Danish agenda for rethinking project management' by Svejvig and Grex (2016). As they describe, the way the agenda developed was similar to the ones of UK's Directions for future research or US' Moonshots. The informal network which started in Denmark in 2013 created its 'Ten Leading Stars' for project management, which were inspired by its predecessors.

These were to serve as guiding principles for project management practice, as they were seen as characterizing the best projects encountered (Project Half Double, 2018). The ten stars can be

summarized as follows:

- *Leading star no. 1 – Focus on customer value: focus on project benefits, not on the execution model.* The shared vision of benefit realization and value for the end customer is the main aim of this leading star.
- *Leading star no. 2 – Put people before execution models: human behavior is not a mathematical formula to be solved by means of intricate models.* The social processes are highlighted and taken into account together with the challenges it imposes.
- *Leading star no. 3 – Colocation: the right people do not only work on the same project - they collaborate.* In contrast to the days of the assembly lines, present work requires collaboration in fundamental sense of the world.
- *Leading star no. 4 – Leadership is hard-core trust: hard-core trust is superior to toughness and trust separately.* By 'hard-core trust' it is meant that leaders impose demanding goals, and at the same time they trust their people to accomplish them.
- *Leading star no. 5 – Lead inwards: if you want to create results as a leader, use your energy in the project.* There is a need for leaders with a burning passion for the project.
- *Leading star no. 6 – From steering committee to chaos committee: the project leader steers. The steering committee sets targets and outlines challenges.* The governing committees of a project must not just make 'go/no go' decisions, they must be involved in the project so that discussions, mentoring and ideas can unravel.
- *Leading star no. 7 – Quick insight: effective project execution amounts to a steep learning curve.* The learnability along the project should be embraced and act upon, even if it leads project into another direction.
- *Leading star no. 8 – short and fat projects: allocate fewer people with more time.* The quality of projects are often affected by allocation of fewer resources than it needs for a longer period than anticipated ('long and thin projects'). An opposite approach is desired.
- *Leading star no. 9 – work with visuals: make it easy and intuitive to share insight.* Visual communication provide efficient way to share knowledge and agree on goals.
- *Leading star no. 10 – kill complexity: focus on the solution, not the organization.* People have need to flaunt their professionalism and come up with complex solutions, however it is often the simplest solutions which are the best.

(Project Half Double, 2018, also in Svejvig, Grex, 2016: 828-829)

Svejvig and Grex however further explain that these leading stars were not operational enough for a direct usage in projects, and there was therefore a need for a more practice-oriented method. But even though the leading stars are not an explicit part of the methodology today, it is seen that they functioned as a basis for the present 'ILF' (Impact, Leadership, Flow) method (Project Half Double, 2018).

The PHD shares many similarities with UK's rethinking project stream, such as share focus on things like value creation, social processes, actuality and learnability in projects, handling uncertainty and also to some degree acceptance of instrumental processes (as long as they are done in balance with the social perspectives), however PHD also encompasess areas like leadership, colocation, visualisation and others elaborated in the leading stars. (Svejvig, Grex, 2016). This difference stems from the fact that PHD builds significantly on the concepts embodied in the Lean thinking as well as on the Agile thinking.

The Lean thinking is apparent mostly from the PHD's focus on the concepts of Value and Flow. Focus on value is highlighted as the first leading star, and the 'Impact' as the core theme of the ILF method shares the end-customer benefit perspective. Similarly, 'Flow' even shares the name with the lean thinking concept as another core theme of ILF, putting emphasis on project's progress and clearing the obstacles which might be in its way. However, the Flow in the context of Half-Double is also associated with the psychological state coined by the works of Mihaly Csikszentmihalyi (e.g. 'Optimal experience: Psychological studies of flow in consciousness', 1992), and defined in Half-Double as a *'project state in which the people involved find themselves in a state of high intensity, frequent interaction, energized focus and enjoyment in the process they are currently engaged in.'* (Addland et. al., 2018: 78). This is achieved by finding a balance between the tasks challenge and the ability to solve that challenge. It is also apparent that concepts which are part of the leading stars, such as 'short and fat projects', aiming for focusing resources on few projects, or ILF's goal for faster project execution attribute to the fact that main parts of the lean thinking are translated into the Half-Double methodology (Svejvig, Grex, 2016).

The Agile thinking seems be embedded in the Half-Double more in a practical way. The inspiration from the agile approach is apparent there in a large extent as well. Heeager et al. (2016) in their study compare the practices of Agile development methods with those of Half-Double, and find that most of the agile practices are mirrored in PHD. As they show, both approaches share practice in shorts iterations of learning, teams working closely together, putting focus on people, on continuous customer involvement and an early product frontloading. The PHD also deals with the themes of self-managing teams, motivation through collective ownership, informal personal coordination and visual user stories, although not entirely in a same way as the agile approach. The authors highlight that some of these differences are given to the nature of areas as where both methodologies operate, since agile is typically used in software development, while PHD aims for applicability in general project management. It is also for for this reason for why PHD omits agile concepts of testing and automation (Heeager et al., 2016).

Svejvig and Grex finally mention the themes of leadership and front loading as having influence on the development of PHD. They describe leadership as the least developed topic within Half-Double, as within ILF method it is described at a rather basic level, and propose higher

elaboration is needed. However some similarities with the conceptualizations of rethinking literature can be found, as the leadership theme of the ILF method addresses the adaptive mindset to deal with uncertainties and the practitioner development. The concept of front-loading is also seen to take part in the PHD in relation the Impact element. The front-loading or 'front end-loading for problem solving' means in brief to to deal or move the problems in early stage of the projects when it is cheap to change or cancel the project. This is done by questioning the different parts of the project and its outcome in order to uncover possible problems and potentially reduce development cost and time (Thomke, Fujimoto, 2000, also in Svejvig, Grex 2016).

The principles and thinking described in the previous paragraphs shaped the Half Double initiative, which ultimately resulted in creating the ILF method with three core elements - indicating intended shift from the triple constant embodied in the classical thinking ('the iron triangle - scope, time, cost). Svejvig and Grex describe these elements as having following goals:

Impact - reduce focus on deliverables and enhance focus on effect. Impact is also seen as a synonym with 'value', similar as depicted to in the lean approach.
Flow - reduce focus on utilization rate and enhance focus on the project's progression. In other words, the focus is shifted from the resource efficiency to the flow efficiency - optimization of the chain of events.
Leadership - reduce formalism and enhance focus on active involvement of the project owner; reduce focus on management of systems and enhance focus on leadership of people. This element describes both the role of a project owner as well as a project the project manager. It discusses the ever present social processes and resulting concepts like trust, active involvement or sense giving.
(Svejvig, Grex, 2016: 830)

Moreover, the ILF method is supported by generally known project management tools, used both in agile as well as in classical project management, which are discussed along with the Half-Double methodology in the next section.

In summary, it is apparent that the PHD initiative is influenced by preset streams trying to rethink project management. The informal network from which it started was trying to overcome challenges and critiques associated with the classical project management approaches, and develop model for a radical change in practice. The resulting methodology shares some aspect with the lean thinking like value-creating mindset and processes enabling flow of work, while it also draws a large practice inspiration from agile methodologies and its principles. It does however also contain a large focus on leadership and associated social processes, while aiming for simplicity and applicability to the general project management.

5.3. The Half-Double methodology

So far, we have seen the developments that ultimately lead to the creation of the Half-Double methodology. Before we get to examination of its effects in practice, we will take a look at its specific methods and tools.

The Half-Double was developed as an open-source methodology, which means anyone can use it without any fees being due to the authors. The methodology description can be found on the official Project Half Double website (projecthalfdouble.dk), where it is structured into a 6-chapter book (as of 1.8.2018) which is available to download. Along with it, there is also an interactive model of the methodology with a structured overviews of the Half-Double elements. Moreover, the Implement consulting company, which serves as an organizer and mediator for the Project Half-Double development also published a descriptive book in April 2018 (Adland et al, 2018), which, although similar, has more elaborated content compared to the content available online, and includes additional chapters on local translation and portfolio leadership.

A synoptic overview of the methodology described in the following section was compiled from all these three sources.

5.3.1. Overview of the methodology

At the core of the methodology, there are the three aforementioned elements - 'Impact', 'Flow', and 'Leadership'. Each puts forward principle, which is described as a 'non-negotiable standard':

Impact: *Stakeholder satisfaction is the ultimate success criterion*
Flow: *High intensity and frequent interaction*
Leadership: *Must embrace uncertainty and make the project happen*

Each of this principles is connected to its three methods. These are proposed to be used in order to achieve the principle. And every method is further supported by a specific tool for the practice of project management.

Another part of the methodological 'circle' is the concept of 'Local translation'. The methodology stresses that the adaption of the Half-Double needs to take into account the influences and history of local organizations. Since the project is not an enclosed system that lives on its own, but is rather influenced by the organization throughout its whole duration, the

application of the methodology needs to take this into account. The local translation further deals with how to customize the governance of the project in this context, and also addresses challenges associated with the introduction of a change, such as willingness to accept different thinking, and how to maintain the changed processes.

Last part of the book by Adland et al. is the theme of portfolio management, that further discusses the organizational context which influences every given project. However, the methods regarding portfolio management as well as detailed descriptions on local translation were published published after the research of this thesis begun, and these therefore areas remained mostly out of scope of the thesis's exploration. Nevertheless, they are briefly mentioned in the following sections.

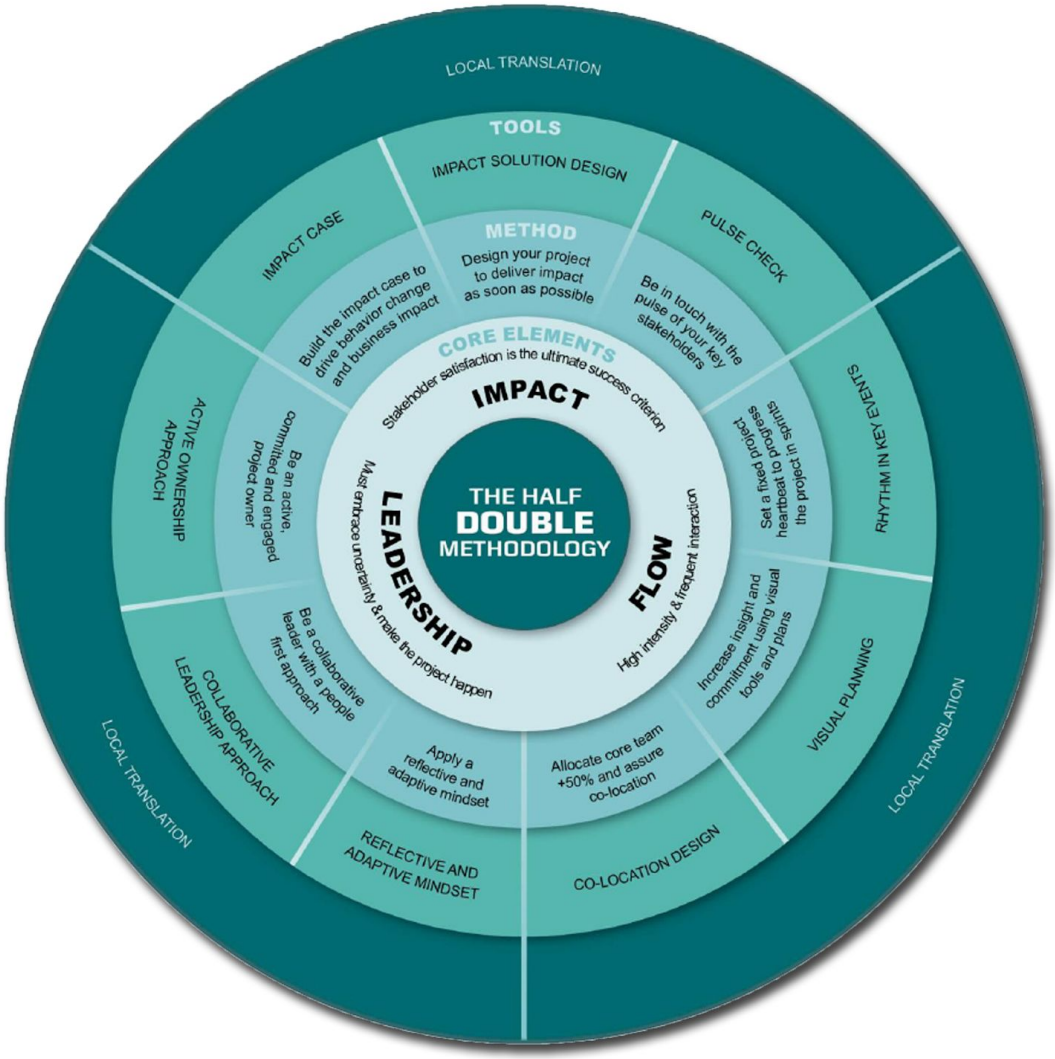

Table 7: An overview of the Half-Double methodology model. (Project Half Double, 2018b)

5.3.2. Impact

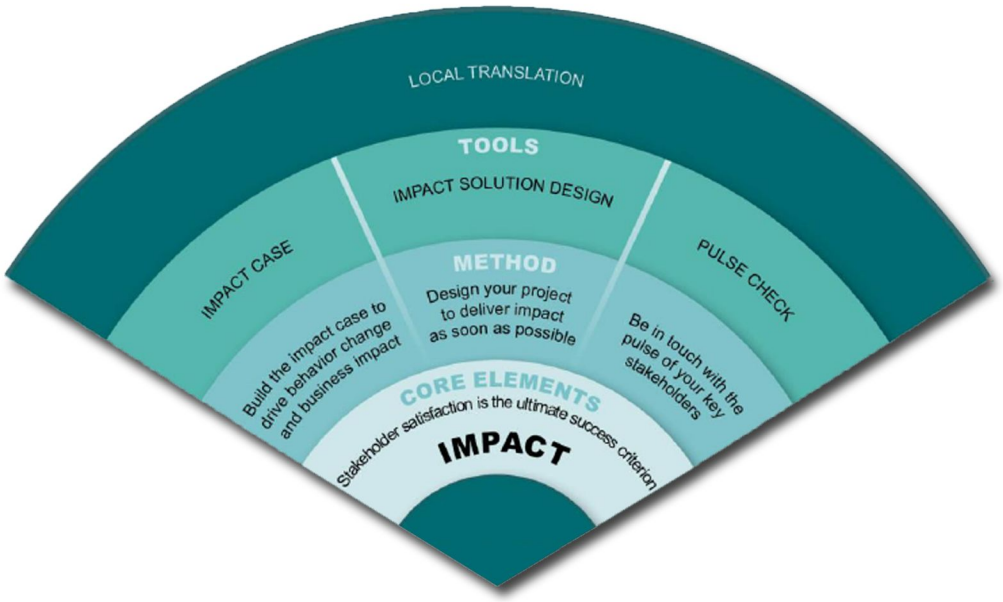

Table 8: Overview of the core element Impact (edited from Project Half Double, 2018b)

The impact represents the value creation for the targeted group. The methodology stresses the need to put the focus on the end goal rather than on the deliverables, which are often imagined to assure it. Three methods, each supported by a specific tool, are put forward to achieve the 'Impact'. First two methods deal with the project planning, the third one aims to measure satisfaction of the involved stakeholders.

