MASTER'S THESIS

Proposed model for IT Project Portfolio performance assessment and follow-up

A design science research: development and evaluation of a ITPP assessment process model.

Verrept, H.

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Abstract

IT Project Portfolio Management is an important discipline in the modern IT landscape, with all medium to large companies being dependent on the successful completion of at least a few IT projects.

This thesis attempts to create a process for assessing ITPP performance and to generate improvement measures. It does so by creating a structured dialogue between multiple stakeholders in the ITPP across departments and management levels. This forms part of a line of research at the Open Universiteit which tries to establish methods for companies to introduce the management of their ITPP. The specific research questions of this dissertation are "What do ideal risk and health registers look like?" and "How can a company implement and follow-up on improvement measures based on an analysis of risk and health registers?"

The created model is a further iteration on previously proposed models by researchers and attempts to improve on these in multiple ways through expanding the model with information from a literature study. The new model was subsequently tested by performing a case study at a large airline in the Benelux.

The results indicate that while the concept behind the research is valuable, further improvements and expansion of the model are necessary to create a viable tool. Improvements should focus on the risk part of the dashboard, and the further development of the registers' output. These conclusions also align with those of previous researchers, specifically Michels (2021), Muradin (2021) and Schoeman (2021).

Key terms

IT Project Portfolio Management, Design Science Research, Portfolio Health, Portfolio Risk, ITPP Assessment, Dashboards.

Summary

The extensive literature study of this research developed both proposed registers and a follow-up mechanism for both risk and health registers, with different possibilities for the implementation of improvement measures.

Unfortunately, a significant part of these could also not be evaluated due to limitations introduced on the scope of the empirical validation and the lack of implementation of the proposals developed in this dissertation in the final assessment process model.

The evaluation of the proposed ITPP Assessment process model indicates that, while generally useful, significant further development of the model is necessary. Primarily in the fields of evaluation / assessment technique, and the line of questioning. Specifically, more time should be spent on the risk section of the dashboard and on the translation of the proposed improvement measures into actionable items. This to answer the call for a practicably implementable model output.

The research calls for further development of the assessment method, possibly by pursuing a more thematic approach to the lines of questioning. This to reduce the current problems indicated by the research participants. The current lines of questioning were considered to be vague, repetitive and too academical for application in a real company.

Also, time should be spent on defining the correct method for determining the individual ITPP assessment and the ownership of the process execution, including ownership of the model outputs.

Further research iterations should attempt to reduce or assess the influence of the significant limitations of this research such as the researchers influence on the participants, the limited possible time investment and limited experience of the researcher.

Possible extension of the model or replacement of certain parts by for example poker prioritization should also be evaluated as a direct output from this research thesis. Finally, the output of the literature study, with proposed registers and follow-up mechanisms should also be tested, as these could not be evaluated within the scope of this research. This would answer the call from research participants for actionable assessment outputs.

While the proposed models were considered useful, it is unclear whether they bring additional value compared to existing continuous improvement schemes such as Lean and Six Sigma. There was also a recurrence of confusions and indications that the proposed line of questioning is not well-developed. As the conclusion of this research align with those of earlier researchers, serious consideration should be given to the modification of certain parts of the proposed models.

Contents

1. Introduction

1.1 Background

This research was performed as part of a Master Thesis in the course Business Process Management and IT at the Open Universiteit.

This thesis focusses on the design and use of health and risk registers to improve the management of an IT Project Portfolio (ITPP and ITPPM). It expands on research by Michels (2021); Muradin (2021); Schoeman (2021). Their findings showed some shortcomings and potential improvements to the proposed models.

The follow-up research on their results was split into multiple areas, and across 2 study groups, duplicating each subject:

- Improvement and development of health and risk dashboards
- Design of an assessment process model
- Output assessment and follow-up (this thesis's subject)
- Prioritisation of proposed improvements
- Quality assessment criteria and evaluation methods

Finally, this research also attempts to validate the redesigned model in a real-life context. For this a single case-study was performed at a large airline based in the Benelux area.

The research thesis starts with an introduction and exploration of the problem statement, next a theoretical framework is developed based on the research from previous students and a larger literature review. Based on this a new model is built and tested in the case company. We end with a discussion of the results and directions for future research.

1.2 Exploration of the topic

Companies have become heavily reliant on IT infrastructure and applications. Investment in performant IT infrastructure and applications can significantly improve firm performance (Melville, Kraemer, & Gurbaxani, 2004; Mithas, Tafti, Bardhan, & Goh, 2012). As investment in IT has grown, so have the risks, with significant failure rates for IT projects(PMI, 2020b). This has increased the interest in and need for proper ITPPM and ITPM techniques (Kumar, Ajjan, & Niu, 2008).

Depending on their size companies run multiple IT projects at the same time, their aggregate can be defined as a portfolio of projects. The goal of managing an IT Project successfully is to successfully deliver an application/infrastructure, whereas the goal of IT Project Portfolio Management (ITPPM) is to perform the correct projects which align with business strategy (Angelou & Economides, 2008; Blomquist & Müller, 2006; Kumar et al., 2008). Cooper, Edgett, and Kleinschmidt (2000) summarised it as doing things right vs. doing the right things.

Many IT projects compete for the same resources, and are often outcome dependent. Chien (2002) concludes that IT projects are often interdependent on the following 4 dimensions:

- Outcome/technical
- Cost/resource utilizations
- Impact/benefit
- Serial/present value interrelationships

ITPPM can therefore be seen as a resource-allocation problem which attempts to create the most efficient portfolio, taking into account the above 4 dimensions. Blomquist and Müller (2006) define ITPPM as a governance structure to minimize the overall costs when transforming inputs to outputs through projects. Correctly aligning the ITPP with the business strategy is seen as a key differentiator between high and low performing companies (Blomquist & Müller, 2006).

De Reyck et al. (2005) shows the benefits of implementing ITPPM at an organization to improve the effectiveness of a management structure around IT-projects. This is further corroborated by anecdotal evidence and statements by research participants in a wide variety of research.

The Project Management Institute (PMI) provides the following relevant definitions:

- Project: A project is a temporary endeavour undertaken to create a unique product, service, or result (PMI, 2017b).
- Portfolio: A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives (PMI, 2017b).
- Portfolio Management: Portfolio management is the centralized management of one or more portfolios to achieve strategic objectives. It is the application of portfolio management principles to align the portfolio and its components with the organizational strategy. Portfolio management can also be viewed as a dynamic activity through which an organization invests its resources to achieve its strategic objectives by identifying, categorizing, monitoring, evaluating, integrating, selecting, prioritizing, optimizing, balancing, authorizing, transitioning, controlling, and terminating portfolio components (PMI, 2017b).

Interesting to note here is that the activities and objectives of the PMI centre on 3 parts of the project portfolio lifecycle:
- Selection of portfolio components
- Execution of the portfolio components (through balancing, prioritizing, optimizing etc)
- Termination of portfolio components

The definitions proposed by the PMI are the most common in literature, and we expect them to be the most familiar to practitioners as they are the target group of these publications. Additional key definitions and context are provided in 2.3.1 and Appendix 1.

We define a healthy ITPP as a portfolio of which the composition supports the strategic initiatives of the company and ensures the creation of value and growth in the long term, while optimizing resource allocation (Wissenburg, 2015). We chose his definition because it is the founding research of this thesis.

1.3   Problem statement

From the above it is clear that companies have a lot to gain from properly managing their ITPP. A dependence on performant IT couples directly to the need for properly managing the projects and project portfolio that result in applications and infrastructure, which enable the business to perform its business strategy.

This research therefore tries to provide tools and techniques which reduce the loss of projects and improves the efficiency of project delivery by better managing an ITPP.

1.4 Research objective and questions

The central research question for the overarching research at the Open Universiteit is: "How can companies use a health and risk dashboard to improve their ITPPM".

The subject for this dissertation is: "What do ideal risk and health registers look like?" and "How can a company implement and follow-up on improvement measures based on an analysis of risk and health registers?"

There is currently very little research focusing on the use of health and risk registers in the context of ITPPM, highlighting a clear gap in literature. We based the designed risk and health registers on existing literature form other disciplines and on the feedback from respondents of the first round of research.

The second objective of the research is to validate the resulting process, dashboards, and registers.

1.5 Motivation/relevance

Research shows that IT significantly improves firm performance (Melville et al., 2004; Mithas et al., 2012) and that mature ITPPM can efficiently reduce the financial risks, improve goal achievement, on time delivery and reduce project failures associated to IT projects (PMI, 2020a).

This research specifically is aimed at developing tools for a company to analyse and improve/reduce its ITPPM health and risks in an efficient way, as a healthy ITPPM is a clear indicator for high firm performance (Blomquist & Müller, 2006). These tools should help practitioners in the daily management of their ITPP.

1.6 Main lines of approach

The research follows a Design Science Research (DSR) methodology to come up with an initial model and associated processes for risk and health management of ITPP. In subsequent iterations of the DSR cycle the discovered methods and processes are improved based on empirical validation, recommendations from practitioners and further literature studies. This dissertation is a part of the first review of the models and processes after the initial conception and validation by another group of students.
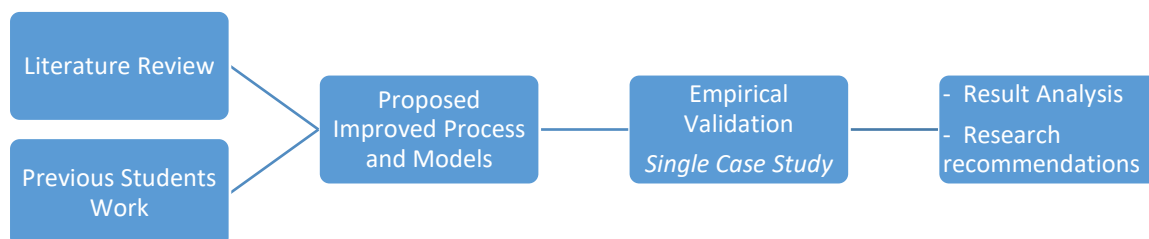

Figure 1-1 Research Design

Figure 1-1 shows a visual representation of the research approach. Empirical Validation of the proposed models and processes is performed in different organizations. This paper will focus on one specific case.

2. Theoretical framework

This section of the paper elaborates on the existing literature and how it was evaluated for the purposes of this research.

2.1   Research approach

The questions to be answered by this research are:

1) What would the ideal risk register and its follow-up mechanisms look like according to interviewees and literature?
2) What would the ideal health register and its follow-up mechanisms look like according to interviewees and literature?

The sources of these answers are interviewee responses from previous research and literature on health and risk register use

The identification of sources progressed in 4 stages:
1) Review of the research of prior students
2) Literature review through the OU library with specific queries focused on the domains of business and computer science.
3) Literature review of the standard works of the field (Project Management Institute, both on project and portfolio level management)
4) Literature review of papers provided by the assessors
5) A backwards snowball approach on the resulting papers to identify source documentation and possible critiques of the research.

