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Project Half Double case study

*Forsvarsministeriet, Materiel- og
Indkøbsstyrelsen (FMI)*

TABLE OF CONTENTS

INTRODUCTION.....	3
COMPANY INFORMATION	3
IMPLEMENTATION OF THE HALF DOUBLE METHODOLOGY	4
THE HALF DOUBLE PILOT CASES.....	4
COMPARABILITY OF PILOT CASES AND REFERENCE CASES	5
IMPACT.....	12
CONCLUSION	15
LIMITATIONS	15
REFERENCES.....	16

Introduction

The purpose of this report is to outline the evaluation and comparison approach and the knowledge obtained through a detailed data collection process, in order to examine the implementation and application of the Half Double Methodology (HDM) at Forsvarsministeriets Material- og Indkøbsstyrelse (FMI), as well as compare and contrast pilot and reference projects. For a thorough description of the research methodology and limitations, please refer to appendices B and D in Rode and Svejvig (2021).

All reports can be found here:
www.halfdoubleinstitute.org/research

Company information

State-owned FMI is the Danish Ministry of Defence Acquisition and Logistics Organization (English abbreviation: DALO), and thus a unit under the Ministry of Defence and the Danish public sector. The FMI headquarter is located in Ballerup, and the organization is dispersed to locations across Denmark, such as Aarhus and Hjørring. At the FMI headquarter, approximately 850 employees are located (2020), out of a total of approximately 1.900 (2020). A quarter of all employees have a military background.

The organization is responsible for procurement. This means ensuring that the Danish military has

the necessary IT, services, and equipment for the Danish Defence, and thus the organization covers

the process from supply to maintenance, development, and decommission.

In doing so, they are in control of approximately DKK 9.000.000.000 of the Danish Defence budget (2020). As an example, in 2018 FMI developed 109 different framework agreements and purchased for approximately DKK 2.650.000.000.

The FMI organization is divided into several divisions, as illustrated in the figure below. Visualized in green are the divisions of land, maritime, and air which are specialized in and responsible for one area of acquisition. These three divisions are point of departure of this report.

Together with the IT division, these four divisions cover acquisitions and development of framework agreements, supported by the other divisions. Framework agreements are the prerequisites for FMI to procure products and services effectively and legally for the Danish Defence.

Key figures of FMI (2020):

- Employee count: 1900
- Head office: Ballerup, Denmark
- Annual Budget: 9.000.000.000 DKK

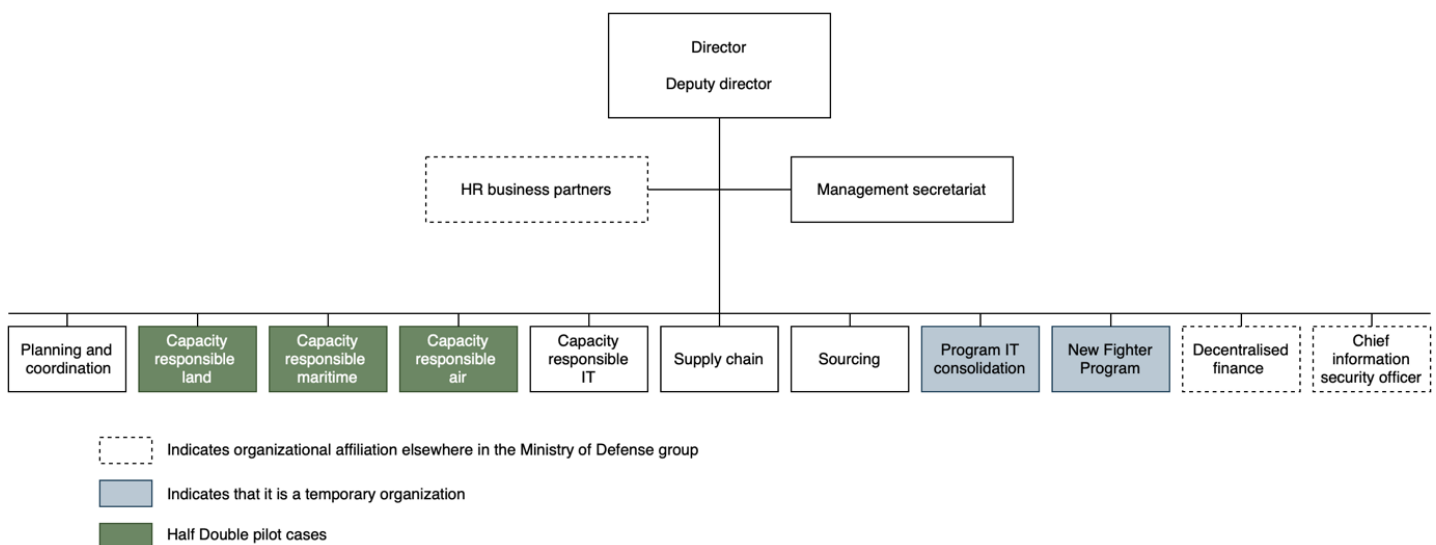


Figure 1: Organizational diagram of FMI

Implementation of the Half Double Methodology

A core aspect of the Half Double Methodology (HDM) is the notion of Local Translation, which is the idea that the methodology must be adopted to fit the organization. Hence, in order to achieve benefits with the methodology, it should be adapted according to the organization, its culture, and its systems.