Method 1 - Build the impact case to drive behaviour change and business impact
Tool 1 - Impact Case

The first method addresses the project planning phase by proposing to create an 'Impact case', which would serve as a project roadmap and help establish a shared understanding of the desired outcomes as well as their interdependencies. In order to create value from the perspective of the customer, the method proposes two areas to be questioned: the Business impact, where the question to ask is *'What are the value drivers justifying the initiation of this project?',* and Behavioural impacts, answering the question of *'What specific new behaviours do we need to see in practice to drive and sustain the business impacts?* (Project Half Double, 2018b) The defined impacts should then by broken down into the selected 'Key Performance Indicators' (KPIs) to help measure the progress. The tool presented to support the method offers a template for the

Impact case construction. It provides a space where the goals as proposed by the method can be specified, and the KPIs tracked. (Project Half Double, 2018b)

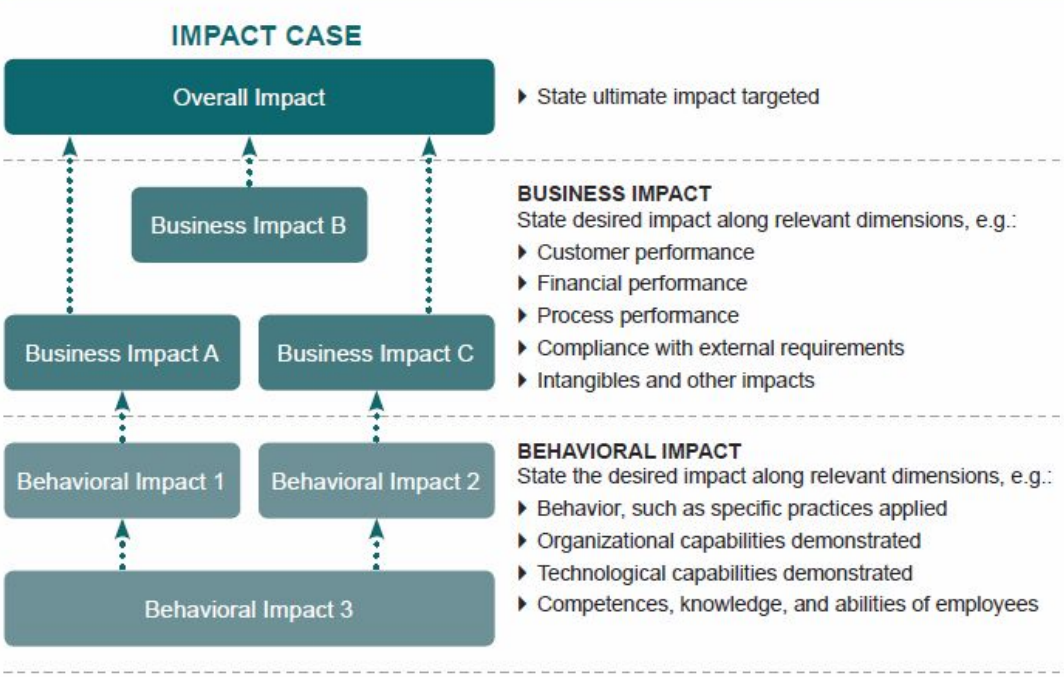

Table 9 - Framework for the Impact case. (Project Half Double, 2018b, ch4:3)

The main aim is therefore to frontload the project, asking the questions about its value creation before it is initiated, along with building a mindset to think about the end goal from the customer's perspective.

Method 2 - Design your project to deliver impact as soon as possible
Tool 2 - Impact Solution Design

The second method facilitate the first. Its purpose is to propose a way in which the initial planning should be done. The declared goal is to design the project in a way that would yield results yearly on, and involve key stakeholders and customers in this design creation in order to get their perspective. A five step-process for the creation of 'Solution design' is put forward, with iterative, repeating cycles in which the design is completed. The tool puts forward a template with an overview of the proposed cycles, realized through consecutive workshops. (Project Half Double, 2018b)

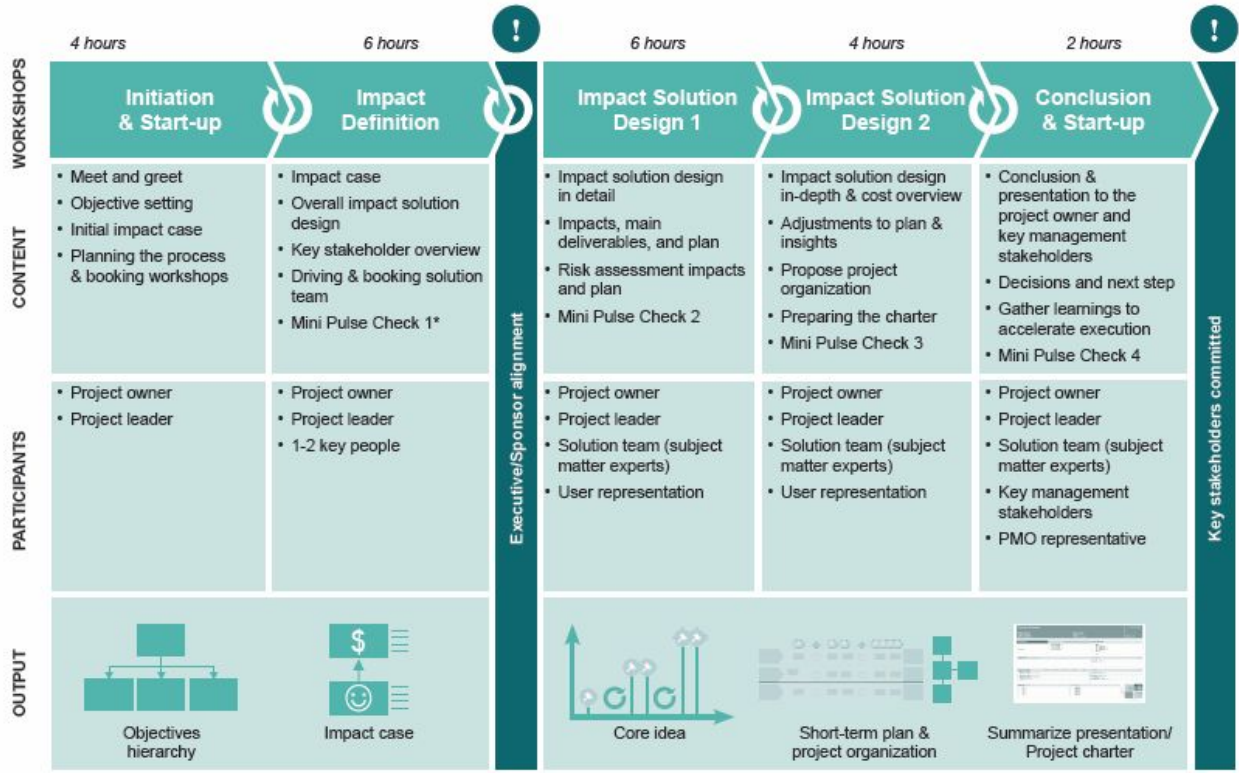

Table 10 - Template for the Impact solution design (Project Half Double, 2018b, ch4:7)

Method 3 - Be in touch with the pulse of your key stakeholders
Tool 3 - Pulse check

Lastly, the third method aims to enable an insight into the project stakeholders point of view. Purpose is to 'check their pulse' and reflect upon it: ask questions about the project and lead a constructive dialog based on the inputs given. The way in which these insight can be achieved is through questionnaires, send out to the project's stakeholders on a monthly basis.The results are then evaluated and presented to the project team, and a dialog or improvement actions can take place. The proposed six questions to be asked are:

Are you confident that your current work is creating impact for the project?
Do we deliver and collaborate effectively in the project?
Are you having fun and feeling energetic about working in the project?
Are you getting the support & feedback you need?
Are you developing personally and professionally while working in the project?

All in all: Are you convinced that this project is executed more effectively and with more focus on impact than other projects you have been part of?

An alternative to the electronically-distributed questionnaire is proposed to be a 'mini-pulse check', as it might be simpler and more engaging option within the organization. Within the mini-pulse check, the selected question(s) is presented after each workshop, and the stakeholder provide immediate response, by placing a post-it note with the owner's name onto a prepared poster containing different areas for an indication of satisfaction. The overall goal is to provide space where the stakeholders can express their (dis)satisfaction, based on which the project leader can act upon. *(Project Half Double, 2018b)*

5.3.3. Flow

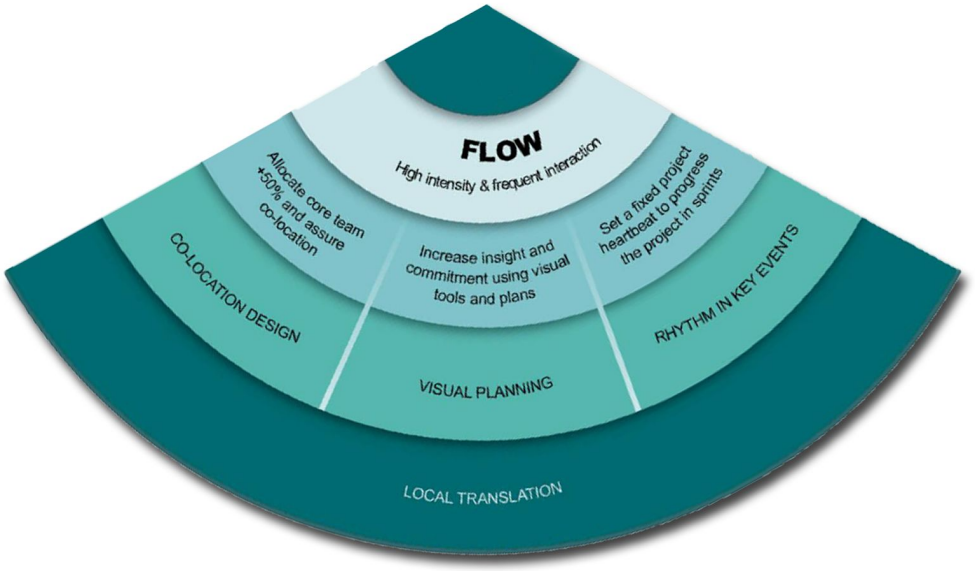

Table 11: Overview of the core element Flow (edited from Project Half Double, 2018b)

The flow agenda stands on the notion that project is done in turbulent environments in which many decisions cannot be effectively planned for in advance. Everybody therefore needs to improvise to some extent, adapting to the overall strategy and to the current situation. The overall goal is to ensure a flow of work, but also enable a personal 'flow' *(inspired by Csikszentmihalyi, 1992)* by finding a balance between the tasks challenge and the ability to solve that challenge. Three methods are put forward to ease the happening of the Flow:

Method 1 - Allocate core team minimum 50% to the project and ensure co-location
Tool 1 - Co-location design

Inspired by the agile methodologies, the emphasis is given to colocate people in the same space, to enhance communication and deal with potential uncertainties as soon as possible. Building up on the works of Wheelwright and Clark (1992), the method further proposes that team member should be allocated only at two projects at a time (hence, 50% project-allocated), since the research suggest it is the most efficient way of working within development, reducing transaction costs and providing desired immersion with the project (Adland et al, 2018).

Method 2 - Increase insight and commitment using visual tools and plans
Tool 2 - Visual Planning and project visuals

The second method proposes to use of various project-related visuals to enhance people's motivation, alignment and understanding. The basic idea is to stimulate the work process by creating overviews of project's progress, or its complexities and prototypes. The visualisations are advocated to be used in Problem-solving parts, where team can discuss solutions (e.g. visual planning on a wall), while creating prototypes for demonstrations and reviews, (e.g. models or sketches), during workshops, for stimulating the process with various explanatory aids (e.g. posters, flip charts), and, highlighted as a minimum, while planning, for keeping the track of understanding of project's state and its further steps. The visual planning is carried out by describing the deliverables of each work iterations (sprints). This is done by each member breaking down his activities for each day and week and sharing it on the plan - which enables discussion on mutual task interdependencies with other project members (Adland et al, 2018).

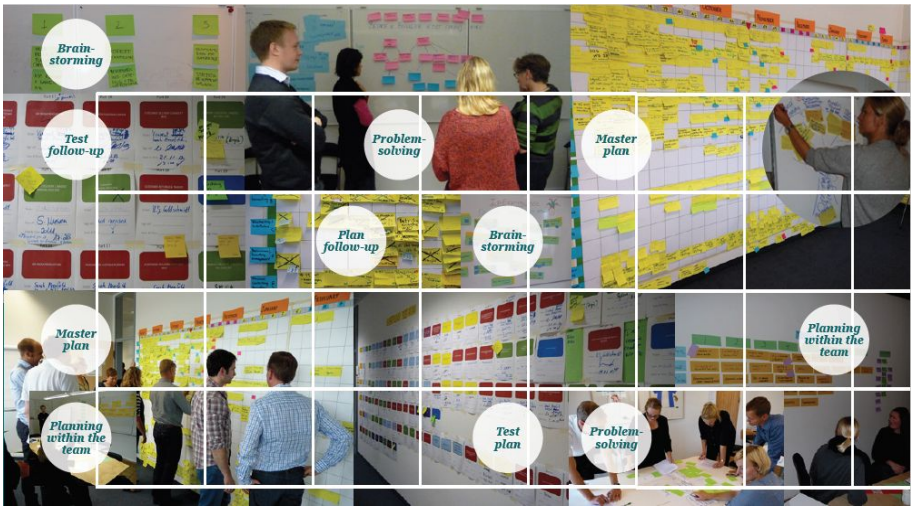

Table 12: Examples of various usage of project visuals (Project Half-Double, 2018b, ch5:7)

Method 3 - Define a fixed project heartbeat for stakeholder interaction to progress the project in sprints

Tool 3 - Rhythm in Key Events

The last flow-enabling method highlights the importance for a common framework through which it would be clear when different project interactions take place and who needs to participate on them. The method aims to set rules for when the meetings take place, how often do they happen and who needs to attend them. The tool suggests to establish a 'rhythm', in which the occurrence key event is predictable. The proposed way to do this is through specifically set-pace of six key events, distributed throughout the project's iteration, in which monthly spring planning, daily visual status, weekly feedbacks, next-week planning, sprint reviews and pulse check feedbacks take place. (Adland et al, 2018)