The literature review forms the basis for a deductive approach to theory generation.

2.2   Implementation

2.2.1 Previous student's work

The review of prior students' work was quite simple, their papers were read, and the conclusions on health and risk registers were validated by checking for their presence in the interview transcripts. Finally, the entire interview transcripts were read to find additional mentions which were not included in the final research conclusions. We were careful with including any findings in our research as the reliability and validity of student's work may be below average (Saunders, Lewis, & Thornhill, 2016).

2.2.2 Review of papers provided by assessors

These papers were read in detail and relevant findings were used to substantiate mainly chapter 1 and some parts in chapter 2. A list is available in Appendix 2.

2.2.3 Backward snowball

Some papers found during the literature review were heavily based on previous work which fell out of the scope of the new review queries & filtering. To provide sufficient context and background on some of these methods it was required to review these papers specifically, both for the creation of the model and to substantiate the reasoning behind it. Details are in Appendix 2.

2.2.4 Literature review queries

Since some queries resulted in an excessive number of hits it was required to limit results to the areas of business and computer science research. Due to the terminology of some queries, there was a significant amount of contamination of the results with research from different disciplines, most significantly medicine (all queries relating to quality and health), economics (all queries with portfolio and/or risk) and finance (also all queries relating to portfolio or risk management). A short overview of the most useful queries can be found in Table 2-1 Research Queries. For a full list of queries please refer to Appendix 2.

The following filtering was applied to all results:
- English only
- Published since 01/01/2011 to only include recent work. In addition, earlier works are generally included in the latest research, and could, where necessary, be retrieved through backward snowballing.
- Fields business or computer science
- Peer-reviewed articles to guarantee the quality of the research

While the filter options in the OU bibliotheek drastically reduced the number of hits, some still resulted in a large number of hits. Saunders et al. (2016) recommends scanning all query results based on abstract and title. However due to the number of hits and time constraints it was decided to scan initially based only on title.

Table 2-1 Research Queries

Query	Number of hits	Reviewed papers	Used papers
"risk register" + "portfolio management"	11	9	6
"risk register" + "project management"	105	10	7
"portfolio risk management " + "project"	82	3	0
"using a risk register"	13	2	2

Papers which passed the initial selection were then subsequently also assessed based on abstracts, and more detail if appropriate. We were looking for specific mentions of risk and health management techniques. The used queries guaranteed that the papers mentioned at least in passing registers. The column "used papers" identifies the number of papers which are cited in the theoretical framework below and mentions the relevant papers.

A detailed description of parameters and queries can be found in Appendix 2.

No papers could be found mentioning "health registers" relevant to the field of study, therefore it was decided to extrapolate the results of follow-up mechanics and the content of risk registers to health registers, while considering the different parameters and influences on either as provided by the assessor.

2.3   Results and conclusions

Below we will present a theoretical framework on risk registers and how to set up processes for follow-up. An important addition here is that a basic risk management policy is assumed to be present in companies adopting this method. This allows for standardized assessment and follow-up processes to be defined, based on items such as risk tolerance and portfolio governance structures.

2.3.1 Key definitions

These are the definitions selected for the remainder of this research, an overview of other definitions for similar concepts can be found in Appendix 1. We do not repeat the definitions which were given in chapter 1.

Risk management
The identification and balancing of risk factors to effectively enable portfolio value delivery (PMI, 2017b).

Risk register
A repository in which outputs of risk management processes are recorded (PMI, 2021).
According to the PMI (2021), it contains the output of a risk management process, this includes who is responsible, what the likelihood of the risk is and the planned responses, along with some other information.

Difference in risk management on the portfolio level from the project level
Portfolio risk management differs from project risk management in that the goal of risk management at the project level is to minimize threats and maximize opportunities. Additionally, a program or project is concerned with risks and issues that arise inside the specific program or project. Portfolios are concerned with (a) maximizing the value of the portfolio; (b) tailoring the fit of the portfolio to the organizational vision, strategy, and objectives by aligning with the business model; and (c) determining how to balance the programs and projects within the portfolio given the organization's capacities and capabilities (PMI, 2017b).

An interesting observation here is that a portfolio (and therefore the risk management of a portfolio) deals less with individual occurrences and problems and more on the broader environment of the company.

2.3.2 Results of review of previous student's work

Only the research of Muradin (2021) mentions the necessity of health and risk registers as a recommendation from a respondent. A further suggestion for the follow-up of improvements is made in the research of Schoeman (2021). Here a respondent recommends the plan-do-act circle of Deming as a possible follow-up mechanism. A discussion of this concept can be found in Appendix 5

2.3.3 Theoretical framework Risk

Risk registers are one of the most prevalent and appreciated risk management techniques in companies which perform some kind of risk management processes on a project or portfolio basis (Crispim, Silva, & Rego, 2019; Ferreira de Araújo Lima, Marcelino-Sadaba, & Verbano, 2021; Trzeciak & Jonek-Kowalska, 2021). Popular techniques for handling and escalating risks are mitigations plans and periodic project meetings/document reviews (Crispim et al., 2019). Therefore, it was decided to build our theoretical model around these concepts.

Organizations use a risk register as a reference, and it should be reviewed regularly during the portfolio lifecycle (Bowers & Khorakian, 2014). Research has shown that the frequency of portfolio controlling cycles are a component that improves decision-making quality and agility of the ITPPM (Willams, 1994). However the registers should not serve only as a reference but also as a starting point for carrying out corrections and improvements to the ITPPM (Trzeciak & Jonek-Kowalska, 2021).

Some argue that risk registers, and the entire project and portfolio risk management discipline has little empirical evidence supporting it (Breault & Cleveland, 2020; de Bakker, Boonstra, & Wortmann, 2011; Drummond, 2011) although evidence seems to be more conclusive and positive towards portfolio risk management, probably due to its higher level and because a portfolio manager often has a better overview on interdependencies and more power to take action on risks (Breault & Cleveland, 2020).

The risk management process is usually split into several steps (Crispim et al., 2019; PMI, 2017b; Zhao, 2005):

1. risk identification
2. risk evaluation
3. risk analysis
4. planning (of mitigation) stages of the risk management process
5. Risk monitoring
6. Communication and integrations
7. Management support tasks.

The risk register is often the guiding tool in the first 4 phases and serves during the communication of risks towards higher management and across stakeholders in the portfolio.

A risk register should contain at least the 4 following values (Bowers & Khorakian, 2014; Liu, 2011; PMI, 2021; Willams, 1994):

- Event: description of what it is, and the likelihood of occurrence, as well as on what it is dependent
- Impact: how severe is the impact of the event occurring on the portfolio
- Mitigating actions: what actions are taken to reduce the risks?
- Who is responsible, and if the responsibility has been outsourced (to a supplier or insurer) to what extent are they liable and does this save the project or portfolio in case of the even occurring?

Different authors recommend still different additions to the risk register, often to do with how costs/impacts should be evaluated and prioritised. These are described in detail in Appendix 2. This is part of another line of research at the OU. Other suggested additions were excluded to reduce model complexity (in line with recommendations by (Bowers & Khorakian, 2014; Breault & Cleveland, 2020; Christoph Albrecht & Spang, 2014; Drummond, 2011; Ferreira de Araújo Lima et al., 2021; PMI, 2017a; Trzeciak & Jonek-Kowalska, 2021) and because of unclear added value.

2.3.4 Theoretical framework Health

Since no literature on health registers was found, the general concept is considered to be analogous to the proposals and ideas above.

From analysis of the health and risk factors proposed by Wissenburg (2015) and above literature we propose that health and risk are primarily influencing different parts of the project lifecycle. Secondly, they also seem to result in actions which are more easily defined in qualitative (health) terms or quantitative terms (risks). Therefore, we split the registers along the same line.

We propose a different follow-up system because of the inherently more qualitative and less quantitative issues in ITPP health management. Health and risk factors overlap on items such as access to or lack of resources and interdependencies between components. This might imply a role for project managers to escalate the encountered risk factors to their portfolio managers, whereas health issues are more clearly in the domain of the portfolio manager from the start.

The argument for differentiating between a qualitative approach for health factors and quantitative approach for risk factors can be found in Appendix 8.

2.3.5 Proposed registers

Following the guidelines above on minimum content and user friendliness the following register was developed. it contains the key-elements in addition to a prioritisation field. As argued above we consider this register to be valid for both risk and health registers, the difference is made by the issues in each.

After the health and risk dashboards are filled out, an assessment on improvements and items to be mindful of is made in the same document. The results from this analysis continue into the registers.

Event	Impact	Strategy	Priority	Owner
Example				
Multiple projects are dependent on database experts, not sufficient are available to the development teams	Loss of development pace/delay for multiple projects which require integration with the enterprise data warehouse. These projects are crucial to company strategy,	Request budget to hire additional resources and then hire them. PO will need to defend the need on the management board and then screen suitable candidates with HR.	High	Portfolio lead

Event

Description of the event and its triggering conditions (risks) or the health issue.

Impact

Impact of the event on a project and portfolio level, can be in quantitative or qualitative terms

Strategy

Description of the mitigating actions aimed at reducing the influence if applicable. Adapted from Bowers and Khorakian (2014) this can include the following:

- Acceptance of the risk and decision to not do anything about it (example events which are too expensive or complex to attempt to influence)
- Avoidance by revising the portfolio to remove the risk
- Transfer for example by taking out insurance against the default of parties or by hiring external consulting
- Redundancy: if multiple projects depend on the development of a key resource, find an alternative
- Mitigation: undertaking more research, reshuffling priorities and productivity

Priority

Assigning priority is in and of itself is an important area of research with varying levels of complexity proposed. This is an area of research of one of the other researchers in this group.

Owner

Who is charged with the resolution and or follow-up? This can be a natural person or a third party.

2.3.6 Proposed follow-up mechanisms

The developed registers form the foundation for a management process, but what does the further process look like? This answers the second part of the research question.

We suggest a twofold follow-up, following a model from Zhao (2005), with the addition of management plans to expand on the information provided in his proposed trend logs. Our goal is to generate instruments which can start communication and discussion on issues which has been proven to improve portfolio performance (de Bakker et al., 2011).

Zhao (2005) recommends marrying registers to project trending by putting a price on changes of the projects and portfolio and tracking the evolution of risks throughout the portfolio as they change in likelihood and value. This should accurately track the financial influence of all changes in a project portfolio. He proposes a simple method to generate forecasts based on the cost of performed changes and the likelihood and cost of potential changes. We discuss Zhao's model in more detail in Appendix 6, and management plans in more detail in Appendix 7. As management plans are well known (Crispim et al., 2019) we do not discuss them here further

Zhao (2005) provides 2 options for communicating towards the higher management. The chosen strategy being dependent on organization culture and the autonomy of portfolio managers. This choice also determines on which level prioritisation will occur, either by the portfolio manager together with project managers, or at the level of the entire management.