In FMI, the notion of Local Translation is illustrated as the HDM is implemented in the organization's model for team collaboration in its procurement processes. Therefore, this report covers the implementation of the HDM in FMI, as a methodology and model for team collaboration in procurement process cases.

In FMI, working in teams has been established to optimize processes and collaboration. This has been initiated to assure that material and IT for FMI are delivered on time, and with employee and customer satisfaction. The optimization of team collaboration is based on the HDM. Regular teams focus on procurement in terms of establishing the right framework agreement and/or contract. These teams are interdisciplinary, based on different competencies of the organization, ensuring an optimal approach to sourcing. Typically, these teams are developed to cover three related tasks over the same period of time. Temporary "focus teams" are created to establish solutions for a specific and time-constrained task. Furthermore, FMI has employed "team facilitators" to ensure collaboration.

FMI's model for team collaboration in the procurement process is based on a hybrid project model, mixing traditional plan-based best practice for the procurement process with the HDM. The traditional plan-based process relates to the regulatory requirements of the public procurement process.

The Half Double pilot cases

At FMI, three pilot cases have been investigated where teams have applied the team collaboration model with the HDM for the procurement process.

These cases cover the acquisition from developing and signing framework agreement contracts in three divisions of FMI. Each of the three pilot cases is evaluated and benchmarked against one comparable reference case. The basic idea of the comparison is to evaluate in practical terms the implementation of the HDM in FMI, examining the procurement process of developing and signing framework agreements before and after the adoption of the HDM. Each case will be elaborated in the following sections.

Pilot case 1: Maritime. This case consists of developing and signing of three similar seven-year framework agreements, covering maintenance, repairs, and other types of services for the Royal Danish Navy. The first framework agreement (1) was initiated in February 2015, prior to the implementation of the HDM at FMI in August 2018. A contract was signed in December 2019, meaning that the task was considered complete. The other two framework agreement tasks (2, 3) were initiated in September 2018, and were expected to finish in November 2019 and December 2019, respectively. However, the agreements have had to enter a new tender process. Therefore, the tasks are still going as of April 2021. Thus, the duration of the first task (1) was four years. The second task had a duration of 14 months, and the third task had a duration of 15 months if the re-runs of the two tasks tender process are excluded.

Five employees worked on the tasks two days a week after the Half Double initiation in August 2018. Therefore, in FMI, this is perceived as a positive implication of applying their model for team collaboration, reducing duration of the procurement process.

Its comparable reference case also covered framework agreement for the navy, this one in terms of ship motor maintenance and repair.

Pilot case 2: Air. This case consists of developing and signing four similar seven-year framework agreements related to Hercules aircrafts in the Royal Danish Air Force. These agreements cover reparations, spare parts purchasing, technical support, maintenance, and services. The tasks were initiated in May 2019, and contracts are estimated to be signed according to five

deliverables: one in December 2020, two in December 2021, one April 2022, and one in ultimo Q3 2023. The case has experienced delays due to Covid-19, which has had a negative impact on the flow of the case. These issues are related to the ability to co-locate and the ability to thoroughly include stakeholders in the process.

The comparable reference case covered a single framework agreement for service, maintenance, and spare part purchases for Challenger aircrafts.

Pilot case 3: Land. Consists of developing and signing a 7-year framework agreement concerning the acquisition of long-range ammunition for the Royal Danish Army. The agreement was a supplement to and development of an existing agreement. The task was initiated in June 2019, and a contract was signed in April 2020.

Its comparable reference case also covered a framework agreement for ammunition purchases.

Each pilot case must go through a specific procurement process based on stages. Thus, the procurement is initiated with planning, market research, and development of tender material. This is followed by a period of public tender and evaluation of offers received in the public tender period. The last stage concerns contract development and implementation. On top of this process, the teams are working in sprints related to the HDM and FMI's team collaboration model. The principal success for the three pilot cases attains to a short and frictionless procurement process, with flow and user involvement. Further, the purpose of the cases is to attain satisfactory framework agreement contracts at the best possible price as well as best possible quality for the Danish Defence.

Compatibility of pilot cases and reference cases

Although most cases, tasks, or projects show unique characteristics, it is also clear that there may be a family resemblance. This fact is used in our comparison where we have asked for three reference cases, which are as similar to the three pilot cases as possible. Hence, for each division, we compare one pilot case with one reference case, resulting in six cases investigated in total. The following section will present the characteristics of the cases which emphasize the comparability of the pilot and reference cases.

The table below shows individual characteristics of the pilot cases and reference cases in terms of size (hours and costs), novelty, pace, technology (Shenhar & Dvir, 2007), and lastly complexity (Fangel, 2005).