5.3.4. Leadership

Table 13: Overview of the core element 'Leadership' (edited from Project Half-Double, 2018b)

Last core element aims to provide a guidance on how to embrace leadership within projects. It guides through themes like how to create inspiration throughout the project, explains the need for unifying different viewpoints of the many different stakeholders, and puts forwards a role that would help to achieve commitment to a shared project's vision. It highlights that leadership in projects stems largely from an interaction of a project leader and the project owner. Both of them are responsible for creating a shared vision which would be appealing for the project team as well other project-related stakeholders. The leadership is further described as unfolding on three

levels: The project level, where the impacts are created according to the organization's strategy, The team level, where different skills, knowledge and opinions are lead to an agreement and acceptance of the solution, and on the individual level, by providing feedback as well as motivating each member through the sense of autonomy, developing mastery and personal purpose. (Adland et al, 2018: 219)

Method 1 - Be an active, committed and engaged project owner
Tool 1 - Active ownership approach

Project owner is seen as an essential driver of the project, since it is him who has the power over it and can facilitate the necessary approvals and allocate the resource for the project realization. It is stressed however that these are not the sole responsibilities, and that the project owner needs to be active not only on these organizational levels, but also in personally engaging with the project and its team. Therefore, on the project level of leadership, the owner needs to assure the support for the project on the organizational level and keep it aligned with its strategy. On the team level, it is owner's responsibility to allocate optimal resources and allocate the right people, ensure the best possible working conditions and find a shared approach with the project leader. But he is also important on the personal level, by leading and developing the project leader, and empowering the project members. The supportive 'tools' of the leadership element are described as 'leadership behaviours' and then descriptively exemplified (Adland et al, 2018)

Method 2 - Be a collaborative leader with a people first approach
Tool 2 - Collaborative Leadership Approach

The second method discusses the role of the project leader. His foremost purpose is describe as to motivate different experts to do their best in cooperation with others. He needs to possess good leadership skills which would facilitate the need for aligning stakeholders or conflict management, while remaining reflective and collaborative. On the project leadership level, the leader should have the final impact of a project in mind, firmly demanding it yet being more flexible on the defined deliverables. On the team level, he should facilitate and energize interactions as well as enable project-related learnability, and on the individual level, he should put people first, motivating them by giving the key stakeholders the sense of purpose, autonomy and developing mastery. The core question he should be asking each tember is 'What can I do for you?'

Method 3 - Apply a reflective and adaptive mindset
Tool 3 - Reflective and adaptive Mindset

The third leadership method proposes a mindset that does not treat changed demands in the project's outcome as an inconvenience, but rather embraces the learning opportunities that comes with it, which enable to swiftly adapt into the new situation. The 'reflective and adaptive mindset' is recommended to be applied by both project owner as well as the project leader. The focus is put not only on the adaptive abilities in the in a turbulent environment, but also on being reflective on what leadership style do they use - and being conscious about own actions, strengths and weaknesses. The leader should be *'a reflective practitioner - someone who knows what to do, when you don't know what to do'* (Addland et. al., 2018: 237). Again, the tool do not provides detailed instructions on how to achieve it, rather it exemplifies behaviours that are in this context seen as fitting.

3.3.5. Local Translation and portfolio management

As mentioned in the beginning of the section, the sections on local translation and portfolio management remained out of scope of this thesis, since they were published after the research has begun. Nevertheless, brief overviews are also provided here, to show the full scope of the present methodology.

In the local translation part, attention is given to the change-related challenges that comes along with many efforts to change an approach within an organization. The local translation part of the methodology therefore deals with areas like customizing the governance approaches to the uniqueness of the project and situation in the company, and with the project stakeholders willingness to change the accustomed ways by shifting to a 'Half-Double mindset', which is based on the methods, tools and principles described in the sections above. Lastly, it offers a 'reflective map' tool to mark the progress of the change, which is supposed to help ensure that the company is not falling back to the old habits, doing 'the same things as usual'.(Adland et al, 2018)

The project portfolio part deals mostly with the themes that goes beyond the single project. Although the Half-Double methodology focuses mostly on the project management level, it is argued that its core principles make a good basis for an effective portfolio management as well. Four philosophical principles are defined for the portfolio management; *Impact is valued over scope, cost and time, Flow and progress is valued over multitasking, Leadership is valued above management, Trust is valued above control* (Addland et. al., 2018: 306), highlighting the

Half-Double principles and the proposed shift to the soft paradigm mindset. The structure of the proposed methods follows the core elements. Similar to the impact-creation thinking, it is suggested to prioritize projects based on the fast impact they provide, and evaluating them not solely on the traditional generic figure examination, but also through sense-making, dialog and impulses given by project's key stakeholders. 'Flow' of projects proposes focusing on few, intense projects and finishing them early, instead of managing many projects at once through a long period of time. The number of projects is recommended not exceed the number of key people within the organization, having a key stakeholder not engaged in more than two projects at the same time. And lastly, it is highlighted that leaders responsible for the portfolio should be actively involved in the projects. In order to project owners get the necessary insights and an engagement, it is suggested that they are not responsible for more than three projects at a time, and each of them should be part of the portfolio leadership team that makes the strategic decisions. (Adland et al, 2018)

3.3.6. Differences in the Grundfos pilot project

As mentioned in chapter 3, the Half-Double pilot project in Grundfos was one of the first that took place. Because of that, the methodology had a different structuring. At the time, the implementation was done through selection of Leading stars, discussed in chapter 5.2. In case of Grundfos, the focus was selected to be put on 'Simplicity', 'Working visually' and 'Enhanced emphasis on customer value' (Project Half Double, 2018c). In term of the present Half-Double terminology, the methods employed, albeit with different presentation, were the Impact case and the pulse checks, collocation, fixed allocation, visualisation and rhythm in projects, with the project leadership partly addressed.

Overview of the differences can be seen in table 14:

Half-Double in Grundfos pilot project	Contemporary Half-Double
Impact	
Impact case created, KPI defined	**Impact case & KPI tracking**
N/A	**Impact solution design**
Pulse checks implemented with core team, online and on monthly basis	**Pulse checks**

Flow	
Project room allocated	**Co-location and 50%+ allocation design**
Both visual planning and project visuals	**Visual planning and project visuals**
No sprints, but milestones set for every 3-4 weeks. Weekly meetings with core team.	**Rhythm in key events**
Leadership	
Partly	**Active Ownership approach**
Partly	**Collaborative leadership approach**
Partly	**Reflective and adaptive mindset**

Table 14: Overview of the differences in how the Half-Double methodology was presented in Grundfos pilot project.

Notably therefore, the process of 'Impact solution design' was missing from the process, and the leadership was not addressed in the way the methodology formulates now. From the interviews with the facilitating consultant and in the company however, it was apparent that its principles like the active ownership approach were put forward and were part of the discussions, although not presented in the form the Half-Double proposes now (discussed also in Svejvig et al., 2017, Project Half Double, 2018c).

6. Translation of the Half-Double methodology in Grundfos

This chapter presents the various findings from the research in Grundfos. Several themes emerged while exploring 'what value was created for the Grundfos project practice by participating in the Half-Double pilot project'. The themes are sorted to follow the structure of the Half-Double methodology, starting with discussions on Impact, through points on Flow and then topics on Leadership. Last section gives an insight into the transformations that the methodology caused here, and into the challenges that arise while changing a project practice, as identified by the participants.

Since the chapter is based on personal testimonies, individual experience of the actors with the Half-Double methodology as well as their the role in the project might be a relevant factor to consider when talking about the methodology concepts, and therefore the references to the individual interviews are marked by a specific color (see footnote[2]) to give a better overview on what kind of actor provided the statement.

6.1. Perspectives on the Half-Double pilot project

First discussions that took place in the interviews were usually about the initial perceptions of Half-Double methodology. What did the participants think of it, when the HD was first introduced to them, and how do they reflect on the pilot project?

It became clear that some of the features and principles behind Half-Double were not something new to the Grundfos practitioners even at the time when the pilot project started. The pilot project manager said the Half-Double seemed like something close to what they were already doing, albeit the overall structure was different. The organization's practice did not seem unfamiliar with the agile and lean principles embodied in the Half-Double: Grundfos as an organization has a reputation of being a mature organization within project management. This opinion is shared internally as well as externally, as for example an academic evaluating the pilot

[2] These markings are:
- Project manager who has experience with Half-Double
- Project manager without personal Half-Double experience
- Team Member of the Half-Double pilot project
- Half-Double related researcher

project noted that in Grundfos, the practice is on a high level both with projects and with experimenting with new things.

> *"The odds for project Half-Double to really surprise them, and to really make a great impact I think was actually not that big… because they are very mature at doing these things already."*
>
> Interview with Sara Grex, 8.5.2018 ■

This was one of the perception on why the Half-Double was evaluated as not having high impact in the pilot project. But as discussed in the chapter 3.2, perhaps the largest obstacle for 'not succeeding in Half-Double terms' was the nature of work process in Grundfos front-loading projects, and the portfolio-related decisions and management. A project manager summarized the overall perception on the pilot evaluation by saying:

> *"One thing, in Grundfos, we are a very mature project organization already, before we entered the pilot. If you compare using Half-Double to an immature project organization, you can gain much more.*
> *The other part was, this project actually struggled with, that at some point, the business owner decided not to bring this further - we really struggled with that, with the ownership of the project."*
>
> Interview with the 1st project manager, 1.5.18 ■

Indeed, project ownership was one of the most discussed and emphasised themes throughout most of the interviews, and not only because the portfolio decisions played an important role in this case.

One of the failed KPI of this pilot project was the reduction of the time to Impact - creating value faster, finishing in 6 months instead of 9. But as already Svejvig et al. (2017) proposed, in order to achieve benefit faster, the speed needs to be valued, and this notion was shared within the organization as well. In the case of Grundfos, there were no incentives to speed up the project, as the finished product would be 'developed for the shelf', waiting there for another three months before the next department would continue with it.

> *"If nobody is really pulling for the result and then waiting for it, then it's hard to tell people it needs to run faster, right? You need to down-prioritise other jobs because of*

this, and that's really tough, because there are no good arguments behind it."

Interview with the 1st project manager, 1.5.18 ■

But, although it was indicated by Gerstrøm et al. (2017) that the HD methodology had 'lower Impact' in this pilot project, it is also stated that Grundfos gained useful learnings, and these are the prior focus of the research. Benefits might not be gained just from fulfilling the predetermined project's KPI's, and delivering the product: the learnings from the project might benefit the company in the long run. As Svejvig explained;

"(...) Most projects, also delayed and failed, enables some kind of learning which is adapted in the organization, so in the short term the project might be seen as useless or waste, but in the longer term it delivers something to the organization, maybe different to the original goals with the project..".

Interview with Per Svejvig, 8.5.18 ■

The question therefore remains: what were the learnings? What value was created by introducing Half-Double into this project, and how did this mature organization translated its concepts into their practice?

6.2. Difficulties with translating the Impact

First discussed Half-Double element usually was the Impact and Impact case creation. Grundfos used a similar template for project planning prior to Half-Double. The focus there was also to 'ask the right questions' about the project and its outcome. The focus of frontloading projects in Grundfos is on the exploration whether or not the business case for a potential product that came from an ideation is viable for the company and for the market.

"In a development project, where you have a specification, there you actually believe that you know most, at least, and you build at what you know. In innovation project, the real idea is to understand what you don't know."

Interview with the 1st project manager, 1.5.18 ■

Innovation projects of the department usually work with learning loops and exploration of uncertainties associated with the product, before a this product might come into production.

> *"A very important thing in innovation project is that you understand what is facts and what is assumptions. And very often, you think that assumptions are facts. And then you end in trouble.*
> *But understanding that what have we written here* (in the project overview) *is only an assumption, and actually write it - 'these are the assumptions', these are what we need to understand if we can convert these into facts or not."*
>
> Interview with the 1st project manager, 1.5.18 ■

Driving the value creation from the perspective of the end users was therefore seen as a crucial factor from the perspectives of many of the interviewed project managers, and sometimes even highlighted as a present challenge.

> *"We have a lot of engineers in our organization. And they easily take deep-dives into some technical details. But actually, if you don't really know if the customer get any value from the solution, why dig into technical detail?"*
>
> Interview with the 1st project manager, 1.5.18 ■

Although the impact element of the Half-Double further developed since the time of the Grundfos pilot project, some of the project managers were also familiar with its present state. However, both project managers experienced with the methodology expressed challenges when it came to its methods.

> "*The impact solution design… I think, actually, quite many people finds it bit hard to understand that.*"
>
> Interview with the 1st project manager, 1.5.18 ■

Another project manager was recalling that the first impressions of the Impact element were not unproblematic:

> *"I actually had huge problems with that, when I started Half-Double, because I didn't get the term 'Impact'. And it was used more or less all of the place. 'Impact. The Impact!' (...) I couldn't really grasp at it, in the beginning. And I've actually made my own word for it… Can't remember it now. But the Half-Double guys that we had over to teach our*

guys were talking about it all the time."

Interview with the 2nd project manager, 1.5.18 ■

He further explained that when planning innovation projects, it's easier to think about the end goals in different terms.

> *"Typically, I would not necessarily say it needs to have Impact, I would say we need to investigate this, and solve the uncertainties, whether there is a business or whatever. (...) We need to figure out if the business case is correct."*

Interview with the 2nd project manager, 1.5.18 ■

The methodology presented on the Impact was seen as difficult to grasp, and somewhat distant to the need of the project manager. Although the core principle about value creation and stakeholder satisfaction seemed more relatable, the tools and templates proposed by the Half-Double were not accepted well. The project manager further explained his experience over one of the Impact case template:

> *"I just have problems, defining what is the behavioural change. Take this project (...) I don't know what I should write* (in the Half-Double template)*. It just seem very much like something that's written by school professor."*
>
> Interviewer: *"It's too abstract?"*
>
> *"Yeah, exactly. Far easier just saying, good, what is it we want with this project? (...) And fair enough, I can say, 'well, what do you want, do you want to change the behaviour of the guys in this project, so they begin to think about baselining their things, and putting them up here?' But I would never write it in this* (Half-Double) *way. And even when I read the guidelines, I get a bit confused. I feel much better just writing purpose, what are the main benefits that we expect, what are the KPIs, lets call it that instead of Impact, what are the milestones that I see…'"*

Interview with the 2nd project manager, 1.5.18 ■

With its focus and end goal, creation of the impact case was similar to the practice already present in Grundfos, where the project overview would be summarized in a 'one-pager'. The purpose of the impact case therefore seemed as something very similar to what it was already established, however with a more difficult and somewhat confusing structure. The project

manager further recalled that creation of the Impact case in the pilot project took a lot of time compared to the creation of a one-pager, and the outcome would be the same. The 'impact' was also mentioned as a somewhat unrelatable word, making it harder to think about it in practice.