1) A simple high-level overview is given to the management by the portfolio manager. This focuses on the primary items in the registers. The portfolio manager with his team remains responsible for the setting of priorities and allocation of budgets. The overview only includes guesstimates of the impact of actions.
2) A more detailed option is available where a review is launched to discuss potential trend items. This has the advantage of having a formal sign-off process, but the assumptions remain based on estimates, and it is less agile in operations. The development of assumptions and their official discussion and approval of mitigation take more time and effort through more formal processes. Discussions with management should be solution oriented with an impact analysis of changes based on the provided registers, logs, and plans. This option aligns better with the communication which influences the mindset and actions

taken by stakeholders as found relevant by de Bakker et al. (2011). It also allows the management to judge for themselves which trends they want to monitor or involve cost engineers/accounting in.

2.3.7 Proposed follow-up model

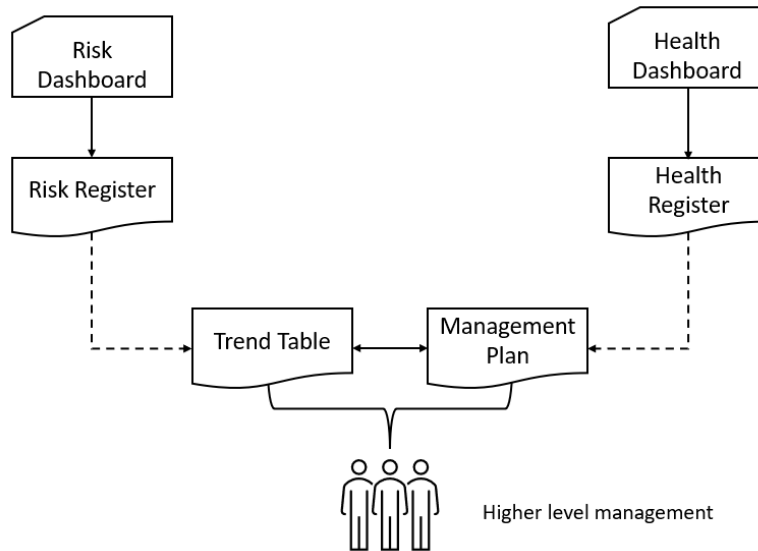The proposed model in Figure 2 shows a design on the follow-up processes.

Figure 2 Proposed model

Creation of the health and risk dashboards occurs together with the portfolio and project managers. The resulting actions/items to consider flow into the registers based on an assessment of the dashboards by the portfolio managers in accordance with the risk management plan of the company.

The dashed lines between the registers and the trend table and management plan respectively indicate that issues do not need to be mapped 1-on-1 to the trend tables and management plan for further follow-up with higher management. The flow through is defined by assessed likelihood, risk level and impact. A policy for this should be defined on the company level in the risk management plan (Zhao, 2005).

Depending on the chosen management involvement as discussed above, further actions can then be evaluated and decided.

The repetition of the cycle on a regular basis (for example a quarterly status review, with monthly review of the action plans) aligns neatly with the proposed plan-do-check-act circle of Deming as proposed by some practitioners.

2.4   Objective of the follow-up research

We ask 2 research questions in this paper:
1)   What would the ideal risk register and its follow-up mechanisms look like according to interviewees and literature?
2)   What would the ideal health register and its follow-up mechanisms look like according to interviewees and literature?

We attempt to answer both by verifying the usability of the proposed methods with practitioners from ITPPM practice. We will attempt to create and document user experiences and try to challenge respondents on the general model set-up (who should be included, how often and for how long?) and possible improvements.

3. Methodology

3.1 Conceptual Method

This research performs a second cycle in the Design Science Research (DSR) approach followed on this subject at the OU. To do this the research has two main parts. 1) Design of improved tools based on previous research and new insights from literature 2) Empirical validation of this new design.

3.1.1 Model design

DSR usually consists of multiple design phases, interlaced with evaluations episodes. Based on the goals, available budget, and findings of the evaluations (Venable, Pries-Heje, & Baskerville, 2016). The number of design phases can vary considerably. For this specific research this is the second evaluation episode, and it is not known if this will be the last one.

The design phase in this research happened in multiple steps:
1) Evaluations of findings from the evaluation of the previous version.
2) Expansion on the old model with new insights from literature using a small literature review.
3) Combination session under the lead of the promotors where insights from all participating students were combined into 1 overarching model.

In step 2 key recommendations from literature were taken on the design of registers, to develop the registers for this research. The influence from previous student's work was limited as they did not develop these registers in detail.

The same approach was followed for the development of the proposed follow-up mechanisms. These could not be based or compared to previous students work as this was not in their scope.
In step 3 it was finally decided to reduce model complexity and research scope.

Please refer to Appendix 12 for a detailed description of the steps.

3.1.2 Empirical Validation

To empirically validate the proposed model and techniques we need to gather real-world experience from practitioners, in firms with experience in the management of ITPPs. As we are looking for well-founded and motivated opinions the most appropriate method is a holistic case-study where participants first gather real-world experience with the proposed model and tools was considered to be the most suitable

A multiple methods qualitative research was chosen as it fits well with the Design Science Research approach for the study. In DSR there are usually multiple (improved) iterations of the researched model. To correctly improve a model, it is important to first gather a good understanding of its strongpoints and weaknesses. Without real-life testing and validation of the model it is also impossible to assert whether the proposed model actually provides any value to practice (Venable et al., 2016).

As the data is not available via other research strategies, a case-study was selected. Case study research attempts to understand the dynamics of a topic withing its context. It lead to rich, empirical analysis and is well suited to the development of theory (Eisenhardt, 1989).

The final method for the empirical part of this research is a single, holistic, case-study, performed with a combination of measures, 2 rounds of individual semi-structured interviews and a single moderated group discussion.

A case study allows us to go in depth, asking detailed questions. It also fits well the time and resource constraints of the research.
We seriously considered the following other research setups:

- Archival research: not possible as there are no records available on the use of different models through time and their results on firm performance.
- Experiment: not feasible due to limited time and budget and complexity.
- Action research: not feasible as within the research constraints the input of the case organization (only 1) would have firmly put us in exploratory research, which did not fulfil course requirements.

A more detailed analysis of options and motivation for our choice can be found in Appendix 10.

While a single case study rarely leads to generalizable results, the technique is optimal for increasing our understanding of the models and improving the design (Saunders et al., 2016; Venable et al., 2016). The results of the case studies performed by the students can be combined in a multiple cases case study and should provide and accurate view on the usability of the model.

3.2 Technical design: elaboration of the method

For the assessment of usability of the proposed models we need to gather real-world experience with its application by practitioners.

3.2.1 Selection of case organization

To be selected the company needs to have an active ITPP (as otherwise they cannot fill out an as-is state of it in our tool) and should not just use IT as a supporting function but as a key part to perform the strategic vision of the company. This ensures the projects within are sufficiently valuable to warrant analysis of the management process. The company should also be sufficiently large so multiple IT projects are ongoing. Finally, the company must be easily accessible for the researcher and willing to participate.

The selected respondents must have at least 2 years of experience in the management of an ITPP, to ensure they have sufficient relevant knowledge and can give recommendations for the model. We also selected people in different roles to reduce bias and provide multiple points of view.

3.2.2 Data collection

To validate the dashboard at the case organization we preferably need a supported and proven working method. The method in this research is based on Heemstra and Kusters (1996). Their method is appropriate to this research as well as they shared the same goal, namely academical observation of user experience during model use.

Data collection will be performed in 3 phases, as follows:

Session 1 – Individual Stakeholder Scores

A first meeting with a short introduction of the proposed model and research design. Followed by a semi-structured interview where the participants answer the statements from the research model on health and risk issues. Room for participants to provide additional context and argumentation for the given assessment. The completed interview is later ported by the researcher into the dashboard for analysis.

Phase 2 – Group discussion

Meeting where a selection of statements from the dashboards are discussed. Statements selected based on differences in opinion between participants and relative importance due to perceived poor performance in the current ITPP. After alignment on the score the participants are requested to provide and assess improvement measures on acceptability, feasibility, and effectiveness.

Phase 3 – Individual interviews

Individual semi-structure interviews where the participants can provide more information on their assessment of the model through the TAM-Survey. Here we are specifically looking for motivation and reasoning behind respondents' statements.

These phases combined should lead to a good overview of respondent's attitudes, experiences, and recommendations towards the proposed model. A full description of the phases is available in Appendix 13, the design of the TAM-Survey is discussed in Appendix 11.

The original design of the assessment process model calls for session 1 to be performed by participants individually, however, due to the limited maturity of this part of the model, and limited time for training available, this was replaced by a semi-structured interview.

3.2.3 Question design individual interviews

Questions for phase 2 were designed by the panel of students with support of the promotors during the group session. Subsequently they were translated to English and reshuffled for improved response in accordance with recommendations from (Saunders et al., 2016).

3.3 Data analysis

All sessions (group and individual) were recorded. In a next step an observation report was made of the group session, and the individual interviews were transcribed using a software tool. These are merged into 1 file for easier analysis. Transcripts and observations were coded using Atlas.Ti. Coding was performed by the researcher. Any questions from the practitioners raised to the researcher during the first phase were also documented to assess difficulties in the use of the proposed model.

A data matrix was used to clearly represent important coded statements from the transcripts. This table documents the coded reply per questions from the TAM-survey.

3.4 Reflection w.r.t. validity, reliability and ethical aspects

3.4.1 Construct validity

Construct validity defines whether the study measures what it intends to measure (Saunders et al., 2016).

To ensure these multiple steps were taken:

- We used common definitions

- Respondents received an orientation on the subject to align on the basic concepts
- Respondents received surveys in advance, with an opportunity to request clarification where needed.
- The used survey is scientifically validated.

3.4.2 External Validity/Transferability

No attempt at transfer of the results should be made based on this study, as the company is too specific and the tool not in a final form. In a later stage and by combining the results of multiple case studies the results of this study should be looked at again to determine if any of the conclusions are generalizable.

3.4.3 Reliability

Reliability affects the replicability of the study; would other researchers find the same results when using the same techniques? The researcher is fully employed by the case organization and works in quite close daily contact with the respondents as a pilot and project manager. This creates risks of bias by the researcher and for the reliability of the assessment.

The respondents can be influenced by their personal relationship with the research. An attempt at reducing this effect was made by clearly stating that the researcher has no opinion on the usability of the model and that we appreciate both positive and negative comments

There is also a risk here of observer effect, as the respondents may claim to find a tool useful, but then never actually use it in real life due to lack of resources, or because of uncommunicated lack of faith in the model (Saunders et al., 2016).

 The researcher should also focus on guiding the group session in such a way that all questions are answered and all participants actively contribute, avoiding any participant from becoming too dominant (Saunders et al., 2016).

3.5   Internal Validity

Internal validity is mostly associated with causal or explanatory research, however also in DSR this should be kept in mind. We performed multiple actions to ensure internal validity.