CASE CHARACTERISTICS SUMMARIZED							
Proxy for size and unit		Maritime		Air		Land	
		Pilot Case 1	Reference case 1	Pilot Case 2	Reference case 2	Pilot Case 3	Reference case 3
1	Resources (man-hours)	4440 ^{1,2}	2960 ¹	7104 ^{1,2}	1480 ¹	710	888 ¹
2	Budget for framework agreement (scale from 1-6) ³	4	5	6	3	1	2
3	Diamond model: Technology (Shenhar & Dvir, 2007) (scale from 1 to 4)	1,5	1,5	1,5	2	2	3
4	Diamond model: Novelty (Shenhar & Dvir, 2007) (scale from 1 to 3)	0,5	0,5	1	1	1	2
5	Diamond model: Pace (Shenhar & Dvir, 2007) (scale from 1 to 4)	2,5	2,5	3	3	2	2
6	Project complexity (Fangel, 2005) – incl. Environment, tasks, and organization (scale from 1 to 4)	2	2,42	2,50	1,96	1,83	1,75
7	A composite proxy for project scale derived from items 1, 2, 3, 4, 5, 6 above	5	4	6	3	1	2

¹Numbers are estimations and can increase/decrease

²Numbers estimated prior to the projects elongating

³Due to confidentiality, numbers have been excluded. Instead, the projects are ranked on scale from 1 (smallest) to 6 (biggest) in terms of budget for framework agreements

Table 1: Proxies for characteristics

In the table, the score of 1 illustrates the lowest score. In rows 2 and 7, the highest score is 6. In rows 3, 5 and 6, the highest score is 4. In row 4, the highest score is 3.

The scores related to the Diamond model by Shenhar and Dvir (2007) are scored based on how the cases are perceived by the interviewees. Technology is a dimension concerning the technical aspects of the case, from known and established to not available but developed through the project. The dimension of novelty refers to a level of innovation in the cases. Hence, it concerns how new the product/service of the framework agreements are to customers and users on a scale from familiar to unfamiliar. Pace is reflected in the timeframe and urgency of the cases, from not critical to very time critical. Complexity is an aggregate score from questions related to

environment, task, and organization as suggested by (Fangel, 2005).

A common feature for all cases is that working with framework agreements is not new for the teams, and that there is a natural legal deadline and process for the agreements. The products and services covered by the agreements range from old technology to specialized.

The last row shows a relative score derived by summarizing and comparing information from all the above proxies. The scoring shows that pilot case 2 and 1, as well as reference case 1 (scoring 6, 5, and 4, respectively), were the most comprehensive projects and that reference case 2 and 3, as well as pilot case 3 (scoring 4, 5, and 6 respectively), were less comprehensive.

Case		Initiation date	Completion date	Duration (months)	Status April 2021
Maritime	Pilot case 1	15.02.2015	<i>Initial date:</i> 01.12.2019	57,5 ¹	In progress
	Reference case 1	01.07.2009	15.02.2015	67,5	Completed
Air	Pilot case 2	01.05.2019	<i>Initial date:</i> 01.12.2020	19 ¹	In progress
	Reference case 2	18.12.2014	11.07.2017	31	Completed
Land	Pilot case 3	01.06.2019	01.04.2020	10	Completed
	Reference case 3	01.07.2011	01.01.2013	18	Completed

¹The numbers represent the estimated duration from the initiation date to the initial completion date.

Table 2: Case dates and duration

Thus overall, maritime and air cases (pilot and reference) are the most comprehensive.

Time. Considering the overall objective of the HDM and the motivation to implement the HDM in FMI, the cases are evaluated in terms of time. In the case of FMI, this time covers the duration from the cases (framework agreement process) were initiated and until contracts are signed. This aspect is the primary success criterion for FMI, when applying the HDM and the model for team collaboration. As shown in the table above, four of the six examined cases are completed, but two pilot cases are still going as of April 2021. Pilot case 1 and reference case 1 are the most time-consuming cases, with the other cases being fairly shorter. Pilot case 1 is still going as of April 2021 and concerns three framework agreements. The first framework agreement of this case was initiated in February 2015, not following the HDM. The two other framework agreements were initiated in September 2018, when the first part also started employing the HDM. Employing the HDM, five employees worked on the project two days a week. Initially, the whole case was complete in December 2019 with framework agreements signed.

The first framework agreement was completed in May 2019, the second agreement was completed in November 2019, and the third in December 2019. This resulted in durations of approximately 1) 51 months, 2) 14 months, and 3) 15 months. Thus, the two framework agreements were seemingly shorter (and therefore perceived by FMI as more successful) than the framework agreement initiated in 2015 without the HDM. However, due to a re-run of the tender process, the case is still going as of

April 2021. Comparably, reference case 1 was initiated in July 2009, and was completed in February 2015, covering a duration of 67,5 months.

The framework agreements for pilot case 2 were initiated in May 2019 and were first expected to be completed and signed in December 2020, resulting in a duration of 19 months. Here, six employees worked together co-located twice a week. However, due to Covid-19 implications, the project is now expected to finish ultimo Q3 2023: an overall duration of approximately 54 months. These challenges concern the ability for the team to work on the case at the same location, as well as ensuring enough employees with the necessary capabilities on the team.