Another point in the impact discussions was related to its usage in innovation projects, where creating 'Impact' and constructing an impact case might be different process than in other kinds of projects.

> *"For instance, in a pump project, if you are making an incremental innovation, you are not necessarily hoping for a new behavioural change."*
>
> Interview with the 2nd project manager, 1.5.18 ■

The main issue was however adapting the proposed structure and making it your own, in a way which would feel natural to do and easy to understand.

> *"I just find it to be very hard to take something like 'behavioural impact' and translate it into 'a business impact' and then translate it into an overall goal."*
> *(...)*
> *"It was hard doing it, and I've discussed it with others, and they had some similar problems."*
>
> Interview with the 2nd project manager, 1.5.18 ■

However, another theme related to discussion about the contemporary version of Impact solution concerned the user involvement in the development. For one project manager, this presented a major theme that should be more discussed and needs to be addressed further in the frontloading projects. He shared his viewpoint in detail:

> *"I think in Grundfos in general, we have a bit of a history of sitting in Bjerringbro and think we can develop stuff for the rest of the world, because we know best. And history has also showed us, that that's not always the case. And I think that's why there is so much focus on that we should be customer-oriented, and these things. But the organization does not support that at the moment."*
> *(...)*
> *"I think the best would be that the persons who are going to develop this stuff knows the market, knows the customers, knows the needs. But as a minimum, people in charge of the project should have this knowledge. And I think we are doing a very poor job."*
> *(...)*

"Sometimes, you hear people, they have been talking to couple of internal sales guys, and then they think 'now we know everything about the market'. And if we have to go and talk to customers, then we actually have to ask the business unit, but they see themselves as experts, so why go and talk to customers? But then, if we push on, then they say, 'ok, we can arrange something for you'. And then we find some customers we can talk to, but it's always the customers that are 'the best friends' - the one who always buy Grundfos products, and they love the Grundfos brand and everything, it's never the other ones. And I think its a problem. And I think, mentally there is a long way from this 'development in Bjerringbro' to 'the customer'."

Interview with the 4th project manager, 9.5.18 ■

The main concern was about developing of the 'right' things, from the end-user point of view. As he explained, that is not always the case:

"I think in many cases, we are developing fantastic products that noone wants to buy. And I think it would be a better business to do 'just good products' that everyone would love."
(...)
"Also, we are doing project based on some ideas and inventions that we have made, and it's so fantastic, that we cannot accept that the market doesn't want it. So we continue to push for it. We have project that have been running for more than 10 years. And they are about to reach the market now. And still we can't really answer the question 'what is the business case?' But it's so amazing from a technical point of view… I think that happens to much."

Interview with the 4th project manager, 9.5.18 ■

Summing up, the impact case did not find further adaptation in the Grundfos project, as it was seen as too difficult to use its related methods. Even when looking over the contemporary version of the Half-Double methods, the project managers did not seem receptive, as the system of impact definition and system of workshops seemed distant and more complex than the system already used in Grundfos. From the discussion was however apparent that inclusion of end-user in the development process is a significant theme for some of the project managers, especially in these front-loading projects.

6.3. Insights provided by Pulse checks

The last Impact-categorized method of pulse checks on the other hand was seen as very valuable, at least from the points of project managers familiar with the Half-Double. It was a new thing to Grundfos, and said to proved useful to the project managers. It was also mentioned that the tool is being used in other projects as well.

> *"We didn't have that. And first, that was - well, that's really simple and it's easy to use and you get some good results right away. We did that as a first experiment and then other project managers copied that and said 'ok, that makes sense, we can use that'."*
>
> Interview with the 1st project manager, 1.5.18 ■

The value was seen in giving the project manager an indication of 'are people happy', and giving him an opportunity to openly discuss the results with the team.

> *"Thats where I think its very valuable. If somebody is unsatisfied with something, it gives them a chance to open up and say 'I am not satisfied about this' and to have an internal discussion about it in the core team."*
>
> Interview with the 2nd project manager, 1.5.18 ■

In the pilot project, the tool was used to measure team members satisfaction on a monthly basis. In the project 'kick-off', the reported motivation was high, and the tool provided an input on which a bootcamp with two days off the company premises was initiated some months later, when the reported motivation notably declined and there was a need to 'ignite' the project again. As the project manager stated, it helped, with the reported motivation levels raised in the next pulse checks.

> *"It's useful to have these questions and then the answers, that help as lot - because then you get a hand as a project manager, 'how can I do something about it?' "*

As he said, it helps him to ask questions like:

> *"'Three months ago, you were more convinced that we work effectively as a team. What*

has changed?'"

Interview with the 1st project manager, 1.5.18 ■

However, the perspective of project members was somewhat different, as it was an extra thing they had to deal with. One pilot project member was not convinced about its usefulness.

"I don't think it gives that much additional benefit. Because when you are working in a team, you generally have a good idea of how the team is performing."

Interview with the second pilot project member, 9.5.18 ■

He did however said the pulse check might be useful in projects that are spanning over a long period of time, and not just couple of months, when the 'team is still fresh'. Another pilot project member disliked the pulse checks altogether, saying he 'hates this kind of asking every four weeks.' He also stressed that the pulse check might lead to project members feeling pressured to give a high score, or they might want to avoid what giving a low score would result in.

"Actually, I'm little bit afraid, that people figure out which score do we have to give to not get more spent time on that. 'If I put a 2 here, I know that it will be for discussion. Do I want that?' Maybe not - That's what I might be afraid of. "

Interviewer: *"Do you think that happens?"*

"I am sure that happens. 'Ah, if I put in a 3 here, then we'll have to spend 2 hours discussing over that.' I am really afraid, that is what happened."

Interview with the first pilot project member, 1.5.18 ■

He explained that the figure given does not necessarily provide the true feeling, nor it guarantees that the project members will be willing to participate on it as intended. He did however eventually concluded that the pulse check, when done with a determination to act upon the results, can have a positive side as well.

"It's also good, because then you have a safety belt, 'I'll put in a 2, because then I am sure we will discuss it.' So in that way, it can of course be positive. "

Interview with the first pilot project member, 1.5.18 ■

Project managers not familiar with Half-Double seemed interested in trying out pulse checks, relying so far mostly on their intuition when it came to 'feeling the pulse' of the project.

> *"You can sense a lot. If people are not with me, they are out." Simple way, but maybe not the best way, all the time.*
>
> Interview with the 3rd project manager, 9.5.18 ■

Pulse checks were also mentioned in relation to the challenge of having an engaged project owner, in detail discussed in the next sections. The ideas was not limiting the insight to the project team, and getting asurement on the position of the top management:

> *"Maybe it'd be better to make a pulse check with the management. 'Do you still think this is a good idea?' 'When have you last heard about it* (his project)*?' (...) and if they'd say 'don't know, don't know', ok, then we have a signal. And we should stop the project.*
>
> Interview with the 3rd project manager, 9.5.18 ■

Last thing discussed in relation to pulse checks was a notion of whether or not they should be anonymous. A project manager mentioned that he is unsure, as he was given contradictory opinions - one stating that the pulse checks should be strictly anonymous (via online questionnaire), as the respondents might not be fully honest otherwise, and other that they should not be anonymous, as the pulse scores serve mainly as talking points that need to be discussed openly anyway.

6.4. Allocating and co-locating the Flow

Flow principles were in many forms already recognized in Grundfos, since it stems from agile roots which the project managers were familiar with. Therefore, the notions of the importance of being co-located in projects as well as being allocated enough were already present in Grundfos, although both were not without a hindrance. When the flow principles of flow were discussed in relation of the Half-Double pilot project, the testimonies often went beyond this single project, pointing out on bigger importance and challenges of 'how are things overall set up in an organization'. Flow however was an easily relatable concept in the eyes of project managers, who saw their goal as removing obstacles that would prevent its happening. It was seen as something not new, but constantly important.

When it comes to co-location in project rooms, Grundfos has designated buildings in Bjerringbro, which are reachable within few minutes by a car from other Grundfos' departments. Additional project-designated areas were also considered of being created in the future. A project manager explained that having an own place where the project is conducted is very important for the project's progress, as it enables a sense of belonging and tangible visualisation.

> *"You need some artifacts as a project team. And if you have your own room, then you can create your own wall room, room of command, you need to see a visible plan, hanging in the room, you need to see some updates. You need to feel the project. And if you don't have a project room or place in the office environment, 'here is our project', then you certainly miss something. You need your project island. I know island is a dangerous word, because you don't want to be isolated, but still an island."*
>
> Interview with the 1st project manager, 1.5.18 ■

A pilot project member supported this view, as he described how it benefits his workflow:

> *"You have a much better feeling what the other people are doing, and you can go and ask people… Collocation is paramount if you are going to have a really effective team."*
>
> Interview with the second pilot project member, 9.5.18 ■

However, another project manager proposed that having a project room might not have just the bright sides, since having 'a project island' might also mean you will become distant to the rest of the organization.

> "*I am little bit more sceptic, because it sounds good and nice, but you also start to be isolated. Nobody is stepping by, coming in. If you are sitting in a room down there* (where project rooms are located), *nobody is going down there. Only the team. And after half a year, you are forgotten."*
> *(...)*
> *"And some of the inspiring things you are sitting and working with, you have it standing on your chair or something, and people* (come and ask) *'oh, what are you doing? Ah, I have heard about someone who is doing something similar in another department…' "*
>
> Interview with the 3rd project manager, 9.5.18 ■

He then explained that its simply nice to have people coming around, being accessible to others, and having the opportunity to show off your work. Moreover it is not just valuable insight that might be missed, the isolation might deepen the challenges with having more engaged higher management, as they might become more unreachable to you.

> *"Im sitting close to the* (superior) *right now, and that's good, because it's difficult to catch him for a meeting. But then, you can sit in the morning, and say 'Hey, come and look…'*
> *(...)*
> *And if some* (higher management) *are coming to a meeting* (around me)*, you can say 'hey, see what we are doing here... ' That never happens down there."*
>
> Interview with the 3rd project manager, 9.5.18 ■

Another insight highlighted the interdependencies of a project to the given organization, as a project manager said that benefits of co-location are not just about project execution, but might also overlap into after its conclusion:

> *"Today our business segment is not located here, together with development. I think that's a huge mistake. (...) I think each time we handover the project, I think a lot of knowledge gets lost on the floor."*
>
> Interview with the 4th project manager, 9.5.18 ■

On a more personal level, one of the largest obstacles to flow was often highlighted the insufficient allocation of key people to a project. This was due to the workload many of these employees were having already, making it difficult to commit them to the given project. The problem was not only not having them present in some meetings or falling back with some tasks, but highlighted problem were the interruptions of single workflows, with project members not being able to continuously work on the same task for a long period together. This was seen as problematic especially in the contexts of projects done in the innovative department.

> *"When we work with innovation, you cannot do innovation in small sprints. You cannot say, 'we innovate every thursday'. Because sometimes it takes that the team is together for a long time, and then suddenly, thing evolve, and then ideas pop-up, and then idea forms, and then the concepts are generated, and so on. The ideation is a continuous process. And you cannot ask people to come every Monday and then expect it to happen. You simply need people to be close together for a longer period."*

Interview with the 1st project manager, 1.5.18 ■

Difficulty to focus on the same task for a longer period was affirmed by a pilot project member:

> *"You have to be dedicated on the task, if you can work only on that task, but thats for most of us engineers and technicians in Grundfos, that's not possible. You always have connection to some other project, sometimes you have to prioritize."*

Interview with the second pilot project member, 9.5.18 ■

This of course has its impacts. Another project member explained the repercussions of having to work on many different tasks at the same time in a following example:

> *"It's like you have different books, and you read in one of them, and then you do something, and you have to recap every time."*

Interview with the first pilot project member, 1.5.18 ■

Moreover, not only these situation hinders personal workflow by having to refocus every time, but the synchronization of work also gets more difficult when different stakeholders are engaged in too many projects.

> *"If people are in three different teams, and person A is in project 1, 2 and 3, and person B is in project 3, 4 and 5, then the two persons cover 5 different projects, and there is always another project having a meeting at the same time, you never get all people gathered at one place - it's so hard. And then suddenly, the calendar rules. And determines how efficient you can run your projects. And that's really inefficient."*

Interview with the 1st project manager, 1.5.18 ■

Another project manager later explained that some employees might be in high demand by several projects, which makes these employees either inaccessible or overstretched. Having then a key member who cannot be present in all or even most of the work might then be annoying for the team as well as for him.

The overstretching does not affect only the project members. The consequences might be even more dire in the case of project managers.

> *"I have three projects, and already there I am begging to lose momentum, speed. Also*

things that I am forgetting - I need once in a while to sit down, have my one hour of rest, and just think. Which direction to go, what to do, so on, and 'damn, I should have talked to that guy,' and at the moment, I am forgetting things. And my little thing over there, the plan overview, is behind. It's not damn good for a project manager to have one of the part tasks and be behind. It shows a bad signal.

Interview with the 2nd project manager, 1.5.18 ■

Insufficient allocation of project stakeholders might also sometimes make other things more difficult as well, like to uphold and push for the project collocation.

"The problem is, if they (the project members) *are not allocated more than 50%, then it's difficult to argue that we should be located together. Because then they are working most of the time on something else, and 'why should I move to sit together with these guys, and so on'."*

Interview with the 4th project manager, 9.5.18 ■

Another type of discussion surrounded the theme about the Half-Double rhythm. Since Scrum methodology is used in Grundfos, the principles of sprint meetings put forward by rhythm method were very similar.

The perspectives on meetings generally tended to differ according to the project's role. A project member explained that 'everybody hates to have a meeting, but we know they are needed', and a project manager summarized it up followingly:

"One of the funny things about being a project manager is that you kinda have the feeling that the more meetings you have, the more you get done. And I know that the project members think that the more meetings they have, the less they get done."

Interview with 4th project manager, 9.5.18 ■

Related to the method of rhythm, the predictability of meetings was highlighted as important, as everybody knows what to when expect and prepare accordingly. A project manager concluded this thought by saying:

"Thing is that most people like a little structure."

Interview with a project manager, 1.5.18 ■

Weekly planning in the eyes of some project members however might not go without some dislikement. Although it was generally recognized that focusing on short-term deliveries has its merits, a project member put forward a fear that overly detailed planning might lead to an unnecessary micromanagement.

> *"Sometimes, we also have a complex days and you are forced to actually decide, which day you are going to deliver what, and it can also be a micromanagement which is sometimes difficult. (...) It's not always good that you plan down to each day that I want to deliver this and do this this day, because you have to have at least some flexibility, two or three days to do the task."*
>
> Interview with the second project member, 9.5.18 ■

Requirement to share plans every day might then lead to the need to shift the personal goals frequently, which, as he explained, might be tiring;

> *"(...) and then you have to explain why did I do that, and what did I do instead, and so on, and that's ok, but sometimes, it's too detailed. "*
>
> Interview with the second project member, 9.5.18 ■

As might be the requirement for formulating many deliverables on some, for example hardware development work, where its nature is more long-term oriented.