- First open coding was performed of all reports, and then the final list of codes was used for a second round of coding of all reports. This ensured coding consistency.
- We also combined multiple methods of research (survey, group, and individual discussion) to triangulate some findings and ensure consistency. The respondents also came from different backgrounds within the company providing slightly different points of view which provide added value.
- Interviews were transcribed and validated by respondents to ensure they accurately represent the respondent's opinion. This should also clarify any misunderstandings between the researcher and what respondents meant.
- Interesting differences in opinion which became apparent in phase 1 of data collection were further discussed in subsequent phases to ensure conclusions were well substantiated and founded on a proper understanding of both the model and the respondent's feedback.

3.6   Ethical Aspects

Participants were to participate, and informed that answering questions is optional. They were also informed of their right to withdraw from the study without giving any reason. Respondents were also informed that the paper would be anonymized before submission. Participants were required to sign an informed consent. Prior to starting the recording of the session participants were asked if this was acceptable to them. The original recording will also be destroyed after analysis. Lastly, changes in research design and methods, should be well documented, to improve the dependability, we will therefore also highlight all changes in chapter 5.

4. Results

In this chapter the research execution is discussed in a step-by-step manner, including any relevant modifications and observations about the research setup.

4.1   Proposed Assessment Process Model

The group of students performed alignment sessions, moderated by promotors of the thesis to ensure a similar method would he applied by all. The goal was to come up with both a process of steps for the research at hand, but also a secondary process which could be performed by the case organizations independently.

The proposed process model was based on the preliminary work of Ignacx de Cuijper and Marielle Schilperoort, with input from the group sessions. The proposed assessment process model is detailed in Appendix 16 Proposed Assessment Process Model.

Time was also spent on the design of the dashboards and registers. Significant differences in opinion were present here and the conclusion was that further research and work were necessary before a tool which could be presented to participants would be ready. The final registers significantly deviated from those proposed in this research paper, mostly for reasons of simplicity.

There was also no time invested in the downstream processes for the output of the registers as proposed in 2.3.6 Proposed follow-up mechanisms and 2.3.7 Proposed follow-up model. These were therefore left out of scope for the subsequent research phases.

4.2   Research Strategy

The process model was performed at the case organization in March and April of 2022. Changes to the proposed research model from Appendix 16 were made to account for significant limitations at the case organization.

Steps 1, 3, 4, 5, 6 and 7 were performed, important adaptations were the following:

Step 1:   Performed during individual discussions with potential participants. Scheduled time was 30 minutes. Localisation was performed by the researcher using his knowledge of the organizations processes and projects, without input by the participants.

Step 2:   Not performed due to time constraints, informed consent was distributed digitally.

Step 3:   Small introduction performed as step 2 was skipped, with room for questions before the actual interview started.

Step 4:   Performed without modifications.

Step 5:   Performed but reduced in time to 1 hour.

Step 6:   Performed without modifications.

Step 7:   Performed but modified to interview instead of survey.

Compared to the results of the literature study the researcher had to limit the scope of the research to the filling out and assessment of the proposed registers.

These limitations resulted in some potential adverse effects on the research quality. Namely, the reduction in time and preparation for participants may have made it more difficult for participants to understand properly the goals and themes of the research. It also limited the amount of time that could be invested in the assessment of company performance and the time available for the definition of improvement measures.

4.3   Selected Case and Participants

The case study was performed at a large airline from the Benelux area with operations on 4 continents and a significant IT landscape and ITPP. The size of the ITPP is large because of the restructuring which is ongoing at the organization, partially because of the Covid 19 pandemic, which required a strategic rethink of how airlines perform business. It is also a complex case organization as the airline is part of a larger group with different IT systems which need to be integrated.

6 people were approached about participating in the research, unfortunately only 3 could or were allowed to make time by their superiors for the research. The condensed research scope and timeline were proposed to participants to ensure some participation, and still considered too long for some. Main reasons for not participating were:

- Lack of time of participant
- Not sufficient knowledge on the research subject at the case organization
- Lack of resources at the department, leading to a veto by superior.

Additionally, 1 participant also stated on multiple occasions that, even with the scope and time reduction, the invested time was far more than expected and normally allowable.

The participants and case organization all complied to the requirements set forth in 3.2.1 Selection of case organization.

The selected participants were the following, in hierarchical order from top to bottom:

Corporate Development Manager (CDM)

Degrees in commercial engineering and business administration, multiple years of experience as financial auditor, and more than 5 years' experience as (deputy) director of operations. Developed the entire project management process at the case organization. Currently oversees strategic projects in all phases and streams of the organization from inception to completion, and strategy development of the organization.

IT Business Manager for OPS (IT Bus. M for OPS)

25 years of experience in the aviation industry, in both operational and IT functions, currently manages all IT applications with a significant link to daily operations. This includes the high-level management of all projects at operations with a significant IT stake.

IT Development Manager (IT DM)

20 years of experience in product development and product management in various industries. Currently head of the development teams, overseeing their task distribution as they are a shared resource across the entire organization.

4.4   Research Execution and observations

In this section we discuss details of the research execution and important observations at each step. We focus on the important steps which were performed and their analysis. We follow the sequence of sessions as adhered to in Chapters 3 Methodology and Appendix 13, deviating from the proposed research process from the group sessions, with the limitations that this brings.

Full interview protocols are available in Appendix 14, the creation of questions and validation of these is described in Appendix 15, along with the localisation process, for the first 2 sessions and Appendix 11 for the TAM-survey used in session 3.

During all sessions the researcher functioned as an observer-as-participant (Saunders et al. (2016)), combining the roles of researcher and moderator.

4.4.1 Session 1 - Individual Stakeholder Scores

Session 1 was performed digitally for 2 of the 3 participants, and physically for 1. The time for the session was reduced form the proposed 1 hour to 30 minutes, including a presentation of the research and the proposed model. The sessions all lasted for their full extent but also efficiently covered all required statements comprehensively.

All 3 sessions were recorded, and extensive notes kept by the researcher to allow for detailed analysis of respondent's replies. These notes specifically aimed to capture participants general feeling towards the researched model.

Localisation (by the researcher) was limited to translation. Using his knowledge of the organization all statements were deemed to be relevant in principle to the organization. For maximum adherence to the proposed model. However, multiple participants noted that more localisations should take place. All 3 participants stated some form of discomfort with the proposed statements as they were deemed to be too vague, too academical and not relevant to real organizations.

During the interview the questions were displayed on slides along with proposed structured evaluations of the statement to support the discussion.

Questions were shifted to a more appropriate sequence for personal interviews compared to the proposed dashboard, keeping sensitive subjects for the end of the respective chapters (Saunders et al., 2016).

Where necessary the researcher provided additional scope and information to the questions. With this help and after the first few questions the process progressed quite smoothly until we reached the risk factors. All 3 participants again raised concerns that it was quite difficult to assess the "future" state of the ITPP with the context and scope given by the research model. Additional help was needed by the researcher at this point, with clarifications to consider the future as follows: "What is the chance that this risk occurs in 2 years from the current date and knowing what you know now about the ITPP, and the projects currently being undertaken to improve its performance".

During and at the end of the session room was left for additional questions by and to the participant. To clarify certain items and to gather initial feedback on the participant's experience.

The IT DM and IT Bus. M for OPS seemed to have less difficulty in general with the questions in this section then the CDM, who deemed she was less well placed to answer some questions (only person to use the "no opinion" or "not relevant" options multiple times). The CDM also frequently voiced

concerns that the questions were vague or irrelevant and should focus more on a organization/departmental view.

After the session the results were combined into the dashboard (a single structured Excel sheet) by the researcher for qualitative analysis. The assessments of individual participants were combined where possible into representative averages or left open when no sensible average could be deduced for further discussion in the group session.

4.4.2 Session 2 – Group Session

Before the session all participants received a list of selected statements for further discussion and items which would not be further discussed. Participants were requested to provide feedback and propose changes, but none were received.

The list of items for further discussion was limited to 6 with 2 'maybes' based on time available. The assessment was based on the variation in scoring and perceived importance of the criteria.

The criteria up for review were well documented in the proposed model with prior evaluations and important statements underlying the evaluation of each participant for ease of reference and to guide the discussion.

The group session lasted 1 hour with all participants present digitally. Due to time constraints only 5 of the proposed 6 items could be discussed, with 1 only discussed very briefly and others more extensively. This was partially due to the limited experience of the researcher in moderating such discussion. At the end the session was a bit rushed as the time spent on the first 3 criteria was far longer than anticipated, rushing the last 2 to stay within the allotted time. All participants left the meeting exactly on time to proceed to their next calls.

The session was fully recorded and transcribed (transcript not manually corrected and not included with the paper) for further analysis of the session. Additionally, the researcher made extensive notes and observations.

In general, it was difficult to get participants to focus on the aligned evaluation of a parameter of the group, as all immediately jumped into the improvement process. Another observation was that multiple times the participant revised their evaluation as they felt like they misunderstood the question during the first session due to the difficulty of the statements and the associated scope. This only occurred on the Risk part of the dashboard.

During the post-session feedback however, all participants said they enjoyed the session and found it interesting and challenging.

After the end of the session the results were compiled into a clear management summary and forwarded to all participants for feedback, again no feedback was received. Some items were however brought up in the days after during Management Board meetings at the case organization, indicating a large sense of relevance. The CDM also again specifically asked for input on future improvements and an action plan for critical issues in the researcher's opinion.

4.4.3 Session 3 – Individual Interviews

Individual interviews were prepared in the week after session 2 to ensure a fresh memory. During the session participants were asked to evaluate the proposed model on the questions developed by the researchers, based on the TAM-Survey (Davis, 1989). Again, these were conducted digitally. The foreseen timeframe was 30 minutes, which was found to be largely sufficient. Participants had been

reminded already before and again at the start of the session that this was the part on which the dissertation focusses, with the first 2 sessions being an illustration of the proposed model so they could evaluate it. It was also made explicit that the researcher not only wanted to know their assessment but also why and what could be improved for future iterations.

The interviews were transcribed in full (with omission of a few irrelevant sections, as indicated in the respective transcripts) using the MS Teams transcription functionality. Transcripts were subsequently manually corrected, and some timestamps removed to ensure a continuous reading experience. These transcripts were sent to the participants for feedback and corrections, no feedback was received.

The full transcripts are available in appendices 18 through 20.

4.5   Data Analysis

The transcripts were coded by the researcher in 2 different ways. Firstly, a sentiment analysis was performed for each participant on each TAM (and additional) questions asked. Here the researcher attempted to evaluate whether a response was mostly positive, mostly negative, or neutral. Cases where the answer was not relevant to the research model or where participants indicated that they could not yet form an opinion were left blank.

In a second round of coding reasoning and context behind the scores were coded, following an in-vivo approach. This allows for a color-coded data matrix presenting an overview of both the sentiment and the context behind on each assessment. This step was performed over multiple iterations to ensure consistent coding across all transcripts.

The context was split up into different themes (code groups), with a code assigned to each topic within that theme. Details on the coding process and the resulting codes are available in Appendix 17 Coding System and Results.