In comparison, reference case 2 was initiated in December 2014, and completed in July 2017: a duration of approximately 31 months. Therefore, the reference case is shorter. Without Covid-19 implications and re-runs, the pilot case would have been shorter by 12 months. Hence, this case is also perceived as a success in FMI in reducing the procurement process – a success related to the changes made in their team collaboration applying the HDM, however constrained by challenges not related to team collaboration.

Lastly, pilot case 3 was initiated in June 2019 and was completed in April 2020, resulting in a duration of 10 months, with three employees working together co-located twice a week. Its comparable reference project was initiated in July 2011 and completed in January 2013, a duration of approximately 18 months. Thus, the pilot case was shorter in duration than the reference case by 8 months.

Overall, the three pilot cases' timespans were shorter than their comparable reference cases, and hence seemingly successful in the organization. However, due to issues related to tender process and external challenges for pilot cases 1 and 2, the duration of the procurement process has been extended. These challenges did not pertain to pilot case 3, which was successful in reducing duration. In this regard, it should also be noted that pilot case 3 was an extension of a previous framework agreement, and thus potentially benefitted from decisions made in the previous framework agreement.

Still, FMI expresses their satisfaction in the model for team collaboration and in the HDM for reducing the duration of the procurement process across all three pilot cases compared to cases not applying the methodology – FMI's goal when implementing the HDM in their team collaboration model.

Project management methodology practices. In the quest for reasons for the satisfaction of HDM and perceived success of pilot cases in reducing duration of the procurement process, we examine the cases' employed project management methodology practices, which are based on practice usage scored from 1 (low) to 4 (high). Scores above 2,5 are considered higher, scores below 2,5 are considered lower scores. Hence, we investigate how, which, and to what degree the HDM practices have been employed in the pilot

cases, and benchmark this to the practices used in the comparable reference cases.

This is divided into practices related to the HDM principle of Impact, practices related to the HDM principle of Flow, and practices related to the HDM principle of Leadership. Overall and across all three principles of the HDM, there is a clear distinction between pilot cases and reference cases in terms of the degree to which the practices are used. This emphasizes that the prior/earlier comparable assignments were based on individual best practice, and the process was up to the individual who was responsible for the framework agreement and contract. Therefore, some of the reference cases also have relatively high scores related to HDM practices.

A considerable similarity, as well as contrast, between pilot and reference cases is reflected in the fact that the collaborative teams that are created today are interdisciplinary, taking offset in the characteristics of the task, the relevant resources and expertise needed, as well as having employees from procurement and legal departments. For the reference projects, the same people and competencies were required, however, they were not working as a team. The following sections will elaborate the differences between pilot and reference cases.

Impact. In the HDM, impact emphasizes a focus on stakeholder satisfaction as the ultimate success

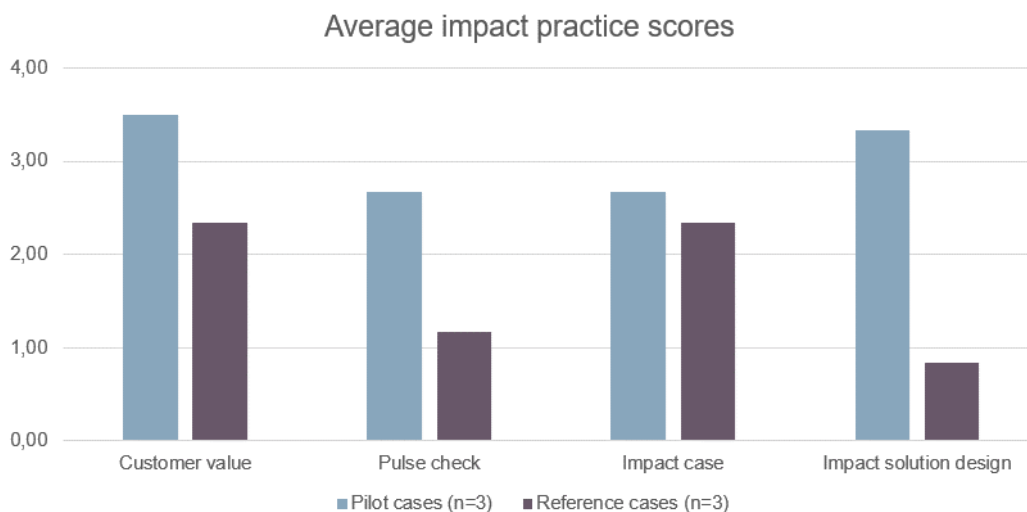


Figure 2: Average impact scores across pilot and reference cases

criterion. We measure the principle of Impact according to the practices of 1) focus on customer value, 2) pulse check with key stakeholders, 3) developing an impact (business) case and 4) working with impact solution design. These are illustrated in the chart above with average scores of pilot cases (blue), and reference cases (purple).