> *"(...) you have to always figure out, how do I present it as a delivery, even though it's not necessary."*
>
> Interview with the second project member, 9.5.18 ■

Lastly, it was noted by both some project managers as well as members that meetings by the Half-Double principles are significantly more goal-oriented, while compared to the meetings according their older, more classical project management structure, the discussion would often sway into technical themes, where the talks about technical solutions would be in the center. The detailed technical talks was said to suit a project member, while having the sprints where meetings have predictable and designated goal, was seen more positively by a project manager, as he said that otherwise:

"You really need to be able say 'no, that's not the discussion will take now', because everybody can talk forever about what they did last week or what they are going to do…'"

Interview with the 2nd project manager, 1.5.18 ■

6.5. Visualisation in projects

Working with visuals was one of the main focuses of the Half-Double pilot project in Grundfos, as it was selected as one of the three leading stars for it. Project managers as well as member were keen to share their experience with it, and described how the practice differs from their older times. In general, enhanced visualisation was seen as a very valuable practice, especially the plan visualisation. A seasoned Grundfos' project manager said that visuals in somewhat similar form were present in Grundfos a long time ago, but it gradually became forgotten. The Half-Double project then 'again reminded them of its value'.

One of the most highlighted benefit of plan visualisation was that it provides better overview of the project plans for the whole team, instead of the plan being just in the domain of the project manager.

"It is a good practice, when you have a big visual plan, because it cannot be something in the projects managers head. It should not, and very often, it is. The project manager knows every detail in plan and he know that 'these persons are dependant on each other', but if other persons don't know, if the team doesn't know, they don't see the bigger plan, then it doesn't work. "

Interview with the 1st project manager, 1.5.18 ■

A project member shared this perspective, explaining that in the past, when projects were managed more by the classical approach, team members often did not had a same insight into what is planned.

"People had different perspectives about what was the plan. We had this joke about 'I made a plan but I don't know where I had place it.'"

Interview with the first pilot project member, 1.5.18 ■

The structure in the classical approach was seen as a 'top-down' planning, where the project manager decides what should be done based on his own perception.

> *"I think in too many cases, it's project managers making time schedules for themselves, because 'it's on page 1 in the project manager handbook…' (...) And then you try to force it down on top of your project and your team members…"*

Interview with the 4th project manager, 9.5.18 ■

The reflections on this structure of planning was remembered mostly in a negative way. A project member described his past experiences with the classical approach of planning. Answering the question of how did they structure their schedules, he said:

> *"Basically, we had it in microsoft project. And that really kills everything."*

He continued to explain that the man who makes the plan gets the insight, and others are merely accepting what column was assigned to them. This, as he said, has its drawbacks:

> *"Because the project manager does not take how much it takes. From my point of view. The project manager does not know anything. He's probably the most stupid person.* (Regarding the process in question.) *But he has another things he can do. (...) So he needs insights from other people to know how long will that take. But he needs to help them to make this insight."*

Interview with the first pilot project member, 1.5.18 ■

The project manager's lack of insights into how long will a task that he is supposed to plan take, and the lack of knowledge about what other interdependencies might be involved were therefore highlighted as the main issue. Moreover, another project manager described that plans made with this top-down structure were also, in fact, often short-lived.

> *"I used to do time schedules in microsoft project manager. That sucked."*
>
> Interviewer: *"Why?"*
>
> *"We made a very good schedule, when we started out, with workshop, and then, after a*

month, it would be updated, after two months, we would be looking at it, saying 'ah, who gives a shit.' More or less."

Interview with the 2nd project manager, 1.5.18 ■

The problems he described further explained that the top-down planning were not flexible enough to the constantly changing circumstances, and that there was no good way to share plans when an overall plan was split into smaller ones with different leads. These factors would contribute to the plan falling behind in representing the present actualities, thus becoming less valid and useful with time, and eventually, dying out.

One project member however defended the microsoft project planning, as it suited his way of structuring his personal tasks.

"(...) I am not sure… I would actually like to have it in (microsoft) *project.*
There are some beneficial things about that (visual planning)*. But there is also - you do not bring it with you if you are working elsewhere. So you need to take pictures of it all the time.*
(...) If you are used to use (microsoft) *project, it's easy to handle the information, and you can expand and collapse the information, so if you will put it in the right way in project, I think you have a very good view of it. But the problem is, not all team members are used to that, and then its better on the wall."*

Interview with pilot the second project team member, 9.5.18 ■

He explained that many of its tasks are rather complex ones, and therefore he needs a space where he can go in-depth with his tasks descriptions and personal planning. He pointed out that with putting only small post-it notes on the wall, one might miss some information. He also noted that 'you have to go to the wall all the time' when you need to see the planning. He therefore had to find other supplementing tools when the work was not structured through microsoft project.

"I like to be able to have my own comments on some of it… And I need to put some details to this task… So I had to have a another system[3] for controlling the details of my tasks."

Interview with pilot project team member, 9.5.18 ■

[3] He stated that for this purpose, he currently uses the Microsoft Onenote

He later mentioned that the visual planning was however beneficial ‘when discussing things’, as the things on the plan could have been moved back and forth along with the discussion. That was also the benefit most highlighted in relation to the visual planning - that it enabled the project members to ‘make plan themselves’, instead of the project managers giving them some unfounded timeframe, which could have been made out of thin air.

> *“The things here is that - this is not my plan, suddenly. You see that the guys are actually changing things themselves, and looking at it, saying ‘fair enough, I need to do this, or I need to move this, or do something else.’* “
>
> Interview with the 2nd project manager, 1.5.18 ■

Another project manager noted that when planning,

> *“You are missing something when you are not standing together around, discussing the process.”*
>
> Interview with the 3rd project manager, 9.5.18 ■

And foremost, another project member gave a helpful insight that that the main points is not the visualisation itself, but what personal processes it enables in relation to the tasks:

> *“It's not only the visualisation, but that the people are part of doing the visualisation. Because, of course it's always nice to have something on the wall, but it's important, that people really feel that post-it there, that's actually mine, that's really mine responsibility that this post-it is ‘abgehackt’* (pinned up)*.”*
>
> Interview with the first pilot project member, 1.5.18 ■

Generally, it was perceived as very valuable to create and use plans visually. The synchronization among the team was perceived to be easier, as everybody had a better overview of what is an overall status of the project. It was also seen that the personal discussions accompanying the planning might prevented or discover potential problems early, since in the past, as one project manager noted, the in-time discovery of a problem might more ‘depend on if the person shouts or not’.

There was also a discussion about the physical form of the visual plan. Two project managers noted that they prefered to have the plan on the wall, as this was seen as discussion-enabling.

One member agreed saying he likes to have plans on the paper, even though it is easier to move tasks on a computer. The plans shared and accessible online were more seen as 'everybody is checking it for themselves', and although there are the possibilities of having video meetings, it was said it is 'totally not the same'.

A pilot project member summarized his experience by saying:

> *"I really think they often had some good discussions, when they are standing in front of the wall. I think this about to have the wall is quite important. (...) At the moment, I am running a lot of small projects and I try to do part of it in a spreadsheet, and I can see, this visuality, you are missing that."*
> *(...)*
> *"I really try to still keep some of it. Because there are some things is the right way that people have to plan their own work. Because that's actually what we are doing.*
> *Instead of giving people deadline, you say 'when are you finished?"*
>
> Interview with the first pilot project member, 1.5.18 ■

Other visualisation aids used in relation to the progress and its progress such as drawings, posters of customers need, performance goals etc., were already present in practice before Half-Double. A project manager described it is useful for getting the same vision or when explaining the project, making the meetings easier.

> *"It makes it easier, when we are sitting and discussing and people are just looking over this, showing and saying 'ah, this is what you mean.'"*
>
> Interview with the 2nd project manager, 1.5.18 ■

Moreover, it was seen as useful in being engaging the higher management and being transparent to them:

> *"It is not just for the team, but it's also important for the managers, that they can actually come down and see that something is happening."*
>
> Interview with the 2nd project manager, 1.5.18 ■

Another project manager however explained that keeping the visuals relevant comes at a cost:

"Lot of people are 'ah, if we have a room, we could put everything on the wall'. Yeah, thats a job. Because it's quite easy to put something on the wall, but to keep it updated… and we are engineers, that's not so easy. And it's a little bit difficult to see a change on pump construction from week to week."

Interview with the 3rd project manager, 9.5.2018 ■

As he explained, people might want to have various visuals, but they might not want to spent time on making it. An Engineer in his opinions might be reluctant for example, to make a poster about his learnings, as he sees the time could be spent more valuably elsewhere. At the same time, he stressed that the visuals bring value especially when people have some attachment to them, making it 'theirs', and relevant for the current project progress.

"It's not the same if you have the room that looks innovative and all that. So it should come from people, and not from the room."

Interview with the 3rd project manager, 9.5.2018 ■

Last, briefly mentioned points were about excessive documentation, and whether this can be reduced by relying on some visualisations. A project member explained that with documentation, it can often seem redundant and pointless, yet sometimes it might come in handy:

"I think we are making documentation, that will never be used. But on another hand, I also see myself looking at some old stuff I have done, 'how did I get there?'"

Interview with the first pilot project member, 1.5.18 ■

Another project management proposed that documentation is needed in many cases, however the process could be enhanced by altering it to the usage of video recording, where the author would describe the products features, his vision and learnings along the way. He proposed it would not only made the process simpler and faster, but it would also provide additional insights from the creators which in paper form might otherwise be missed.

During the discussions on use of various visualisations, it was often agreed by both project managers and team members on its value, if employed right. The benefits of visuals are known among project management researchers for some time, for illustration, additional insights on it from Grex and Svejvig are included. As they say, the visual's impacts are in that:

"It communicates better, and you will avoid a lot of misunderstandings, and - that's maybe more on the side effects, but it also gives some identity. Because the way you express yourselves as a team, visually, 'do we use a lot of different post-it notes' or do we have some different icons, and different things that can actually give some identity. I think that's also quite important in these fields."
(...)
"Its part of the identity… 'this is us'. It gives you ownership. Because you have also been part of creating it. (...) It is like with group dynamics, the sense of belonging is quite important for keeping up motivation, and for helping out, that's also part of being both efficient and effective in the way that you are executing your work."

Interview with Sara Grex, 8.5.18 ■

Svejvig on that note adds:

"I think for many people, it's good to have the tactile thinking behind moving a sticker, and talking about… being able to show something, instead of doing everything electronically. For instance, it might seem stupid that when we are doing it manually with all our technical stuff nowadays, but I think it suits the creative process in people and its part of the cognitive thinking process. So I think there are many good things behind working with visualisations."

Interview with Per Svejvig, 26.4.2018 ■

6.6. The Busy Top Leadership: Active ownership out of reach

When discussing their daily practice and their challenges, talks about the active involvement of the higher management in the projects emerged as one of the most stressed ones, especially from the perspective of project managers. It is important to note that the higher management was not talked about negatively, on the contrary, the culture in Grundfos was described as open, structured as a flat organization, where even the lower project manager has open doors and can speak with the highest representatives. The discussion that took place addressed more the issue of its reachability, and their involvement in projects, and the motivation that stems from it.

Since the Half-Double, as used in this pilot project, did not address the portfolio level of leadership the same way as it does today, the effects of the present Half-Double leadership concepts were not entirely targeted. It did however seem to open an important discussions about how are things regarded this matter set up, and what challenges arise from it:

> *The active ownership, that's really something that we have learned the hard way, I would say, that this is really needed. (...) We have so big portfolio, there are so many projects, its crazy. It's still a challenge. "*
>
> Interview with the 1st project manager, 1.5.18 ■

The owner engagement and 'active ownership' as proposed by Half-Double were seen as both highly desirable and problematic to achieve. During the interviews, project managers would often commented, for example, that:

> *(...) "it is so damn hard to get the top management involved in a project because they are so busy. They have a lot of things, right? And in his context, this project is only one in a portfolio. That's how it is."*
>
> Interview with the 1st project manager, 1.5.18 ■

Another project manager noted that:

> *"Even my boss has a schedule that is completely full. Getting schedules in with somebody like a VP is close to impossible."*
>
> Interview with the 2nd project manager 1.5.18 ■

Having company representatives who ultimately held the reins of decision about the project future or its direction familiar with the project managers' situation was simply seen as a crucial factor for the project realization. As one respondent explained,

> *"You might do investigations in the market, discuss with the business developers, if this is viable, if the value proposition is there and so on and so on, but, at the end of the day, if the owner disagrees, when it becomes more tangible, then it might have been a waste of time."*
>
> Interview with the 1st project manager, 1.5.18 ■

The project's flow might even be diminished since more layers of management could be involved, which might result in waiting times for the decision, or even having cases where the decisions are reversed by the superiors. Having the highest representative involved, who would clear the organizational obstacles for the project along the way, and who would give a clear signal about which direction to go, is therefore seen as an incredibly important factor for a project, enabling to avoid many confusions and frustrations.

> *"If you can engage him - top management - that's absolutely the best thing. But very often, you cannot. Then you have to engage middle-layer management instead. And that's better in a sense that they can engage more, and they probably will engage more, and it's closer to them, somehow, but, we have also seen examples of when they agree and say 'yes, this is what we do, this direction we take' and then at some point, they present it to top management. And top management says: 'No no no, that's the wrong way'. And then you can get a really big setback in your new project direction. And that also happens in Grundfos, sometimes."*
>
> Interview with the 1st project manager, 1.5.18 ■

The results for the project might be quite significant. It can be a long time since the project's reality gets to the highest decision maker or the project owner, who might had a different vision on what the direction should have been.

> *"We've seen that time over and time over, at Grundfos as well, that the wrong things are developed, or that we use a lot of time to go in a wrong direction, because it's simply too hard to get a hold of a manager and just say, 'we have an issue here'."*
>
> Interview with the 2nd project manager, 1.5.18 ■

The experience was also discussed in relation to the pilot project. One project manager explained recent development within the organization, as an agreement was made that once a project is started, it represents a matter that needs to be done. Reprioritization might still be done in more exceptional situations, but the general direction stem from the need not to make reversive decisions, as the changing priorities in project portfolio have big impacts on the projects in question.

> *(...) "these stop-and-go, and that's actually what* (the pilot project) *was hit by. Delivery from that pilot should have been used in the product development. And then* (it was said) *- yes, we will start this in August. - No, we will not start it in August. - Yes we will start in August. - No we won't… These stop-and-go decisions, they kill efficiency. "*

Interview with the 1st project manager, 1.5.18 ■

And it seems it is not just efficiency that is hindered. Not having a clear signal about the project direction, or having lack of feedback and involvement from the management responsible for the project can cause doubts in project members about the goal's importance.