Below we discuss the results of the TAM-survey in 2 blocks, the sentiment analysis, and the thematic analysis.

4.5.1 Sentiment Analysis

Model Usefulness

Participants were generally positive about the usefulness of the approach. Indicated by statements such as "the process identified and resolved structural problems that we have … "(IT Dev M.) and "it is a more iterative and stepped approach which allow dialogue and that will improve the quality of the outcomes" (IT Bus M. for OPS).

There is a significant difference in this assessment between interviewees. Where more operational staff considered the process to be promising, senior management was less enthusiastic with the approach and had serious concerns about the difference between an academic approach and a real organization. Senior management made multiple statements such as "it is valuable in a continuous improvement mindset, but not this process" (CDM) and "I think it is good to adapt some of the more purely academical approach …"(IT Bus M. for OPS) This sentiment was returned by 2 of the 3 participants.

Positivity on the model usefulness stemmed from the fact that the process was considered relevant to the organization (by all participants) and that the participants expected mostly positive outputs

such as better team focus, alignment, and effectiveness. This all based on the assumption that the analysis is performed regularly.

Model Ease of Use

Participants were generally more negative on the ease of use of the proposed model. The proposed model is "not rocket science, learning the model would be easy" (IT DM), and all participants indicated that they could easily master participating in the analysis. However, the questions for evaluation received unanimous, negative feedback. This was indicated by statements such as "for me this scoring and the health factors and the risk were for me really too far from reality and all the questions that you're asking are sometimes repeating and are too far from the reality from, from the field."(CDM).

Questions should be changed, were repetitive, too academical and not clearly scoped. It was also noted that it is extremely difficult to assess a situation in the future with the incomplete frame of reference offered by the model by the IT DM. "I think it's the the second part of the second session of questions should be in a way that in the ideal world."

All participants raised that they want more time to get more to grips with the process before being able to accurately assess the ease of use. Specifically, one participant stated he "wants to be in the driver's seat first" (IT Bus M. for OPS).

4.5.2 Thematic Analysis

Output

Participants mostly expected positive outputs from the proposed dashboard. They expected, better clarity and alignment on prioritization. This should translate in improved capacity management for the development teams and better resource planning. This then turns into improved quality of the delivered product as stated by the IT DM. "my job is easier because I don't need to do the prioritization myself. So by doing capacity management priority and the planning and accordingly we have sufficient time to do our job or we can identify where we have issues and can find additional resources."

Interestingly the participants also did not only focus on the improved quality of the deliverables and work management but also indicated specific, positive, team effects from the application of the dashboard such as "I can give the right focus to the, to the, to the team." (IT DM.) and "the alignment amongst the team would improve as well on the priorities on the focus items and so on" (IT Bus M. for OPS) This should result in better team work-life balance and effectiveness.

One participant also indicated some disapppointment that the process did not result in actionable ideas or a management plan, the translation to actionable ideas was missing. A similar opinion was also given by the CDM.

None of the participants, irrespective of which role they saw themselves in during the process (giving information or assessor), felt any responsibility for the product. The IT DM stating that that was a job for senior management or should come externally. Senior management indicated that "the results should come bottom-up" (CDM).

Model

All participants saw relevancy in the discussion, especially for the case organization. The proposed model creates a framework for structural dialogue and iterative improvements of the ITPP "I think

because of the process you will come to more, quality conclusions in a collaborative way because you include more people and have a structured dialogue" (IT Bus M. for OPS).

This was unanimously considered positive, although participants also raised that this is typical for a continuous improvement process. A dialogue with partners and departments was expected to yield higher quality conclusions than an internal dialogue. The IT DM stated specifically that "the process is key" to unlocking possible ITPP performance improvements. All participants believed in the value of similar processes, however the CDM also stated, "I do not see the additional value of the current process, but I do see the value of continuous improvement as something to be developed at our company." Inconsistency

There was no clear indication from the other participants whether they thought that the proposed approach yields benefits compared to other systems such as Lean and Six Sigma.

All participants valued the repetitiveness of the model. "if there's a framework in which this process can be repeatedly executed that I think it's it would, yeah, it would be more efficient and help *my productivity*" (IT Bus M. for OPS); however, this could not be validated against the real world as only 1 assessment was planned.

The main difficulties encountered by the participants were a lack of shared baseline for the assessment making it hard to score statements on chance/effect or importance ("you have to make sure that you have a standard or a reference" (CDM)).

Giving an accurate category of performance (goes well, doubtful, …), risk or chance was considered difficult without a shared baseline. A possible solution to this was proposed by the CDM, referring to poker game prioritization (Grenning, 2002). This was also observed by the researcher, some participants were more likely to give assessments on the extreme end of the scales than others.

The CDM also mentioned that the model should be easily adaptable to people with limited experience and flexible to different departments and contexts, as rarely projects are linked only to IT. This would generate the added benefit of being able to compare apples to apples. "you need tools, you need to make sure that all the parties speak the same language etcetera, otherwise you compare apples with pears and it's not working" (CDM).

Performing the model was considered easy by all participants in the roles in which they saw themselves. The IT DM manager considered administration and result generation to be a task for external parties/process analysts to pull people out of a defensive mode and to reduce biases.

All participants also indicated that they wanted some additional time, mostly in the group phase of the process, with 1 also indicating he would have preferred a written preparation.

Question Opinion

All participants were negative on the questions and flexibility of the process, saying they were inflexible, too academic, repetitive, vague, or lacked scope "You have to adapt to the context, you have to adapt with the with current market situation" (CDM).

All participants called for a reframing of the risk statements and/or a full revision of that part of the dashboard. It was unclear whether they should be assessing IT projects or projects with an IT stake (as most projects are business-oriented). On the health part of the dashboard participants were slightly more positive than on the risk part.

5. Discussion, conclusions and recommendations

In this part we attempt to link the results from the data analysis and process execution to a comprehensive narrative, drawing on combined factors and observation to generate valuable conclusions and directions for future research. We also attempt to link the results to the original research question.

Some additional ways forward are proposed by us based on what we encountered during the research execution.

5.1 Discussion

Unfortunately, the results of the group design sessions which resulted in the final research process left out the proposed registers and their associated follow-up mechanisms as proposed by this dissertation. They could therefore not be evaluated as originally foreseen. This introduces limitations on the possible construct validity of the registers as proposed to the group of participants.

Instead (due to time and complexity limitations), it was decided to focus on the actual process model and the statements for evaluation. The development of a workable dashboard and tools were hampered by the drop-out of one of the students and therefore this also did not progress to a mature enough stage for testing by the case organizations.

During the practical implementation we chose to stick as close as possible to the proposed model and its statements as proposed by the group. Deciding against further tailoring it or improving specific questions or guidelines unless it was specifically requested during the interview. As the process is envisaged to be used by participants without outside involvement this was expected to provide a more accurate assessment of the usability of the process in its current state. It also provides a better base for comparison of multiple case studies.

All statements as proposed by the model were considered relevant and recognizable by the researcher. This assumption was later proven to be correct, as all participants understood the statements, but were confused by the scope and apparent overlap between statements.

The most recurring comment shared by all participants was that the statements are not suitable to a real business as they were too vague, irrelevant, or repetitive. They also caused confusion during the group session, where a participant had to walk back on a previous statement on multiple occasions due to misunderstanding.

Many of the replies to the statements were virtually indistinguishable from each other. Indicating again that there could be significant overlap in the root-causes. This was again illustrated during session 2, where the improvement measures often focussed on the same topics, such as improved work-life balance, improved project information and improved project prioritization. This may indicate a need for more localisation and a change to the questions in future iterations.

Unrelated to the content of the questions, participants indicated that they needed a better scope of what was being evaluated in each statement and which premises to consider. A concrete example from the IT DM was to scope risk questions as "what is the chance of risk X occurring given the current situation, knowing the current improvements already being developed, within 2 years".

From the current process approach, with the assessment being envisioned as being performed by participants individually, the statements indicating a need for an external point-of-view during the assessment are interesting. They are also new compared to previous research. Individual completion

may raise issues with the proposed written individual preparation of the dashboard. An assessor would also help in clearing out of misunderstandings, as was often required during this research.

As all participants raised discomfort with the risk section of the dashboard the researcher believes a thematic approach following a chronological assessment of overlapping statement in health and risk might be more suited and comfortable to management. The list should also be purged from items which overlap within one section (either health or risk) as these were considered to be difficult to differentiate between by participants.

As a concrete proposal the researcher puts forward the following implementation of statements in the dashboard.

Table 1 - Proposed Research Sequence

Step	Statement	Scope	Output
1	There are sufficient resources available, budget, machinery, personnel with the right skillset.	Present Time	Evaluation and context, including currently planned improvements.
2	In 2 years, how do you expect the access to resources to evolve?	In 2 years, including the expected completion of the planned improvements.	Assessment of future state, including degree of trust in proposed improvements having the promised output.
3	How do we improve on this measure?	Any improvements that can be thought of.	Filled out register with basic ideas.
4	Are these improvements possible?	Addition of constraints	Assessment of effectiveness, feasibility, and acceptability.

On the positive side, all participants considered the process easy to adopt and participate in. This is good for the future adoption of the dashboards outside of a resaerch context.

An interesting observation is that naturally a large focus during the discussion on usefulness seemed to be directed more to the porposed process outputs (content of the registers) than the process itself. For example participants stated on multiple occasions that the process would provide better priotization and focus to the teams, where this should be more linked to an output of the improvement measure more than the assessment process. It is clearly difficult for participants to dissasosciate the 2 parts. Participants also indicated that they missed the actual outputs at the end of the research, indicating that the outputs are considered relevant and important.

Finally, it was also not possible to assess whether participants considered that the proposed process would be a better continuous improvement process than those that already exist (with 1 participating that this was specifically not the case).

5.2   Reflection

Some sidenotes to the method and research can be made, firstly there is the link between the researcher and the participants. Both the IT Bus. M for OPS and IT DM have had significant collaboration on projects with the researcher both in present and past, which might skew their assessment of the dashboards, although it was clearly stated that they should not take this into account.

Furthermore, there is also the observer effect, where now participants indicated in general that they found the process useful, but it can not be verified whether it will actually be performed without the researcher present.

Participants also indicated that the time was too limited, this was caused by the need of the researcher to condense the time of research down from the proposed model to get participant buy-in. This may also negatively affect the participant's experience as there was only a reduced amount of time for explanation of the research thesis.

It would be interesting here to compare the results from the other students to the findings of this research, to determine to what extent the confusion may have been caused by the reduced time allocated to the research when compared to the proposed ideal process.

The assessment method felt forced, trying to have participants score their assessment. This was done to remain close to the original model, with individual completion, but resulted in differences in baseline and severity assessments. An assessor/interviewer role in the process execution would be helpful here.

The limited experience of the interviewer also caused some issues, most notably during the group session, where time management was difficult, but also during the individual interviews where it was hard to strike the balance between note keeping and listening/asking of follow-up questions.