As visualized in the figure, the pilot cases employ all four practices more than reference cases. The focus of customer value receives the highest score, followed by the practice of impact solution design, meaning breaking down the case to its basic features to focus on early value creation – delivering value from start to finish. This impact practice receives the lowest score for reference cases. Interviewees across the cases emphasize that in reference cases, delivering value as quickly as possible was not a focus for them, whereas this was a central focus for the pilot cases. Here, early impact was actively incorporated in sprints. The usage of pulse check differs across the cases, but common across the cases is continuous meetings with and involvement of stakeholders being more elaborate for pilot cases than reference cases.

In all three pilot cases, focus on delivering customer value has been highlighted, which also differs from the reference cases. For instance, in reference case 2, it is argued that they “did not really have the customer in mind”, whereas for pilot

case 2, focus was about making it easy for the customer, and that the customer needs were the primary focus of the team and their purpose.

Hence, the pilot cases illustrate a greater involvement of stakeholders in the cases, as well as an increased focus on the customer or end-user.

Flow. In the HDM, the notion of flow is centered around high intensity and frequent interaction. We measure the principle of flow according to the practices of 1) working with co-location, 2) visual planning, 3) developing quick insights to ensure learning, and 4) designing projects as short and fat, meaning shorter projects with a sufficient number of resources allocated. Further, we measure 5) kill complexity emphasizing a focus on simplicity, and 6) rhythm in key events, focusing on a fixed heartbeat, working in sprints. These are illustrated in the chart below with average scores of pilot cases (blue), and reference cases (purple).

The practice of co-location and visual planning illustrates the biggest change from how the reference cases in FMI developed framework agreements before the HDM was implemented. In the pilot cases, the teams have been allocated to the same room on the days they worked on the project. Prior, in the reference cases, there was no co-location, but interviewees in one case elaborate that they would occasionally meet and work

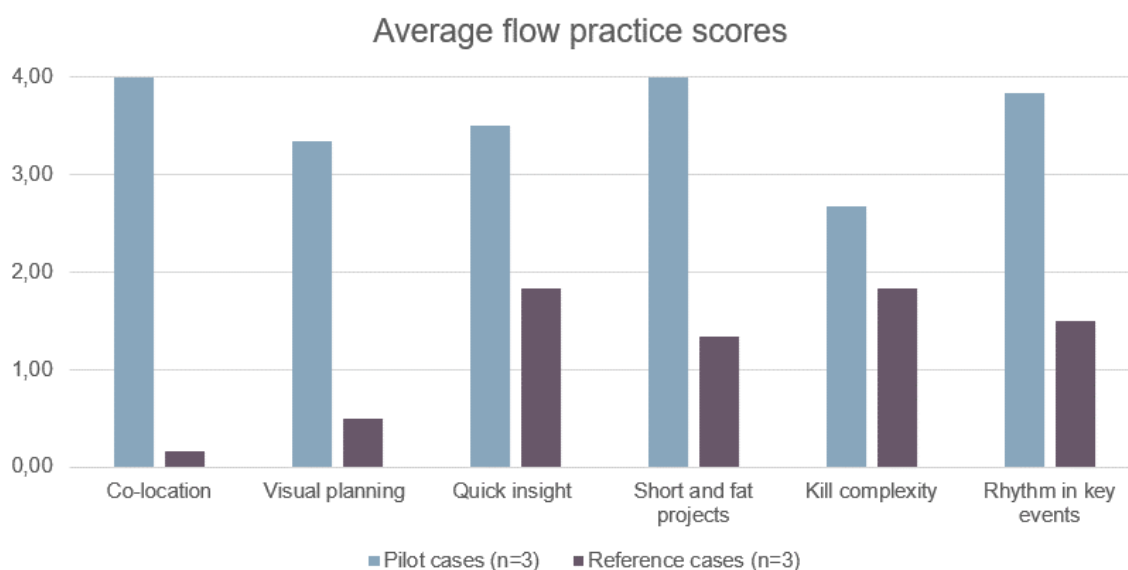


Figure 3: Average flow scores across pilot and reference cases

together, when it was deemed necessary to talk face to face. Similarly, this reference case also developed a visual timeline for their case, but this as the only tool to visualize the case. Opposite, the pilot cases worked intensely with visualizations of the cases, which two of the cases emphasize worked very well for them and was used by the team every day. The third case emphasized that they employed visualizations intensely in the beginning of their case, but toned down the use of visualizations, as they progressed with the case and reassessed their needs for visuals.

Across cases interviewees argued that being co-located enabled them to work more focused and intensely together, dedicated to the task at hand, as the teams had their own rooms, where visuals could hang on the walls and doors, and where team members could meet on fixed days.

Equally, the practice of working short and fat also strikes a large difference between pilot and reference cases. In the pilot cases, interviewees emphasize that they focused on reducing time by working more intensely and dedicated on the tasks. Comparably, the reference cases included the necessary people, but over a longer time span, as focus was more on the outcome, and less on the process towards the outcome. Hence, for the pilot cases, it was emphasized that team members no longer had to wait for people to do their tasks.