One project manager opened about his perception that there are 'too many ideas', which results in too many projects started and too many activities for which the upper management is responsible. Not enough time is then prioritized for project involvement, which might be interpreted as management's lack of interest in project's outcome. This of course might be rather demoralizing.

> *"Sometimes I have the feeling that we are just doing it* (a project) *because we should do something. (...) If you have a feeling of 'it's your own problem to do it'. And if they* (the upper management) *are not asking about it for three months. Then there is the question, 'was it important?' (...) And then you go to the meeting and 'yeah, it's very very important, we very focus on it…' In my book, if something is important, I'd go and ask every day."*

Interview with the 3rd project manager, 9.5.18 ■

This need for engagement, and the lack of 'walking and talking' with the people responsible for the project ownership was highlighted many times by different project managers as having a big impact on their work. Another manager explained that people start being little afraid if the management is not involved in a longer period, questioning the project's priority and the resulting danger of them shifting focus to other responsibilities.

Not only was therefore lack of engagement seen as potentially wasteful and counterproductive when the project-related decisions are not taken in the right time, it is also seen as a strong influencer of project's morale.

> *"The biggest motivator is that you can see that somebody is standing in the other end, and waiting for you result. "*
> *(...)*
> *That's the biggest motivator: 'What I do is really needed. It's important for Grundfos.' And thats again where the active project owner plays an essential role, because if he now and then comes into the room, with a cup of coffee and say: 'Guys, I am so proud of you.*

I am really waiting for this. We need what you are working on. We really need it.' then people are much more motivated. That's the biggest factor of all."

Interview with the 1st project manager, 1.5.18 ■

However, the project managers, well aware of the present issues, shared approaches a project manager can take when formal way of having the key stakeholders frequently involved in a project was not an option:

"What you can do, if you not succeed in having top manager involved, make sure you drink a lot of coffee together with him. Just pass by, and share a cup of coffee, and 'ah, did you know about my project,...' It is so hard to get some formal meetings in your calendar. See if you can meet them informally."

Interview with the 1st project manager, 1.5.18 ■

Other discussion on the topic revealed there are more challenges that the project managers experience when dealing with their superiors. There might be different interests and perspectives which might lead to various disconnection of the project manager and the owner, which might stem from the fact that they are not aligned about the project realities. In some cases, the project owner might take decisions despite not being familiar enough with the given project.

"We still have that problem. (Of project owners not being involved enough). *And that gave some frustrations. Also for me. One of my projects was prolonged half a year, because the project owner was so emotionally involved in the project and had sold it to a very high level in the company, that he really had a problem shutting it down. And it was half a year, more or less, trying to tell him, this is not good. That was frustrating."*

Interview with the 2nd project manager, 1.5.18 ■

However, opinion was also put forward by a project member that the higher management has to engage in the right way, fearing that some higher managers might be overly controlling. Giving the project - the project members and its leader - a freedom to act was highlighted as essential, especially in the Grundfos innovative department.

"I see other projects, sometimes, where we have the management actually wants to make the (lower-level) *decisions. And that's not what the management is for, from my point of view. In projects, they have to tell us what are we aiming for, but it's actually us to have to make decisions."*

(...)
"We just need to be careful that it doesn't become micro-management. If its too much structure, then it kind of kills the creativity."

Interview with the first pilot project member, 1.5.18 ■

Last notion mentioned in relation to the theme of leadership was the general nature of ever present 'politics' surrounding the portfolio decisions Since Grundfos is a large company with many projects happening simultaneously, the challenges coming along with single projects being influenced by the surrounding organization were on mind of most of the interviewed project managers. One noted on the topic that:

"I think the difficulty for a new guy here is the political game. There is a lot of political game."

Interviewer: *"What does it mean?"*

"That you have to fight for it. (For your project.) *Just because somebody say you should do this, and this project is important, that's not the same as if the whole company think it's important. You are a small, small fish in a big, big pond."*

Interview with the 3rd project manager, 9.5.18 ■

Indeed, the project managers seemed to be rather perceiving to what is happening in the politics of their company.

"It depends very much on projects as well. You can see which projects are prestige projects, and which are not. Prestige projects get a lot more attention, then if it's one of these projects that are just running, where its bit more like 'ah, yeah…' go have fun."

Interview with the 2nd project manager, 1.5.18 ■

However it is also important to say that these experiences were not limited to the Grundfos specifically. Sometimes, these experiences were drawn and compared to career experiences where the situation was similar.

Overall, the theme of 'active ownership' and its associated challenges were given a big significance in most of the interviews with the Grundfos' project managers. Benefits of having the higher management more focused on their specific projects were clearly desired, and

interdependencies coming from the fact that the project is always part of the bigger portfolio realized. One project manager simply noted that

> *"Sometimes, your project isn't the most important project."*
>
> Interview with the 1st project manager, 1.5.18 ■

6.7. Project leadership and self-management on the team level

Talks about the involvement of higher management gave an opportunity to talk about the management on the team level as well. Focus was given to discussions on the Half-Double principles of Leadership, and the role of project managers 'as leaders' in the project. Again, it was seen that the methodology of the time of the pilot project was much briefer on the topic, and although the theme of leadership was included, the main selected guiding stars were focusing on other areas.

> *'Leadership was a little fuzzy for me. But I think it wasn't very much finished.'*
>
> Interview with the 2nd project manager, 1.5.18 ■

However some project managers shared their perspectives on how they approach leadership in their projects, and how it can be aligned with the Half-Double principles. Most of the project managers interviewed seemed to value the collaborative approach, stating they try to show interest while giving freedom to act. Generally, the employees of Grundfos were considered self-sufficient experts who do not require being 'micromanaged' by project members.

> *"I don't think* (people in Grundfos) *need to be lead to create the deliverables. They know, and they are the experts, and they have done this before, and they know exactly how to get there. But they need to be lead into ensure that we focus on the right things. Doing the right things is more important that doing things right, I would say."*
>
> Interview with the 1st project manager, 1.5.18 ■

The role of the project manager therefore was more seen as one setting the pace and the direction. In this sense, the regular meetings and frequent interactions proposed by the

Half-Double was seen as a positive thing by the project managers, as it gives possibilities to be more in touch with the project member's progress and possibilities to steer it. As one project member described, some engineers for example might otherwise get unnecessary far in their involvement with the product development:

> *"So if you are very much a nerd and you very like to work with something specific* - (thinking) *'this is the coolest shit in the world', then he would really work with it, work with it, perfect it, made it better, made it better, better, better… perhaps to a level where there is no reason for it to be. Proof of concept could have been made two months earlier."*
>
> Interview with the 2nd project manager, 1.5.18 ■

This perspective was to some degree shared by a project member, agreeing that the role of the project leader is also to say 'when enough is enough':

> *"As engineers, we would like to continue. One more calculation, just to be 110% sure…"*
>
> Interview with the first pilot project member, 1.5.18 ■

It was also proposed that that different peoples require different leadership styles, and in some areas, more control is needed than in others. The interviewed managers in the innovation department however mostly emphasised trust and freedom to act as an important and preferred factor.

Another notable discussion surrounded the personal styles of leadership, different from a person to a person. One project manager gave an insight into the perceived pro's and con's of a his own leadership style:

> *"I am again probably too much seeing that everybody agrees, that this is the right way to go and so on. I have definitely some of my own thoughts about where to go. But compared to others, I think I am probably more, consensus seeking - I am trying to get everybody agree and be friends.*
> *I think that's probably one of the drawbacks, also. I am not sure if its drawback, but what is some of the feedback I have as a person is more well, you are friends with everybody, and yeah, I will figure it out one way or another. That has good things, and there are bad things about it as well.*
>
> Interviewer: *What would be the bad things?*

Its harder to yell at friends and say 'I don't give a shit about what you say, you need to do this.'
But there are good things also about how I can get things done. I can go over to one of my old guys from a project and say 'I'm really fucked here, I need somebody to make these simulations, and do this and this and this. Can you do this?' And I would normally get a yes. If I was standing and yelling at some poor person, he'd probably just give me the finger, saying 'well, we have a limited time schedule, you can come… in a year.'

Interview with the 2nd project manager, 1.5.18 ■

The leadership talk would however often overleap to another topic connected with the themes of Half-Double, and on the way the projects are structured. It was mentioned for example, that there is not much a project leader can do when trying to motivate member to deliver faster, if the person is involved in too many projects.

6.8 Keeping what seems valuable: challenges with changing the practice

The last section of this chapter describes the outcomes of discussions about how the practice changed after the Half-Double pilot project. First notions on the theme however dealt more with the challenges which come along with the efforts of changing the established practice within an organization.

Most of the interviewed project managers were aware that it is not simple to change the practice, as not everybody will see the desired merits. A project manager described that some team members are more enthusiastic to embrace new things then others, and therefore the guidance that he needs to provide when trying new things like the Half-Double will differ. Although generally, there wouldn't be much resistance, changing the set ways might be more difficult to accept for some. A project member shared a similar opinion, saying that:

"The difficulty about doing Half-Double, or doing this way of working is that people have to have another mindset. And there are somebody who is good at that, and there are somebody who is not. So that is quite difficult. People were really nerved - why should

they spent half an hour, fifteen minutes, every Monday and every Thursday to make a plan. 'I have this to do, it must be enough, right?' "

Interview with the first pilot project member, 1.5.18 ■

The project manager shared a similar experience from the pilot project. He explained that introduction of methodology like Half-Double is easier for people working in software or hardware departments, where they are used to the more agile concepts. However the situation might be much more challenging with seasoned employees from other departments. As he said, people who might have been with Grundfos for several decades, might rather dislike such an approach.

"They cannot see why we should be looking at a board every morning, and saying 'what am I doing next week'. So (a colleague) *for instance, when doing the big Half-Double thing behind you there* (the month planner) *he would just put up one yellow thing* (a post-it with his work goal description) *here, the report is finished. And you have to push him saying, 'well, good, so… Are you doing anything in between?' And he'd say, 'well, yes, probably'. - 'Ok, could you put that up?' And he would put one more. - 'Ok, good, but is that it, then? So, in six months, you are doing two things?' Ok, fair enough, and he would put one more up. But you can see, he was really thinking 'what the hell am I doing here.'*

Interview with the 2nd project manager, 1.5.18 ■

Another factor he mentioned which might cause a resistance is the cultural difference. He shared a personal experience, where a project member from abroad clearly was not used to project being done differently than with a classical project management approach.

"He liked the more waterfall method, and it was very hard to convince him that everybody sits in the same room, and question him. That was uphill. He was used to 'well, you are responsible for doing this, go do it'. But this thing about questioning, he felt that this method were more about questioning if he was doing the right thing, because he had already the whole plan in his head, 'this is was what I was supposed to do' and now some idiot was standing, saying 'why are you doing that?' Perhaps it was a business guy, that didn't even know what he was talking about, he was just asking questions about 'why are you doing that, that seems stupid. I would do this and this and this…' That was a bit of class between the cultures."

Interview with the 2nd project manager, 1.5.18 ■

The introduction of new ways therefore might meet some resistance. However, in what way the pilot project did influence the present practice? Did Half-Double had any long-term impacts in Grundfos? Was the methodology kept or adopted in any way?

A project manager that was involved with the Half-Double project explained that:

> *"It's not that now Half-Double is The project management way in Grundfos, that not how it is. "*
>
> Interview with the 2nd project manager, 1.5.18 ■

He continued to describe that the Half-Double in some way served more as an inspiration on how can be projects managed.

> *"I did a project just after Half-Double. And what I did was actually combing the two ways of doing it."*
>
> Interview with the 2nd project manager, 1.5.18 ■

Some of the practices were then shared within the company, since the project managers occasionally get together and share insights into what might help in each other's projects. The concepts which are seen as valuable are then in this way passed on. Project managers then have more approaches which they can consider to employ. The project manager exemplified the way he approaches his projects by saying:

> "*I'm doing something in between. Basically, I sit down, and figure out what kind of project it is, and I try to take the best from what I think I've learned, and what would fit best here. And when I talk to the other guys, they seem to be doing the same thing.*
>
> Interview with the 2nd project manager, 1.5.18 ■

When it comes to the core elements that were introduced by the Half-Double, the Impact and its methods were said that were not adopted, as it was difficult to translate them into practice, and the established way of creating the 'one-pagers' with goals and summaries were perceived as much simpler and provided almost the same output. Another point was that everybody is already familiar with them.

The Half-Double concept of Active ownership on the other hand was by many still perceived as a very important topic to address, and highlighted as something that should be further discussed and worked on within the organization.

> *"Active ownership wasn't discussed much before Half-Double. I think actually, it's been more an issue after Half-Double. So that's something that stuck. And that's something if you talk to* (the department superior) *he will say it's something that we need. So that has been there, stuck, still. That we suck at it, is another thing. But we try to change. "*
>
> Interview with the 2nd project manager, 1.5.18 ■

Since the flow-enabling concepts like the co-location and sufficient allocation of project members were already present in Grundfos prior to Half-Double, no change was reported. The project manager however noted that he adopted the structure of weekly meetings from the Half-Double projects, as well as monthly reflections on the project progress. The principles of the tool 'rhythm' were therefore present in his personal practice even after the pilot project.

Foremost emphasised method to influence the Grundfos' practice however was the visual way of planning. It was mentioned by a project manager as the most important part to keep, describing that the practice has notably changed since Half-Double, with teams starting to hang overall plans on the wall, even if they did not use the Half-Double methodology. The project manager directly contributed this fact to the Half-Double pilot project.

> *'I think we probably were the pioneers in Grundfos and now its spreading out.'*
>
> Interview with the 2nd project manager, 1.5.18 ■

Another project manager shared the same opinion, noting that the Half-Double remind them of a good, forgotten practice.

> *"We were again reminded of the value of it - 'ah, it's so good.' And you can see, every Monday, a complete team standing in front of the wall and they are moving around these small post-its and it makes a lot of sense."*
>
> Interview with the 1st project manager, 1.5.18 ■

This was an opportunity to ask why is that the case - why would a practice, that is considered valuable, become forgotten?

"Because, at least in the case of Grundfos, we are always introducing new, good practices. 'This has come up, this is the new break, now we should do this' - yes that's good, and that's relevant. But there are still also some old stuff you should not forget to. There are some old habits that are always good. Some common sense. (...) And then, if you put more and more and more on top of what people should do, 'now we want the report in this form' and 'now we want you to give this and this', then simply, there is a max of how much you can ask people to do.

Interview with the 1st project manager, 1.5.18 ■

He also noted that forgetting good practices is not just the Grundfos' case, but he believes many organizations do, for the same reasons as he described.

However, a pilot project member did not have the same perspective on the practice being significantly changed within the company. He also pointed out that it is not easy to sustain new practices, and the situation is not different with the Half-Double experience.