Coding was performed over multiple iterations to ensure consistency however it would have been more accurate still if the coding had been performed by multiple researchers independently.

5.3 Conclusions

The original research question of this research was "what do ideal risk and health registers look like?" and "how can a company implement and follow-up on improvement measures based on the analysis of risk and health registers?". The overarching research at the Open Universiteit centres on the question "How can companies use a health and risk dashboard to improve their ITPPM?".

Unfortunately, due to the restrictions on this paper it was only partially possible to answer the research questions.

We successfully designed risk and health registers and their associated follow-up mechanism in accordance with previous research. These were however not evaluated during the empirical phase of the research, which focussed on the design of the dashboards, used a simplified understanding of registers, and disregarded their associated follow-up mechanisms.

Similar complaints, on the lack of clarity in the statements, and the occurrence of participants walking back their statements were already present in the reports of Schoeman (2021), Muradin (2021) and Michels (2021), with the latter 2 also specifically highlighting the lack of context for some statements. This highlights a recurring issue with the proposed model and introduces a clear need for future researchers to look intently at the line and process of questioning.

The above leads the researcher to conclude that the proposed process is not yet ripe for operational use by organizations, specifically the following still needs to be improved:

- Clarity and scope of dashboard statements
- Overlap of the statements
- Process sequence (health factors – health register followed by risk factors – risk register clearly caused confusion).

- Creation of the dashboard and associated tooling
- Clarification on the need for an assessor and his/her position within the organization
- Clarification on the responsibility for the process outputs

The most common observations on difficulties with performing the dashboard could be solved by working on the above. The issues encountered due to the lack of time can easily be resolved by allocating more time to the research effort, but this demands a larger buy-in and commitment from the case organization.

In general, though, participants found the exercise useful and relevant, indicating support for such efforts in the future. They expected large positive benefits from such a structured working method, not only on the baseline of the organization but also on project quality, worker retention and happiness. They also thought the general principle would be relatively easy to implement and perform independently from the researcher. Both are positive for future adoption of the proposed model. This answers to the research question that the process under development is a significant improvement to what the case organization is currently doing to manage its ITPP.

5.4 Recommendations for practice and further research

Additional research on the proposed model is required, specifically to come to an improved process (such as the one proposed by us) which is more easily understandable. Time should also be spent o the development of the necessary dashboards and tooling to be able to accurately simulate an organization using them.

The developed registers and proposed follow-up methods should also be tested and implemented into the model. This full prototype should then be evaluated at an organization.

Extensive buy-in from one or multiple organizations will then be necessary, where the entire process can be performed multiple times over a certain period. This to accurately estimate the value of the output of the process. The value is not in the created discussion, but in the effect on the bottom-line of the ITPP as stated by the CDM during a session 1 interview.

Multiple statements also indicated that the process was seen as a regular continuous improvement process, but less developed and mature. A comparative analysis should be made to evaluate what benefits (if any) the proposed process has compared to other existing continuous improvement processes such as Lean and Six Sigma.

Finally significant effort should be made into clarifying the scope of the proposed process. Amongst the top priorities there should be clarification on:
- IT-projects versus projects with an IT-stake,
- timeline and frame of reference for the risk register,
- whether statements are on technical or managerial topics,
- Work in a more practical approach, reducing the number of questions to reduce the time spent while maintaining a similar level of information
- Ownership of the process and its outputs.

This could be achieved by investigating the proposed thematic approach. The proposed improvements might generate the interest needed for a more extensive buy-in need from a organization.

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Appendix 1   Definitions

Final definitions used in the main text of the paper were chosen because of their prevalence in literature or their use in the preceding research, to ensure consistent terminology in the full research body.

Risk Register

- A repository in which outputs of risk management processes are recorded (PMI, 2021).

- The project risk register is a document that is kept under strict configuration control, usually within a proprietary database. It contains a list of adverse events that might occur, the likelihood, impact, actions and linked contracts (Willams, 1994).

Healthy IT Project Portfolio

- An IT-project portfolio is healthy if the composition supports the strategic initiatives of the company and ensures the creation of value and growth in the long term, while optimizing resource allocation (Wissenburg, 2015).
- Health is defined as a com-bination of the assessments made by individual senior managers, based on the management value, technical quality, investment, importance, and use of each of the systems in the manager's domain (Weill & Vitale, 1999).

Health Register
- Adapted from risk register: a repository in which outputs of health management processes are recorded.

In our case specifically the health factors affecting the portfolio according to an assessment by the project managers and portfolio managers. It also includes the impact and owner.

Risk

- The PMBOK defines risk as an uncertain event that could have a positive or negative outcome on a project cost, schedule, or scope objectives (PMI, 2021)).

Risk Management

- Risk management involves the identification and balancing of risk factors (environmental, human, legislation, compliance, etc.) to efficiently and effectively enable portfolio value delivery (PMI, 2017b)

Strategic Risk Appetite
- An organization's strategic risk appetite is defined as the amount and type of risk that an organization is willing to take in order to meet its strategic objectives (PMI, 2017b).

Enterprise Risk Management (ERM)

- A means by which companies can manage the variability of their performance due to internal and external uncertainties (i.e. threats and opportunities) (Arena, Azzone, Cagno, Silvestri, & Trucco, 2014).

Project Risk Management
- Project risk management (PRM) is the systematic process of identifying, analysing and responding to risks (i.e. project-related events or managerial behaviours that are not definitely known in advance, but that have the potential for adverse consequences on a project objective) (PMI, 2017a).

(Project) Portfolio

- A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives. The portfolio components, such as programs and projects within the portfolio, are quantifiable (e.g., identified, categorized, evaluated, prioritized, authorized). Also, the portfolio components may be related or unrelated, may be independent or interdependent, and may have related or unrelated objectives. Portfolio components compete for a share of some or all of a set of limited resources (PMI, 2017b).
- Project portfolio is a group of projects that share and compete for the same resources and are carried out under the sponsorship or management of an organization (Martinsuo & Lehtonen, 2007).

(IT project) Portfolio management

- The centralized management of one or more portfolios, which includes identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work, to achieve specific strategic business objectives (PMI, 2017b)
- a continuous process to manage IT project, application, and infrastructure assets and their interdependencies, in order to maximize portfolio benefits, minimize risk and cost, and ensure alignment with organizational strategy over the long run (Kumar et al., 2008)**.**
- defined as the simultaneous management of the whole collection of projects as one large entity (Frey, 2014).

IT Project
- An IT project is a nonrecurring temporary endeavour requiring a significant amount of IT resources and/or significant changes in the IT infrastructure or application landscape (Frey, 2014).

Appendix 2   Full results of literature study

The used queries, along with their details can be found below.

Queries were limited to the field of business and computer science, since otherwise excessive hits were often generated by research in the fields of economics, finance, and medicine.

Only publications in English were considered for review. The full list of filters is as follows:

- English only
- Published since 01/01/2011 to only include recent work
- Fields business or computer science
- Peer-reviewed articles

Queries

Queries were performed in the OU library. Subsequently relevant papers were downloaded through the OU library, Researchgate and the built-in paper search function of EndNote.

Query	Hits	Reviewed	Used	Comments
"risk register" + "portfolio management"	11	9	6 (Arena et al., 2014; Bowers & Khorakian, 2014; Breault & Cleveland, 2020; Christoph Albrecht & Spang, 2014; Ferreira de Araújo Lima et al., 2021; Trzeciak & Jonek-Kowalska, 2021)	
"Portfolio health management"	0 (relevant)		0	All hits referred to medicine
"Health register" + "portfolio management"	0		0	
"Health register" + "project management"	1		0	All hits referred to medicine
"Risk register" + "project management"	105	10	4 (Bowers & Khorakian, 2014; Crispim et al., 2019; de Bakker et al., 2011; Liu, 2011)	
"Quality improvement register"	1	0		All hits referred to medicine
"Portfolio risk management " + "project"	82	3	0	Relevant hits were found in other queries before
"using a risk register"	13	2	2 (Drummond, 2011; Liu, 2011)	

Backward snowballing

Primary reference	Result

Arena et al. (2014)	Caron and Salvatori (2015)
Bowers and Khorakian (2014)	Willams (1994) Zhao (2005)
Blomquist and Müller (2006)	Cooper et al. (2000)
Frey (2014)	Angelou and Economides (2008) De Reyck et al. (2005) Martinsuo and Lehtonen (2007)
Kumar et al. (2008)	Chien (2002)
Mithas et al. (2012)	Melville et al. (2004)
Wissenburg (2015)	Weill and Vitale (1999)

Papers provided by assessors

Blomquist and Müller (2006); De Reyck et al. (2005); Frey (2014); Keizer, Halman, and Song (2002); Koh (2011); Kumar et al. (2008); Michels (2021); Muradin (2021); PMI (2017b); Schoeman (2021); Wissenburg (2015)

In addition, some often cited and standard works of the field were also referenced and evaluated for their usefulness in this research. this evaluation was based on the following parameters:
- Mentions of health register (or matrix)
- Mentions of risk register (or matrix)
- Mentions of project risk management
- Mentions of portfolio risk management
- Citations of dissenting voices
- Mentions of portfolio health management
- Mentions of project health management

Appendix 3   On adding complexity to our registers

During our literature review we already discussed that some authors recommend the inclusion of more (or fewer) parameters into a register. Since the discussion was not appropriate for the main text, we elaborate on the subject here.

Caron and Salvatori (2015) recommend including stakeholders in risk registers by estimating events as a likelihood and multiplying the financial impact by the likelihood to estimate the expected value and priority that should be given to the issue. However other authors highlight those risks are often hard to accurately determine, with some research suggesting it is too complex, suffers from biases and is no more fool proof than throwing darts at a dartboard (Drummond, 2011; PMI, 2017b). Finally, many events also have a relatively small likelihood of occurring, but they either do or don't which makes only allocating a "partial" budget to the occurrence based on its likelihood unrealistic and or unfeasible. These are the so called tail-end risks, risks with potentially catastrophic influence but very low probability (PMI, 2017b).

One of the key inhibitors of improved ITPPM is quoted as being a lack of proper tools, or that the existing tools are not known and used. This highlights the requirement that our dashboard and risk registers should be user friendly and easy to apply for organizations, since complex techniques are not easily adopted in the real world (Breault & Cleveland, 2020; Trzeciak & Jonek-Kowalska, 2021). Another parameter to take into account is the financial limits of many small and medium enterprises, which do not allow for the investment in proper PPM software and tools (Ferreira de

Araújo Lima et al., 2021), with most companies only adopting Microsoft Excel and Project (Breault & Cleveland, 2020).

Similarly, we should be careful of creating a culture where risk registers are used to note trivial things for the purpose of "checking boxes", or where responsibility for risks is hidden by following excessive structures and programs (Christoph Albrecht & Spang, 2014; Drummond, 2011). Less is more is also the opinion of Bowers and Khorakian (2014); Trzeciak and Jonek-Kowalska (2021), the amount of less depends on the type of projects, their stage and the quantity of risk. There is reason to believe the marginal gains in portfolio value by further increasing ITPPM techniques reduce as more advanced techniques are added (Christoph Albrecht & Spang, 2014).