Therefore, they were able to maintain momentum. Supporting the momentum is the notion of rhythm in key events, also employed to a larger extent in pilot cases than reference cases. In FMI, this practice is translated to 'battle rhythm' and concerns fixed meetings daily, weekly, and monthly. Across the pilot cases, the degree to which all meetings have been utilized varies but a fixed battle rhythm remains a strong focus, whereas the reference cases highlight little rhythm, instead conducting meetings when deemed necessary.

Related to fixed meetings is the practice of developing quick insights and creating fast learning in the cases. This practice has been central in the cases during their meetings with focus on being flexible and more responsive to changes, as a consequence of working closely together co-located. Linked to the notion of 'kill complexity', the interviewees emphasize that the procurement process itself is not complex, but well-known and with a focus to "keep it simple". Similarly, this has also been performed in two of the reference cases, but by being a mindset by the employees, not as a practice to be followed.

Hence, the HDM principle of flow illustrates an elaborate change in FMI, which enabled the team members to work closely and intensely together as teams, increasing their dedication to the task,



Figure 4: Average leadership scores across pilot and reference cases

whilst reducing the duration and time of the task altogether.

Leadership. In the HDM, the principle of leadership concerns the ability to embrace uncertainty and make the project happen. This is measured according to the practices of 1) a collaborative project leader, 2) putting people before models and standard procedures, 3) trust from leadership, and 4) leading the group inwards rather than upwards or outwards. Further, we measure 5) chaos committee, which concerns the degree to which a steering committee was used for sparring and development, 6) an active and engaged project owner, and lastly 7) adapting, or customizing, the standard methodology to each case. These are illustrated in the chart above with average scores of pilot cases (blue), and reference cases (purple).

As illustrated in the figure above, there is a clear distinction between pilot and reference cases, in terms of their focus on leadership, which relates to collaboration, trust, and people. Having a collaborative project leader focused on leadership and trust is distinct for the pilot cases, as the reference cases emphasize a lack of leadership, but where individuals instead took charge and control of developing the framework agreements. For the pilot cases, leadership was in focus to create a drive and motivation in the teams, as well as coordinating the team members. In one pilot

case, leadership has been “essential” in creating expectations for the team, so they were able to work when the leader was not present. Similarly, this leadership was characterized as inwards and focused on the group with freedom to deliver. This freedom was also present in two reference cases, whereas interviewees from one reference case emphasize a lack of trust in the people involved in the case, decreasing the loyalty to the case and the resources needed for the case.

The use of an active project owner and steering committee receive the lowest scores, yet the scores emphasize an increase relative to reference cases. In two reference cases, a steering committee and project owner were not involved in the case. For the pilot cases, a project owner and steering committee were involved to the extent it was necessary. This concerned orientation of the case.

Hence, the pilot cases also illustrate adapting the methodology to fit the cases and the teams involved in the cases.

To sum up, there is a clear difference in the pilot cases and reference cases when examining the project management practices used in the team collaboration and procurement process. What clearly stands out in the pilot projects is the focus on delivering customer value and working intensely together with team members in a shared room with

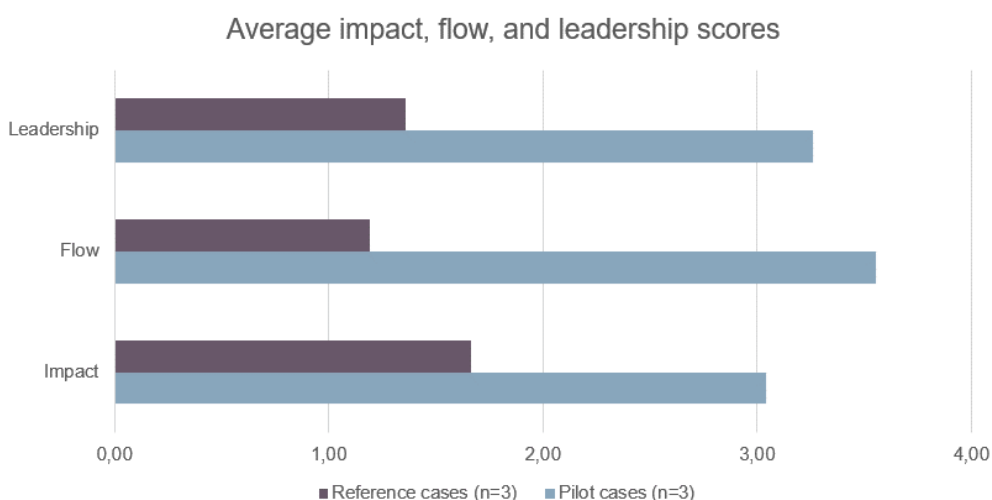


Figure 5: Impact, flow, and leadership scores combined scores across pilot and reference cases

visuals. Further, it is the collaborative leadership which gives motivation, trust, and freedom to the teams to deliver. For the teams, this results in working more intensely on the task, hence reducing the overall time spent on the procurement process, compared to how it was previously done in the organization. Hence, there is an increased focus on creating impact, establishing flow, and creating leadership in the pilot cases, as illustrated in the chart below.