Interviewer: *"Was is difficult to start working in a different way?"*

"It's very difficult, and you can see the result of it today. I am not sure that a lot of people do that anymore. I think it's almost dead. (...) I do not see this rooms where people have all these plans and so on. (...) I think the most people are doing it in the old way."

Interview with the first pilot project member, 1.5.18 ■

This could be seen also from an interview with the first project manager. Even though he perceived the tool of pulse checks as valuable, and listed benefits it provides him as a project manager, latter in the interviews he noted that he did not employ them after the Half-Double pilot project.

"I haven't used it in this project, not sure why. "

Interviewer: *"Why?"*

"I've been very busy, I need to be honest. I am involved in some other projects, meaning that I have been working weekends, evenings, more or less..."

Interview with the 2nd project manager, 1.5.18 ■

The difficulty with changing the practice therefore did not lie with just changing the mindset, but also with sustaining the change and not getting back 'to the old ways'. A project member on the theme noted that:

> *"(...) In the daily work, it's often easier to say 'can you get that finished? That's fine for me.' Instead of, really to stay with people to make the plan."*
>
> Interview with the first pilot project member, 1.5.18 ■

He thought that it is often easier to get back to what is known, further explaining that:

> *"I think that's like everything else. If you have a way to do stuff, and you want to change it, you really have to do it a lot of times, before you change your mindset. It's not just something you do by reading your book or making one project or something."*
>
> Interview with the first pilot project member, 1.5.18 ■

Overall, the Half-Double experience was often seen not as bringing a new practice, but rather in some ways enhancing the present one.

The contribution was also seen in opening things up for discussion within the company. This according to a project manager resulted in a larger freedom for project managers, with superiors being less strict on which approach to choose to a given project, and the mindset shifting more to 'finding what makes sense'.

> *"I believe it made some people reflect a bit on how we do it in Grundfos. Could we do it differently? Made me personally reflect also on different ways of doing project management. Before that, we were more or less set that we should do it in one way - learning plans. It opened a little up on that there are probably other ways of doing it.*
> *And that one size doesn't fit all. I think that's really what opened up for after project Half-Double as well, 'if you think the Scrum is a better way of doing it, because you are now doing the software project, go do Scrum.'"*
>
> Interview with the 2nd project manager, 1.5.18 ■

On the last note, one project manager also put forward that it was more the principles behind the Half-Double, then the single methods, that were captivating. He proposed that the roots of the methodology - the leading stars - were the thing to keep foremost.

"I think the starting of Half-Double was brilliant… But it ended up in a toolbox for Implement. (...) There was a consultancy company, who got a lot of money to make their own toolbox. That was clearly my feeling. (...)
The starting was, that they had this ten leading stars. And I think that was brilliant. But then there was Implement, who is a consulting company, 'how could they sell leading stars'. So they start to make a lot of tools, and then 'we could do this and this and this, and make that. And it's not fair to Implement, but again, there was little bit of feeling that 'ok, now we have a consultant box here, now we could help you with all these kind of things.' But lot of the things, there was, come to us 'ok, thats seen before'."

Interview with the 3rd project manager, 9.5.18 ■

7. Discussion on implications

The following discussions summarize the insights gained from the research in Grundfos. They also bring in perspectives on the change of practice as well as on Half-Double evolvement from the consultants working with the methodology, and the academics linked to its research. They provide additional insights, but also bring perspectives on the Half-Double practice and its development beyond the pilot project in Grundfos.

7.1. Enhancing the practice

The first insight gained is into how the Half-Double methodology dissolved into the Grundfos' project management practice. The model was not accepted as a whole, and it did not replace the established practices. Instead, the practitioners picked and adopted those parts of the methodology that theyselves saw valuable.

The most distinct example of this it with the method of visual planning. Compared to the older practice, it was seen that the visual planning provides better overview, and its physical form enables a space where planning discussions can be held and task interdependencies uncovered. It was also perceived that it gives project member a better sense of responsibility for the task he himself is committing to through putting a post-it on the wall. As a project manager demonstrated in the facilities, it was not uncommon to see large planning templates hanging on the walls of project rooms, and this change was directly attributed to the Half-Double pilot project.

Pulse checks were also seen as valuable, reported they were employed elsewhere in projects, and the rest of the principles behind the flow agenda affirmed from experience that they are needed. Although for example sprints were known in practice prior to the pilot project, a project manager said that he was inspired by the structure of milestone planning according to Half-Double and has brought it into his practice. All of these suggest that the experience with the Half-Double served more as an enhancement of the current practices, where project managers were inspired and added more approaches into their repertoire, which they saw worked will in the Half-Double project, while the rest, like the Impact case, was abandoned.

From the discussion with the consultants, this was not seen as a negative thing. As they put forward, the main goal is to make things work, and the point of the methodology is that it is supposed to be adjusted to the situation at hand.

> *"Of course in all project management ways of working, there are elements that are pretty much the same, I think what makes Half-Double different, for me at least, is that it's all about the local translation. Make it work. And then, if you don't need this, don't use it."*

Interview with Emilie Boisen, 30.4.18

On the contrary, this ambition is to move away from the instrumental way of thinking, instead putting emphasis on what makes sense in the given context, with the mindset focused on the end-value created. That is seen as the strength of the 'local translation part', which points out that it is not about the project management tools. A researcher connected with the project Half-Double elaborated that within this context, the role of the 'project manager' could transform into being more of a 'project designer', actively seeking what processes would benefit the project, instead of being a mere facilitator of rigid project management models.

> *"There is always the risk that you get more instrumental about how you use them* (the impact tools)*. And that means, that you will actually forget, that this is about impact, this is about creating value. (...) So this is not about creating new steering paradigm in the projects, this is actually about organizing for creating impact. And I think it is also actually putting a new role on the project manger, where you are, you could say, more of a designer of a process, rather than 'just being a project manager', where you are scheduling and managing some tasks."*

Interview with Sara Grex, 8.5.2018

7.2. Difficulties with adapting the Impact case

Another insight from the Grundfos project is given by the perspectives on the Half-Double Impact agenda. These might have of course been affected by the early stage of the methodology, as the methods developed and the 'Impact solution design' was added. However, even when looking over and discussing the present state of the tools and methods, the project managers did not seem to relate to them very well. They were seen as overly complex, too abstract, difficult to understand, and although the project managers generally agreed with the goals of value creation

and stakeholder satisfaction that the Impact element aims for, the templates and practices were not seen as easy to employ. That resulted in impact case method being abandoned in the future.

A consultant supporting the Grundfos pilot project attributed the difficulties to the early stage of the methodology, as the focus on implementing the principles was structured differently, through the leading stars. The impact case was therefore said not being 'pushed the right way', with the workshop structure of the solution design missing.

> *"We should have been much more out there, finding out, what value will this create, what benefit, what effects, what impact, will this project create, what is the potential here."*
>
> Interview with Nicolai Boston, 22.5.18

Nevertheless, the question remains if the perceptions on impacts are mostly affected by this, or caused by the nature of project the Grundfos' research & development department, or whether similar challenges are perceived elsewhere with the contemporary structure of Half-Double as well.

7.3. Strong ownership as a critical factor

The research in Grundfos also showed the importance of the factor of engaged higher management. Both project managers and project members saw it as a critical factor for the successful project progress. All of them were very much aware of the organizational realities and politics surrounding the projects, and the motivation levels were described as being largely influenced by the engagement (or non-engagement) of the people from the top leadership who were ultimately responsible for the project realization.

In case of the Half-Double pilot, the project run into these difficulties, as there was no clear signal of whether the project should actually be finished or not. It was reported that at one point, the top management considered to close down the project, and the effect on the morale was clearly seen from the pulse checks measured at the time, as there was a clear fall in the score given. On the other hand, when the attention and interest were given, new enthusiasm energized the project environment. The supporting consultant shared one event in the Grundfos pilot project, where:

(...) "(A significant persona in Grundfos) *would show up, in the project room, looking at what they have found so far, little bit more from the technical side - he is very technical, nerdy oriented, not commercially oriented at all - he showed up in January, and he would like to see what has been done so far. And that ownership, that focus, that commitment from management, in created so much motivation in the team, they worked their ass of, in order to actually get to a certain level of what they were working at."*

Interview with Nicolai Boston, 22.5.18

This is not a unique occurrence. A Half-Double related researcher explained that the importance of support of the top management is well-known to the project practitioners for a long time, and the effects on projects are seen time and time again.

"We can also see that in the cases where we succeed in doing it, they were also successful. So it's really a critical success factor you can say."

Interview with Per Svejvig, 26.4.18

The point he sees in the Half-Double is to practically facilitate this engagement, which are needed especially in projects with uncertainties or which the outcome should result in some sort of change. As he explains, in present, such engagement is not an easy thing to have.

"I think it's part of how the roles been institutionalized in organizations. So it's how they usually behave and then they might not understand why it is so important for them to be so closer to the project so the others can be motivated to do the change.
(...)
If you manage to convince them then they also start to see the benefit from doing it, and in several locations where we have talked to these vice presidents or senior managers, they always say, if they have been heavily involved, 'it was the right thing to do, we should do it more.'"

Interview with Per Svejvig, 26.4.18

The support of the top management of course has other impacts on the project as well. The collocation of the project team and the sufficient allocation of members and resources can be hardly present in a project without it. In the Grundfos case, the project rooms were available, yet members and managers alike reported that ensuring that everybody is being sufficiently allocated to a project is still a challenge. 'Flow' therefore is directly affected by the way the project portfolio is managed.

7.4. Experiences gained

The benefit of the pilot project for the Grundfos however also might be just the fact that it made its practitioners more aware about the present challenges, like the ones associated with the active ownership approach, since it can be put up for a discussion. A project manager also described that since the Half-Double project, things loosened up a little, for example on which models can a manager use in his projects. The value for the organization might therefore be in the better awareness of present challenges, as well as in the realization that the 'one size does not fit all' projects (Shenhar et al., 2002).

Moreover, the project manager said the Half-Double experience made him more reflective on the ways he can employ in his projects. As he described, he aims to decide how to do each project individually, drawing upon his past experiences, and decides what makes sense in the given case. The Half-Double is now a part of his experience, and he said he is intending to use some of the methods he saw as valuable in some form in the future.

7.5. Team leadership

The theme of the way the project manager leads his projects was somewhat overshadowed in the discussions by the theme of active ownership, as for one, the latter was highlighted as important by the interviewees, and two, the methodology was briefer on the topic at the time when the pilot project took place. However, some points were discussed in regards to the concept of 'reflective leadership' on a team level, notably the differences in possible leadership styles. It was pointed out that the Grundfos is seen as a mature organization where employees are largely seen as self-managing, but this might not be the case in every organization.

A researcher proposed that:

> *"I think if you should be this collaborative leader and focus a lot, for instance, on self-management, then you need highly skilled people who are able to take on board to be self-managing. And that's not all people who are able to do that. And I know it from many years in industry, that if you know people well, then you know that some people are very good at doing self-management, and you don't have to interfere with them, and it would be stupid to interfere with them. And then you also know other people where you need to*

check up very often and say 'what's going on here', 'how are you' and all of this stuff. So that's also a situational leadership I'd say."

Interview with Per Svejvig, 26.4.18

The discussion lead to a conclusion that it is not perhaps so much of an issue of an organization, as a matter of knowing the individual people within the organization, and what leadership style they need. Svejvig pointed out that this is also the part of the 'local translation' of the leadership methods, albeit the methodology might be currently somewhat brief on the matter, as it is trying to preserve its simplicity. The highlighted point however was that there might not be 'one right leadership approach in all cases', and the company culture or skills of the individuals, should be the factors to consider. This opinion was shared by a consultant as well, as she summed up that:

"I think the leadership part is very much dependant on the local translation part, because what made sense in that specific project will not make sense in another project. So how the leaders go about going into their roles and what is actually needed, I think it's very different."

Interview with Emilie Boisen, 30.4.18

Svejvig also pointed out that there are many reasons for leadership styles to develop, as new generations grows up and modern organization has to adapt 'if they want to recruit the right people to the organization, and have them stay'. The leadership styles therefore seems be a much more complex topic then as it it nowadays addressed in the Half-Double methodology.

7.6. Different stakeholder perspectives

Another theme present was how the project role affects the methodology perception. In some interviews, when talked about usefulness of some methods, it was actually meant the usefulness for the project manager. However, point of view of the project members was not always aligned with that of the management. Pulse checks, for example, were seen as a greatly valuable tool for project managers, however, the project members did not always share the enthusiasm. Although they agreed that value might be created for the project by using them, it can also in some cases be seen as a pointless annoyance. Having this distinction seems rather important, as various tools might provide different benefits based on the project role, and the unanimous value is not always granted by the employment of new methods.

7.7. The underlying Half-Double principles

However it were mostly the specific tools where the perspectives mostly differ on its usefulness. Throughout the research, the underlying principles of the Half-Double methodology were largely seen as desirable in the project practice by the interviewed stakeholders. Many of the experiences were shared as an example of 'what happens when the principle is not present', especially in relation to the flow element and the method of active ownership. The 'philosophy' behind the Half-Double often seemed as what is relatable foremost, regardless of the project role.

This might not be a single occurrence. A Half-Double consultant noted that in some of the practice, the terminology might not even used, especially in organizations that do not have lot of experiences with projects, as it is the end-goal what is important to achieve for the parties involved. It is therefore more natural to focus on the principles behind the processes that are about to be implemented.

> *"I think it's important to understand that,* (in her Half-Double project) *we never ever used the project Half-Double wording, or terminology in the project, never. The customer, they were not used to projects, they didn't need fancy word for something, we called it for what it was."*
> *(...)*
> *"You have to remember, it was a warehouse project, we were working with floor managers and employees picking and packing, so it doesn't make sense talking about project methodology, they don't care."*
>
> Interview with Emilie Boisen, 30.4.18

This was also seen from the comment made by the Grundfos project manager who considered the initial Half-Double Leading stars as the most valuable thing. He also proposed that those are the parts that the Grundfos should keep. The principles for him presented a direction for which the project management practice should aim for, whereas the specific methods for him were known 'consultancy toolboxes' which reminded him the business as usual.

This theme was also discussed with the consultants as well as researchers, who had different perspectives. Boisen defended the Half-Double structure, explaining that:

> *"It's not a toolbox. (...) It's more a philosophy. And then it's a mindset that you put on top of your project or an umbrella, to hold it together, and then whatever toolset fits the*

purpose, of the mindset, or the methodology, or the philosophy that you are trying to live out is the tool you are using."