Because of the above considerations, as well as with the goal of limiting our scope, we decided against including additional factors, following the principle of "less is more".

Appendix 4   Prioritizing in registers

Drummond (2011); Grishunin, Suloeva, and Nekrasova (2018); PMI (2017), amongst others, recommend the addition of a "risk priority number" (RPN) to further highlight which risks should be tackled first and should be top of mind to the portfolio manager or communicated earliest to the higher management so actions can be taken. This is a big area of research in and by itself and is discussed in more detail by another research line in this field at the OU.

Appendix 5   Plan-do-check-act circle of Deming

The Plan-do-check-act circle (PDCA) of Deming was mentioned in previous research as a possible follow-up mechanism for recommendations. The PDCA idea is often adapted in business cases for a variety of purposes.

The general principle is shown in Figure 0-1. This principle underlies much of modern quality control, whether in management, manufacturing, or other areas. The process is split up into 4 parts which iteratively repeat until an issue is solved.
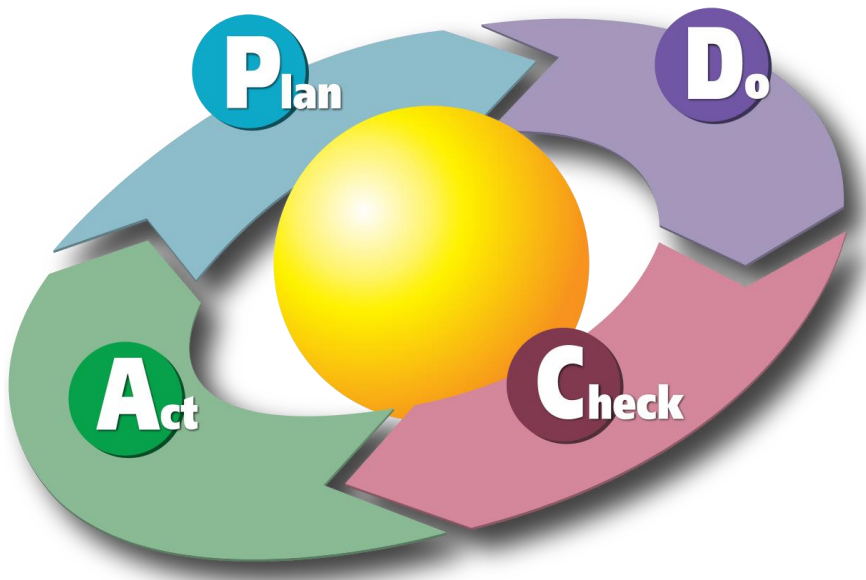

Figure 0-1 PDCA circle by G. Bulsuk (http://www.bulsuk.com)".

1. Plan
   This is the moment where an analysis is made of the problem, often in specific quantitative or qualitative terms. Based on this a desired result the scope of the changes and the to be state is defined, which is measurably different from the existing. Finally, actions are defined to move from the current situation to the desired to be situation.
2. Do
   The designed solutions are performed.
3. Check
   The results of the do phase (by analysing the new state) are defined to compare expectations to reality. This evaluation then leads to the next phase.
4. Act (commonly referred to as Adjust)
   Deviations between the desired situation and the new realized situation are reduced by further minor adjustments. The new process also has to be documented, standardized and kept avoiding a return to the previous situation. If major discrepancies are still found, the circle returns to step 1.

After step 4, depending on the identified remaining issues, the PDCA is either complete (problem solved) or a new round is started to further improve. In general, this is referred to as a continuous improvement cycle, meaning that the process is continuously refined and improved, without ever really calling it "solved".

Appendix 6   Trend Logs

This appendix discusses in more detail the design and use of trend logs. What follows is entirely adapted from Zhao (2005). Whereas Zhao focusses on projects, for our purposes the concept has been adapted to suit ITPPM.

Zhao defines a trend as "An idea or change, whether or not the change is fully accepted or developed, that has been directed or contemplated as a result of legislation, management action, more definitive design, design changes, field condition changes etc".

Trend logs are a system to evaluate and forewarn management on changes (trends) which affect the cost of a project or portfolio. In general, only items with a chance of occurrence over 50% (threshold to be defined by management depending on the risk tolerability level) will be considered for a detailed analysis. Trend logs should be generated and reviewed in frequent intervals (author proposes once monthly), to ensure proper warning is given to the management *before* the fact.

In a next step he recommends applying Monte Carlo simulation for forecasting, this we will however disregard for the scope of this paper due to the complexity. Properly performing a Monte Carlo simulation requires certain events and likelihoods to be predicted as well as their influence on the outcome. As noted above this is not always feasible and complexity does not always add value. We also refrain from its inclusion since practitioners noted they prefer simple and quick to use methods (Breault & Cleveland, 2020; Trzeciak & Jonek-Kowalska, 2021).

Without a detailed analysis process, it is still possible to marry trend logs to registers, high risk/impact items can then be further analysed at a later stage. Both the register and the trend logs contain response actions, which can either be transfer, elimination, acceptance, or mitigation. Costs associated to an action will be documented in the trend log. At the same time, it is not the idea that items which are in the register, but not in the trend logs (due to low chance of occurrence or impact) are no longer monitored. These should still be regularly reviewed, and assumptions/categorizations should be updated as required.

An example of a trend log can be found in Table 0-1.

The primary use of the trend log is to warn higher management about changes and if necessary, provide an overview of options to choose from.

Secondly, the results of the trending program are the basis of a review on cost variance between planned and actual costs on a program. A critical part of the trending program is the recording of changes, who requested them, why they were initiated, and what kind of impact they cause. The insight from reviewing this can later serve to analyse how portfolio component selection is performed and to produce more accurate estimates for new components.

Table 0-1 Trend Log with example

Trend No.	Description	Date	Change requester	Cost impact	Status	Details
1	Risk of delay due to lack of resources, requires extra FTE	xx/xx/20xx	Portfolio Manager	100k/year for 2 years	Elimination in progress	We risk delaying multiple projects due to a shortage of qualified staff, a hiring process

						has been set-up to resolve the issue.

Appendix 7   Management Plans

Below follows a short description of risk management plans, for the purpose of this research, this can also be considered as a health management plan. Since the concept is in general quite open and well-understood, and due to some time constraints, we limit ourselves here to the highlights. Action plans/management plans are the single most popular item when planning a response in companies (Crispim et al., 2019).

A risk management plan states the following (Keizer et al., 2002):

- Who is responsible for the risks?
- How much time and resources will be required to deal with the risks
- How will progress be monitored and reported
- An action plan (sometimes split into separate documents, dependent on the scope).

The PMI (2017b) considers a risk management plan on the portfolio level to be more about how risk-related data management is performed, and how managers will use the information to manage risk. This is on a higher level than what is generally considered a risk management plan from our reading of the literature.

 For this paper however we prefer the first definition and expect the roles for managing risk as being known.

Appendix 8   Differentiating health and risk factors

As highlighted in chapter 2 we infer a distinction between health and risk factors on the level of portfolio management. Specifically, we consider health factors to be more relevant to the conception and terminations of portfolio components, where risks are more closely associated with execution and success or failure of components. This distinction comes from a reading of the lists proposed by Wissenburg (2015).

It should be clarified here as well that the reading of the similarities and differences between both lists and the potential cause of these is by this author and needs to be corroborated by additional research and validation, which forms the basis of another research line at the OU.

Where health is more defined on the level of project portfolio component selection/conception and causes for termination, the risk factors seem to be linked more to the execution and reasons for failure of projects. Examples include indecisive management, lack of personnel (stability), poor execution, poor quality of management, constraining politics, insufficient agility to changes in the environment.

Health factors are broader, such as portfolio component selection, use of future proof technology, prioritisation based on vision and strategy.

The influence of health problems cannot be underestimated since they are less about technical challenges and easily solvable problems than about issues of the very concept of some portfolio components and the broader ITPP context.

For example, analysis can show that some projects do not align with the vision and strategy of the organization and will therefore have to be cancelled in order to redistribute the value creation with the strategy of the organization. If the organization notices that it regularly starts projects which do not align with the vision or strategy pf the organization, it should also look at how it chooses which projects are started. The results of such a review can lead interesting and promising projects being cancelled, or in the future promising projects not being started due to misalignment with the vision and strategy for the organization. Financially interesting alternatives should be considered here to reduce the "sunk-cost" of such projects.

However, this paper does not deal with the actual follow-up of such projects. What we do try is to detect these kinds of recurring issues, their cause and then come up with an improvement measure to avoid similar projects or issues from recurring in the future.

Where health factors overlap with risk factors is when they discuss items such as access to or lack of resources and interdependencies between components. This might imply a role for project managers to escalate the encountered risk factors to their portfolio managers, whereas health issues are more clearly in the domain of the portfolio manager from the start.

The proposed split is used in this paper to recommend follow-up actions and processes and their key participants.

Appendix 9   Summary of used Articles

Here we provide a short introduction and take-aways from a selection of papers. These papers are those which were most influential on the design of our model.

Angelou and Economides (2008)	A Decision Analysis Framework for Prioritizing a Portfolio of ICT Infrastructure Projects
Summary	The paper tackles the issue that the valuation of ICT projects as most used frameworks only look at quantifiable criteria but this often leads to qualitative criteria being missed out on. The paper combines the real options and analytic hierarchy process into one decision making process.
Key takes	Used to support the requirement of business strategy and portfolio alignment.
Arena et al. (2014)	A model for operationalizing ERM
Summary	The paper proposes a model for operationalized Enterprise Risk Management in a project but also project portfolio setting. This model should manage variability of performance.
Key takes	Our paper links to this one by also creating and discussing a model which can be a part of ERM.
Bowers and Khorakian (2014)	Integrating risk management in the innovation project
Summary	The paper explores the inter-relationships between models of innovation and project risk management. The paper stresses that risk management processes are dependent on project status and place in the lifecycle. As the paper focusses specifically on innovation management they also define a policy on approach risk. The proposed model results in 4 areas which vary between accepting or rejecting good or bad ideas, where too strong risk management risks filtering out good ideas as well. They also highlight that repetition is required on a regular basis to evaluate progress and potential red lights.
Key takes	We take the basic 4 elements on risk register design and follow-up action categories from this paper (amongst others). We also take their view on reducing complexity. Finally, this paper was also used to perform backwards snowballing to Willams (1994); Zhao (2005)
Breault and Cleveland (2020)	Toward Enterprise Approach for Project Portfolio Risk Management
Summary	Paper analyses the gap in literature between project risk management and portfolio risk management. They also recommend some management techniques on the portfolio level. One of the highlights in their research is that the portfolio manager is often more effective and cost effective when solving issues due to his higher-level perspective. Furthermore, they highlight that the research results show that project risk management is not necessarily very effective, whereas risk management on portfolio level seems more promising. They also look at commonly used tools and techniques in RM and find that in general simplicity is king and the majority if organizations do not use very advanced techniques. Finally, they propose a machine learning approach to predicting portfolio performance from an analysis of risk registers and advocate the implementation of RM on the basis of its empirically proven value.
Key takes	Companies seem to only implement limited RM processes and tools, in addition practitioners seem to prefer only simple techniques. This significantly influenced our design.