Impact

Considering the overall objective of the HDM, impact is also included in the evaluation. In evaluating impact on FMI, we examine the overall experiences of working with the HDM practices implemented in the FMI project model for framework agreements, and the effect this has created in the organization. In doing so, we examine the overall impact which the FMI has experienced from the HDM implementation across all framework agreements, beyond the three pilot cases described in this report.

This data is gathered semi-annually by FMI, based on questionnaires, interviews, and quantitative data. The data included in this report is based on the initial data collected in Q4 2020 and Q1 2021, based on cases in 2020. This data is based on four overall benefit/impact realizations from FMI's motivation to implement the HDM. These are visualized in the table below, along with the overall degree of realization: low (red), medium (yellow), high (green), which will be further elaborated in the following sections. As the figure illustrates, FMI has realized three of four impacts to a high degree, whilst the last impact (2) is on its way to high degree of fulfilment.

IMPACT as of Q4 2020-Q1 2021	
1	The users experience a faster process initiation (approved planning basis) to contractual framework agreement signed - Motivated by increased interaction between FMI and end-user
2	Shorter procurement process (max. 34 weeks) - Motivated by increased workflow
3	Avoiding unnecessary stops in the procurement process - Motivated by a structured and multidisciplinary initiation of procurement
4	Benefit/Impact management contribute towards a better expectation reconciliation with the user representative - Motivated by increase in interactions

Table 3: Overall benefit/impact measures at FMI

The first and fourth objectives cover the users of the framework agreements' experience of a faster procurement process, increased number of interactions between case team and user, also resulting in better expectation reconciliation between the user and the case team. These aspects are measured based on interviews and questionnaires with the end-user of the case. In FMI, they have identified two end-users of projects completed in 2020. This should be noted when interpreting the data and the generalizability.

The questions related to the end-user's degree of satisfaction during the procurement process in terms of:

- 1) Contact with the team
- 2) Alignment of expectations
- 3) Involvement in decision making
- 4) Time consumption
- 5) Working with benefit/impact

Both interviewees express satisfaction (or high satisfaction) with team contact, expectation alignment, and involvement in the decision-making. One end-user is also satisfied with time consumption, whereas the other user expresses dissatisfaction, not due to the methodology, but due to external circumstances around the project. Both end-users express an either/or degree of satisfaction in terms of working with benefit/impact. One argues that the benefits should be made measurable, as they otherwise are a matter of course.

Overall, the objectives are categorized as high degree of realization.

The second objective covers the short procurement process, which was a main motivation of FMI to include the HDM in their procurement processes. This is examined based on projects (procurement processes) completed in 2020. So far, no project has been completed within the goal of 34 weeks. Therefore, this objective is not fulfilled as of April 2021. One main implication has been Covid-19 restrictions. Another implication is a scarcity of (human) resources to create fully multidisciplinary teams needed in the procurement process. However, it should be noted that the procurement processes have become progressively shorter. This is also illustrated in pilot case 3, which covered 40 weeks, which is 6 weeks more than the goal of a 34-week duration.

Therefore, the second objective is categorized as medium degree of realization on its way to high degree of realization and is ultimately perceived as a great success within FMI and among the employees interviewed for the evaluation.

The third objective is related to a shorter procurement process and covers the ability to avoid unnecessary stops in the procurement, delaying the process, which team collaboration attempts to reduce by the HDM focus on flow.

This is measured based on questionnaires for teams. A questionnaire was sent to 25 team leaders and team sponsors, representing 14 teams in Q1 2021, with a 64% response rate. The questions relate to unnecessary stops in the process, as well as questions in relation to the team collaboration methodology, (HDM) hypothesized to lead to a decrease in unnecessary stops.

When examining unnecessary stops, 86% of the respondents answered that they find it possible to avoid stops to some (46%) or a large (40%) degree – due to the methodology implemented in team collaboration. This is also illustrated in the figure below.

Examination of the utility of methodological practices is centered around the HDM notions of impact, flow, and leadership. These questions are divided into 1) team collaboration tools, 2) principles actively followed for team collaboration, and 3) fulfilment of team collaboration prerequisites.

Team collaboration tools utilized are illustrated in the table below, emphasizing that impact case, milestone planning, and sprint planning are used by 50% or more of the respondents, whereas 32% of the respondents use other or none of the team collaboration tools.