Interview with Emilie Boisen, 30.4.18

The principles were therefore also for her the main focus, with the tools being just a supportive way to live up to it. In practice, she said, the tools might be employed in different ways, according to whatever gives the most sense in the situation. Moreover, the guiding stars are still seen to be a major part of the present form of the Half-Double methodology, although the way it is presented has changed. Boston described his view followingly:

"First of all, I think we have kept the leading stars, but in another format. And I know that the some of the stakeholders and that is even people in Grundfos were kind of sad that we didn't keep the leading stars. So we kind of didn't manage to communicate that 'No, we still have the leading stars, but it is, you know in a different core elements and in a different methodology'. So if you go through the 10 leading stars, you could for each of them figure out where is it they belong in the new design, so to speak."

Interview with Nicolai Boston, 20.6.18

The researchers in this context explained that this development was needed, as the leading stars were too indefine for how can the principle be practically achieved.

"I think it (the Leading stars) *was difficult to implement as a project management methodology. (...) For instance, one of the things was that you should have a chaos committee, instead of a steering committee. And nobody understood what is a chaos committee. (...) I can find many examples, where you can say it was not usable in a practical way. So it was more ideas then practical support to doing the task."*

Interview with Per Svejvig, 26.4.18

The need to embrace the interdependencies of different project management elements was also addressed this way. In the first pilot project, including Grundfos, focus was put on only some of the leading stars of the company's choosing. It was however decided that the methodology needs a more holistic approach, where all the elements will be put in focus.

"First pilot projects were little bit different than the methodology afterwards, where we kind of embraced everything. So you could say that those were some of the learnings that we did down the road - that we couldn't just pick two or three leading stars, we needed to

consider everything. But then again, translated into the real situation, so 'how do we do it in this case?'"

Interview with Nicolai Boston, 20.6.18

The desire to move away from the instrumental way of thinking, where the focus is put on tools, is therefore on mind with the development of Half-Double. However it is the tools that are put forward onto a question 'How specifically should we do this?', and as such, there seem to be need for getting a better understanding of how these tools influence the practice of each of the project participant. As it is implied from the examples with the Impact case, not all the Half-Double tools might be as natural, relatable and desirable as the underlying principles of the methodology.

7.8. Resisting the change

Another important point for the adoption of the methodology, one that Half-Double consortium is well aware of and addresses in the methods for the local translation, are the challenges with adopting any kind of major change within the organization. As it was apparent from the pilot project in Grundfos, it might not be enough that the methods and tools are seen as valuable for them to made it to the practice. As described by the project managers, some people are more resistant to a change or to the need for changing a mindset, and even if the new ways are accepted, they might fade away if they are not enforced.

Pulse checks were seen as a very valuable tool for project managers, yet some seemed somewhat baffled themselves that they did not employ them again, and others admitted that it is very easy to fall back into the old ways. The change management is and will remain a challenge for the diffusion of the Half-Double, and the consultants are very aware of this fact.

Interviewer: *"Do you think it is possible to adapt the Half Double without any consultancy help?"*
Nicolai Boston: *"No."*
Interviewer: *"Why not?"*

"Well, I think big part of it is change management. I mean, if you are going to change anything in the organization, you really need to think clearly about how to do it. And you need to work intensively on doing it. So it has nothing to do with Half-Double

methodology, but I think if you are going to work in another way in an organization, you need to get help, or you need to have an extreme focus on that."

Interview with Nicolai Boston, 22.5.18

Enforcing a new model within an organization might therefore be an enormous task to do. When asked about whether a single person knowledgeable about the Half-Double methodology might change the project management approach within the organization, Boston expressed that:

"I'd say it probably won't work. And probably means 98% sure that it won't work. "

Interview with Nicolai Boston, 22.5.18

He further shared his experience, which explained why the process of changing is so difficult.

"(...) It requires an extra effort. A huge effort, if you shall change the ways of working. If you shall incorporate a new discipline. Because typically, we are lazy and we will not do it unless someone is actually using an extra effort in implementing it. And it's not a Half-Double thing, it's just a change thing. So I would say if any organization shall change anything and that is what we do as consultants, that's helping organizations change.
But I would say, if you have someone who have been practicing Half-Double in an organization, and you assign the tasks to them and you give them proper resources, time and mandate, and all those things, then you don't need us (consultancy support)*."*
(...)
"I have just been on a small assignment in a big danish pharmaceutical company, where I was supposed to implement the flow part, and you know, I did it, I drove it, and the project managers have driven it as well (...) I went there the other day to evaluate, that was one month I have left it, more or less. And the first thing I met was a big garbage can with all my posters. Everything was taken down the wall and thrown out. And, yeah 'because there was some resistance, so they kind of… nobody really had time to reinforce it and make sure and drive it so therefore it went out. So I left, the change left."

Interview with Nicolai Boston, 20.6.18

Another project management consultant explained that the most important part to reinforcing the practice is for the stakeholders to actually 'feel' the benefits of the working in new ways.

"(...) We could have said many things on how it would be, and it doesn't really matter, they need to experience it on their own, like 'ok, this is actually working.' "

Interview with Emilie Boisen, 30.4.18

To get to that point however, it was described that a strong project leader is needed, who would push for the change. The leadership part was seen as a major point for Boston in any type of change, saying it is not just about 'enforcing that a poster is being hanged on the wall', but making sure that the people see the benefit of it, and that the leader needs to listen to his people's frustration, enabling discussion, while at the same time, being tough on that the new practices actually take place.

Moreover, as it was said in Grundfos, good practices sometimes gets forgotten, as more and more new activities piles up.

Overall, it is clear that the significant part of implementation of the Half-Double methodology is not only in having new valuable methods, but also having to go through challenges associated with the change management.

7.9. Development of Half-Double

Final section of this chapter addresses the last part of our research objective: the evolvement of Half-Double. It was seen throughout the research that the methodology has changed since the Grundfos pilot project. More so, new methods were introduced in the new Half-Double book even after this research started. As described by the Half-Double researchers and consultants alike, the pilot projects, including the one in Grundfos, did not serve only the given organizations. It also enabled learnings which contributed to the methodology development.

The major aforementioned change was the shift from the leading stars into more hands-on methods. But from the early pilot projects such as in Grundfos, the learnings on Impact and Leadership elements were said to have a significant influence as well.

"You can say, what we have found out is that we need much stronger steering committee or project ownership in the newer version of the project Half-double. At one point, we have actually discovered, and I think (the grundfos pilot project manager) *will agree that*

it was difficult to get this very very strong ownership into the project and have everybody in the steering committee on board."
(...)
"I would say that was some of the experiences, also from Grundfos, that actually made us very aware of that we need to have, you know, kind of commitment, contribution, acceptance and physical interaction with the steering committee in the project or with project owner. So much more strong ownership, and hand-in-hand owner and leader in the project."

Interview with Nicolai Boston, 16.5.18

The development of the Impact solution design method was directly attributed to the need for designing process through which the impact case can be better created, which was uncovered in the early pilot projects. The focus, as described by the researches, since then moved to the challenges associated with the portfolio management. As it was seen, realities surrounding the portfolio have a strong influence on any single given project.

Svejvig also put forward a discussion on whether all of the projects in a portfolio should be done in a Half-Double way, and whether it is a methodology suited for all types of the projects.

"For instance, at Novo Nordisk, there has been a discussion, could you do all projects in a Half-Double way? And their conclusion is - no, we can't. We simply have to say that some projects are relevant for the Half-Double methodology and that's where we need to put the focus, but others might not be relevant."

Interview with Per Svejvig, 26.4.18

He further described that over time, the 'sweet spot' for the Half-Double methodology might develop, as some types of project might be more feasible for it than others. Large engineering projects, such as the pilot projects in Grundfos and Siemens, where lot of hardware is involved were not seen as so feasible for the Half-Double.

Taking on the future perspective, discussion also surrounded the next steps for the Half-Double development. Upon asking whether he thinks the methodology will change in any way, the answers given by the consultants and researcher were similar to the following viewpoint:

"If we shall be true to ourselves, then hopefully it will. Because we need to adapt to the learnings that we have got. And we have already got some learnings regarding leadership (...) That is the latest thing that we have changed. So there probably will be

changes and addons and so forth."

Interview with Nicolai Boston, 22.5.18

The main points still being the shift to the proposed principles, and keeping the methodology minimalistic. Svejvig noted that this is one differences between the Half-Double and classical approaches: its simplicity. From his experience, one of the significant problems with the classical handbooks is that they are too comprehensive, and it is easy to get lost and forget what is important about the project.

> *"The problem is, the methodology might be so comprehensive, that you are drawn into the methodology itself instead of doing the project. And that's really a problem because the project is about people, it's about relationships, it's not about doing a specific sheet of paper, or risk metric, or whatever."*
> *(...)*
> *"I tend to say I can explain the half-double methodology in ten to twenty minutes and people will understand what it's all about.*"

Interview with Per Svejvig, 26.4.18

Not being drawn into the instrumental thinking and focus more on the social process is therefore seen as a crucial theme for the methodology. Another main difference that the Half-Double hopes to keep is the rejection of certification against a set standard, as it is the case with the major institutionalized project management frameworks. The desire is more to go for an adaptive mindset, that would reflect on the contemporary realities. Having a certification and setting standards is seen to go directly against this principle.

> *"Very often, you have a preserving mind, if you are going for a standart. So you are preserving the standard and we want do develop and devolve and be adaptive. So we think standardization works against this basic philosophical thinking, that you want to be reflective, adaptive, and developing."*

Interview with Per Svejvig, 26.4.18

Next steps for the methodology as described by Svejvig are the wider diffusion and adoption of it in the practice. This means spreading the methodology outside of scandinavian borders, into more industries, and another ambition is to start using it in the public sector. If the methodology is acknowledged as valuable and desirable by the wider project management community, another point to overcome might be the resistance from the established project management institutions.

So far however, promising results are put forward by the project Half-Double community, as the Grundfos pilot project was one of the few project where the impacts of the methodology were evaluated as low. Most of the other pilot project reported higher results when compared to similar, earlier projects done with another methodology. Nevertheless, as seen throughout the thesis, projects are complex organizations with interconnected elements, and even the success of the project might have another contribution than that of a new methodology. As Grex noted;

> *(...) "I am not really sure whether it's the methodology itself, or whether its that you actually have a lot of nursing, because it has been implemented with a lot of consultants, meaning the project managers actually had a lot of partners to spare with. And they also get coaching, so they probably develop as professionals during this process, and maybe that's why it actually shows a lot of success. That's like the wholesome effect you could say, that you actually get something attention, and of course, it will bloom, and it will grow. "*
>
> Interview with Sara Grex, 8.5.2018

8. Conclusion

Traditional project management doctrines are criticized for its theoretical shortcomings, and for not reflecting the actual needs and realities in project practice. For this reasons, alternative and enhancing project management approaches developed in the recent past, and calls for rethinking the practice as well as the related research are still put forward by some authors. From these streams, the Half-Double methodology was developed with a goal to bring radical innovation to the project management practice.

This thesis mapped out the shifts in the theoretical basis of the project management discipline, as well as the developments from which this methodology arose. It also presented a case study done in the Grundfos company, where one of the earliest pilot projects with the Half-Double methodology was conducted. The case study examined how the Grundfos' practitioners translated the methodology into their practice. The research objective was was to explore what value was created for the Grundfos project management practice from the participation in the Half-Double pilot project.

The starting point for the research was learning about how the three core elements of the Half-Double methodology were perceived and employed by the project practitioners. The study in Grundfos showed that:

1. The Impact methods, although the underlying principles were seen as valuable, were not adapted in Grundfos, since the tools and methods of the time were difficult to grasp and therefore difficult to translate into the practice.

2. The Flow methods worked well in Grundfos, as the practitioners rediscovered the value of visual planning, and were already perceptive to the needs for the project colocation, sufficient member allocation and sprint planning.

3. The Leadership methods were partly present at the time of the pilot project, and made the Grundfos practitioners more aware about the issues related to active ownership. It also provided learnings for the further development of the Half-Double methodology.

However, more learnings were gained that surpassed the delimitation of the three core elements. Reflecting on the experience with the Half-Double methodology as well on their own practice, the Grundfos practitioners as well as Half-Double associated consultants and academic

researchers provided basis on which additional insights about the effect of the Half-Double pilot project on the Grundfos project management practice were gained.

These learnings can be abridged into the following points:

(1) The Half-Double methodology did not replace the current approach project management approach in Grundfos, rather only the parts which were seen as valuable were adopted and served as an inspiration for the practice enhancement.
(2) The strong project ownership approach was seen as a critical factor for the successful project progress. Both project managers and project members were very much perceptive to the engagement or lack of engagement of the higher management responsible for the project realization.
(3) Much of the workflow efficiency of a single project is influenced by how the company's project portfolio is managed, as the potentials for employment of flow-enabling methods like the sufficient allocation of project members are hindered if the project stakeholders are overstretched.
(4) Benefit of the Half-Double pilot project was perceived also from the practitioners being exposed to new viewpoints and concepts, as well as from opening things up for a discussion, like the issues related to the active ownership approach, or which model or practices a project manager can employ.
(6) Perception on some of the Half-Double supporting tools differed based on the role in the project.
(7) The underlying principles of the Half-Double methodology were largely seen as valuable and desirable for the project management practice.
(8) Even if perceived as valuable by different stakeholders, changing the project practice might be met with several challenges resisting the change.
(9) The pilot project in Grundfos helped the further development of the Half-Double methodology, as it enabled learnings that lead to the present model.

8.1. Limitations of the study

The study in Grundfos has some limitations. First, it should be noted that all of the Half-Double related experiences were shared with a notable time distance from its fruition, as the pilot project unfolded almost two years prior to the research. Some of the methodology related notions present at the time of the pilot project therefore might have been forgotten and omitted in the discussions. However, purpose of the research was to study the resulting 'translation in the

practice', which required such time distance. The study could have also benefited from participatory observations, where the discussed practice would be examined as it unfolds, and then compared to the interviews gained in the company. However, this was not possible at this time. Moreover, the fact that the methodology in the Grundfos pilot project was at its early stage might have influenced its impacts, therefore conducting other studies within organizations where the methodology was employed in its contemporary form is viable.

8.2. Future perspectives

The findings of this thesis provide many direction through which the future research could go. Most notable are the factors of portfolio management, and of the actively engaged higher leadership and their effects on a single project. Having the perspectives of different stakeholders and seeing the different responses based on their role in the project proved fruitful: however, although project members and project managers were involved in the research and provided insights into these issues from their point of view, the perspective of the higher management on the matter was ruefully missing. Further research should therefore focus on how the Half-Double concepts are translated into the portfolio manager's practice, and how are they working with the needs stressed by the project managers and project members. Moreover, although the underlying principles of the Half-Double methodology were often seen as valuable, indications were found that some of the tools proposed by the methodology to follow in order to live up to these principles might not be easy to adapt in practice. Further research could therefore also examine the bottom-level effects of the individual tools from the perspective of different actors and in different project types, and see how they support or hinder the workflow.

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