To what degree do you experience it being possible to avoid unnecessary stops in the task solving by using the team collaboration methodology (HDM)? (n=15)

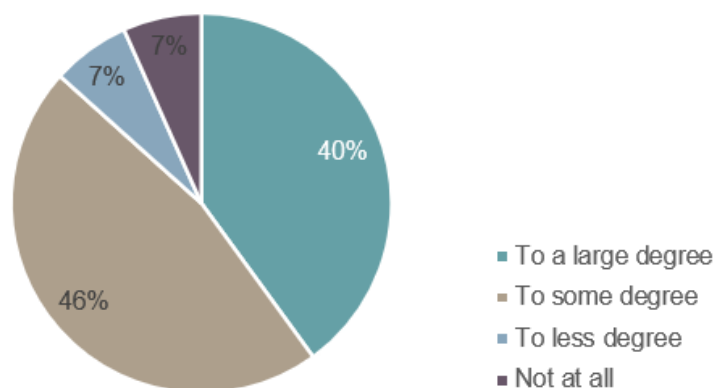


Figure 6: Benefit realization of avoiding unnecessary stops in the procurement process

TOOL	RESPONSE
<i>Impact case</i>	50%
<i>Milestone plan</i>	69%
<i>Sprint plan</i>	63%
<i>Pulse check</i>	19%
<i>None of the tools</i>	19%
<i>Other tools</i>	13%

Table 4: Team collaboration tool usage

Team collaboration principles and usages are illustrated in the table below. The table illustrates that the teams to a large degree focus on flow by working co-located on fixed days and in sprints with visual planning. It also illustrates that 20% of the respondents do not use any of the principles.

PRINCIPLE	RESPONSE
<i>Team collaboration is done in sprints (four weeks per sprint)</i>	67%
<i>The team members work together on two fixed days per week</i>	73%
<i>The team conducts six fixed meetings during the sprint</i>	33%
<i>The team uses visual planning</i>	60%
<i>All core members are present on fixed team days</i>	47%
<i>The team does not use any of the principles above</i>	20%

Table 5: Team collaboration principle usage

Lastly, team collaboration prerequisite fulfilment is illustrated in the table below. Here, it is evident that the teams have rooms available to ensure the teams' colocation, and that the teams are built around the skills necessary for the individual teams and framework agreements to succeed. Further, leadership is present in these teams to a large extent, in the form of task manager and chief task manager, as well as an active project leader promoting teamwork.

PREREQUISITE	RESPONSE
<i>There is a chief task manager (chairman of steering committee)</i>	93%
<i>The task manager practices active leadership to promote teamwork</i>	60%
<i>There is a task manager (project manager)</i>	93%
<i>The project manager practices active leadership when the team is co-located</i>	93%
<i>The people with the necessary skills are a part of the core team</i>	100%
<i>The required legal and commercial competencies are a part of the core team</i>	80%
<i>The required specialists participate in teamwork and methodology when it is needed</i>	67%
<i>Overall, the necessary competencies are available for the team to solve the task</i>	67%
<i>The team has a fixed room on team days</i>	100%
<i>The necessary IT and software are available in the team room</i>	80%
<i>None of the above</i>	0%

Table 6: Team collaboration prerequisites covered

Based on the responses, the third objective categorizes as high degree of realization. Thus, according to the four overall impact objectives, FMI has reached most of its impact from implementing the HDM in their team collaboration model.

Conclusion

In summary, it is likely that the HDM has had a positive impact on FMI and their team collaboration. The procurement process is faster, which especially is evident in pilot case 3, but also the initial versions of pilot case 1 and 2. However, here, the cases were subject to external conditions which increased the duration.

FMI experiences satisfaction from stakeholders involved in the procurement. This satisfaction is also present in most of the team members engaging with the methodology. Hence overall, integrating the HDM in FMI's team collaboration is perceived as a success in FMI and continues to be applied. However, there is still room for improvements in the procurement process and team configuration. This relates to the application of HDM, but also other constraints in FMI, which is related to a lack of resources to develop interdisciplinary teams, as well as challenges from covid-19 restrictions.

Limitations

When reading the case, it is relevant to keep in mind that in the past, FMI has not focused on working in teams when developing similar framework agreements. Therefore, the data is limited in terms of reference cases and their relative comparability to pilot cases with regard to project management practices. The project management practices of reference cases have mainly scored low, which one can argue is related merely to the fact that they have not worked in "projects" or teams or treated the procurement process with project management practices, but instead created with a plan-based approach, as well as individual best practice. In this regard, it should also be noted that the pilot cases and respective reference cases differ quite a lot in terms of framework agreement budget, also potentially making them less comparable. They are

perhaps more comparable in terms of being divided into the divisions of maritime, land, and air; the areas in which the framework agreement products and services function.

Here, it is relevant to emphasize the challenges experienced in FMI working collaboratively in teams during Covid-19 restrictions, which is also reflected in the data collected on pilot cases 1 and 2.

Furthermore, the report is limited due to a lack of data. Little data has been registered in terms of costs, internal and external, as well as the resources, or man-hours, per project. In addition, it has not been possible to collect objective quantitative data on the pilot cases degree of success criteria fulfilment. Instead, the success is based on a limited number of interviews with team members and FMI employees, and their perception of the success. It would be desirable to have a broader base of data based on more interviews. However, it is important to note that in FMI, the implementation of the HDM in team collaboration and effect hereof is regarded to be successful.

Lastly, it should also be noted that the data gathered in connection to Half Double practices and project characteristics are based on subjective quantitative data. This subjectivity bias should be kept in mind when interpreting the data. Furthermore, pilot projects 1, 2, and 3 as well as reference project 1, were scored in a group interview. Reference projects 2 and 3 were individual interviews. These differences can also be relevant to keep in mind when reading the report.

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