Caron and Salvatori (2015)	Managing information for a risk based approach to stakeholder management
Summary	This study proposes the integration of the Risk Management process with the Stakeholder Management process, taking the various project stakeholders as sources of risk for the project. It attempts to chase a twofold objective: a quantitative estimate of the salience of each stakeholder in terms of the contribution to the overall project riskiness and an identification of the most effective responses as a function of the dynamics of the risks generated by each stakeholder. An example is that we expect a supplier to deliver work with a value of €100.000 and a 25% chance of failure, therefore the project risk carried by this stakeholder is € 25.000, and a mitigating action should be considered. These risk loads work both ways, both supplier and customer are affected, and sometimes the failure of a project may not at all influence the supplier, but significantly influence the customer. Based on this analysis the amount of attention for each stakeholder should be defined to identify possible influencing strategies.
Key takes	This paper has an interesting proposition which is partially explored in our discussion of adding complexity to our management approach, something we decide against as the value proposition is not clear and the scope of this paper limited.
Christoph Albrecht and Spang (2014)	Linking the benefits of project management maturity to project complexity
Summary	The paper tries to identify what influences an organization-specific 'ideal' project management maturity. First the paper treats the different levels of maturity as defined in literature in quite some detail, and what the benefits of increasing maturity may be. Some papers indicate that there are diminishing returns on increasing PM maturity, and that a company's size & complexity influences the ideal maturity to be cost-effective. They then set forth to investigate what the ideal level is, based on a multiple qualitative case study at 3 energy and industrial firms. Findings are that there is some support for an organizational ideal level of maturity.
Key takes	The striving to a model which fits requirements without creating an atmosphere of just "ticking boxes", to avoid people hiding behind formal structures. Some participants find extra levels of maturity mostly inefficient wastes of time and resources, something we want to be especially careful of in our own model. We also take away that the empirical evidence for a relationship between increasing maturity and increasing project performance is rather weak.
Cooper et al. (2000)	New problems, new solutions: making portfolio management more effective
Summary	Cooper does an analysis of how portfolio management can become more effective and does description on what portfolio management is made out of. He proposes some key items such as the financial benefits, the allocation of scarce resources and alignment between the portfolio and the strategy. He also proposes some selection criteria and success metrics. Finally, he coins the term "portfolio management is about doing the right things and project management about doing things right".
Key takes	We take his differentiation between project and portfolio management in our introduction.

de Bakker et al. (2011)	Risk management affecting IS/IT project success through communicative action
Summary	The paper highlights that there is very little evidence for the benefits of risk management to project success in IS/IT. The projected benefits are associated with an idealized application of management techniques which does not happen in reality. This research is inductive research which tries to explore the relation between stakeholder perception and project success and risk management techniques. The results indicate that there is a limited positive effect on project performance by mainly the authors propose to expands the instrumental view of PRM with communicative action, as the risk management practices actually influence how people perceive and act upon risk.
Key takes	We use the limited empirical evidence argument and try to create an open discussion generating awareness on the issues to improve portfolio performance. We also come back to some of de Bakkers arguments in chapters 4 and 5.
Drummond (2011)	'Fools with tools', mirrors of imagination, masks of science and electronic metonyms: a response
Summary	Drummond attempts to clarify (contentiously ref. Liu (2011)) that less is often more in the case of PRM and that the illusion of control created by some techniques is actually more dangerous than not applying some PRM techniques.
Key takes	We use Drummonds arguments as an argument for simple tools and little advanced techniques as there is limited evidence for the use of advanced techniques.
Ferreira de Araújo Lima et al. (2021)	Successful implementation of project risk management in small and medium enterprises: a cross-case analysis
Summary	The paper looks at the implementation of project risk management techniques in SMEs, as there is a lack of evidence addressing them, most of research and literature propagation has happened on the level of large enterprises. The paper uses a multiple case study with 10 SMEs from Spain and Italy. They specifically look at how PRM can be implemented on a cost-efficient and small scale basis. The paper uses 3 research questions to guide the research. What are the main phases and activities in the PRM of SMEs? What are the evidences and outcomes of PRM adoption at SMEs and what are the enabling and hindering factors of PRM in SMEs. Their key findings were that most SMes have the project manager implement PRM and they usually use simple techniques with a risk register being their favourite.
Key takes	Risk registers are important in the risk management strategies of large and small to medium enterprises. They are a frequently used tool during the identification and analysis phases of risk management, with almost 50% of SMEs using it.
Liu (2011)	Mirage Or Implementation Pitfalls – in Defence of Risk Registers as An Effective Risk Management Tool
Summary	This paper is a defence of risk registers, as a reply to Drummond (2011) who considers Risk Registers as a hiding spot for misgovernance. The comments made by Drummond are, according to Liu, mostly related to the actual implementation of registers, in stead of problems with the core principles of the concept.

Key takes	We take from Liu mostly the generic make-up of risk registers, and some application principles. We also come back to her point of view on training and correct application of principles in chapters 4 and 5.
Trzeciak and Jonek-Kowalska (2021)	**Monitoring and Control in Program Management as Effectiveness Drivers in Polish Energy Sector. Diagnosis and Directions of Improvement**
Summary	The purpose of the article is to verify which areas of program management cause issues and need improvement and identify the effectiveness of the most frequently monitoring and control activities. They also state that the results of these activities are the starting point of any corrections and improvements. The paper also again highlights the popularity of risk registers.
Key takes	Managers again highlight that compact and simple forms for monitoring and control are preferred. We also take away that any results are crucially the start of any improvement processes, which is what we also try to achieve with the proposed dashboards and registers. The paper also again highlights the popularity of risk registers.
Willams (1994)	**Using a risk register to integrate risk management in project definition**
Summary	This paper is one of the first and most influential documenting the use of risk registers.
Key takes	This paper underlies modern risk registers and we take the basic building blocks of ours also from this paper.
Zhao (2005)	**Marrying Risk Register With Project Trending**
Summary	Zhao proposes an interesting way of documenting items with a financial influence on projects or portfolios, these are then escalated into logs based on their priority and influence. As a next step he also proposes multiple ways of dealing with this information in a company.
Key takes	Zhao's work underlies much of our model on dealing and escalating risks, we take from him the developed trend logs and action plans, as well as the communication strategies.

Appendix 10 Evaluation of alternative research methods

The final method for the empirical part of this research is a single, holistic, case-study, performed with a combination of measures, 2 rounds of individual semi-structured interviews and a single moderated group discussion.

The first choice to make is the overarching method of the research, in this case a multiple methods qualitative research was chosen as it fits well with the Design Science Research approach for the study. In DSR there are usually multiple (improved) iterations of the researched model. To correctly improve a model, it is important to first gather a good understanding of its strongpoints and weaknesses. Without real-life testing and validation of the model it is also impossible to assert whether the proposed model actually provides any value to practice (Venable et al., 2016).

As the data is not available via other research strategies, a case-study was selected. Case study research attempts to understand the dynamics of a topic withing its context. It lead to rich, empirical analysis and is well suited to the development of theory (Eisenhardt, 1989).

Other considered options were;

- Archival research: not possible as first data needed to be created, archival research focuses on data present in archives.
- Experiment: unfortunately, not possible due to the complex environment and limited time and budget for the research. Ideally this would be performed in a study under laboratory conditions running simulated scenarios.
- Action research: is not relevant as the multiple iterations of the model are not designed together with the organizations nor is a single organization tested multiple times using different models, this due to structural constraints of studies performed by thesis students.
- Grounded Theory: is not used as the goal of this research is not to develop new theories and explain certain events, the goal of this research is to develop a model and test its use in real life.

Qualitative research versus Quantitative research

For this kind of research two methods could be imagined for then gathering of quantitative data. The first is by measuring actual changes in ITPP Performance over time. The second would be to ask respondents to evaluate the working methods in a survey with Likert-scales.

We opted for the use of qualitative research as quantitative research based on 3 survey results would not yield meaningful statistical results. Secondly, as there is no time component in the study, it is therefore not possible to quantitatively analyse firm performance under the application of the model.

It is not possible in the scope of this dissertation to include quantitative analysis as this required either large scale surveys are a longitudinal study to take place, Ideally, we would perform a longitudinal case-study where decisions made with the model lead to quantifiable differences in portfolio performance. Following a single organization throughout a period creates the option to track the evolution of certain parameters over time (number of projects cancelled, number of budget overruns, average ROI…) resulting in quantitative research. This should however be investigated as an option after the final iteration of the proposed models are designed.

Appendix 11   TAM Model and questionnaire

Assessment of the proposed model's usefulness and understandability was performed using the TAM model (Davis, 1989). During a semi-structured interview these questions were answered by the respondents with additional time made for questions detailing the respondents reasoning.

The questions were split in 2 main categories, one on usefulness and one on the ease of use. The method is peer-reviewed and validated in previous literature.

Usefulness Items

1. Using the prototype process in my job would enable me to accomplish tasks more quickly.
2. Using the prototype process would improve my job performance.
3. Using the prototype process in my job would increase my productivity.
4. Using the prototype process would enhance my effectiveness on the job.
5. Using the prototype process would make it easier to do my job.
6. I would find the prototype process useful in my job.

Ease of Use Items

7. Learning to operate the prototype process would be easy for me.
8. I would find it easy to get the prototype process to do what I want it to do.
9. My interaction with the prototype process would be clear and understandable.
10. I would find the prototype process to be flexible to interact with.
11. It would be easy for me to become skilful at using the prototype process.
12. I would find the prototype process easy to use.

Appendix 12   Model Design

The model was designed in accordance with design science research principles.

Step 1

This was the evaluation of the previous students' work and the assessment of their version of the model by their respondents. These recommendations were then added to the results of step 2.

Step 2

This step consisted mostly of a deductive approach where findings from other research (mostly empirically validated research in contrast to purely theory building research) inspired the expanded model.

Step 3

Step 3 is a session where, based on sound argument, the multiple proposed models are combined into a coherent, workable, and overarching model. In two study-groups multiple studies were worked-out, the goal was to have each subject worked-out by at least 2 students separately. The two designs for each subject were presented and discussed during the group session. The chosen design (sometimes a mix of both) is worked into the other designs from the other students to create one overarching model. It is therefore possible that some differences with the theoretical setup in chapter 2 arise. These will be highlighted where necessary with an associated reason for the change. This method allows the group to cover a more comprehensive part of literature in a condensed timeframe which should increase area covered and relevance of the model. It will also be checked if the individual reasoning of the writers is correct, and to prevent individual bias. The alignment of the studies and found models in step 3 should create intersubjectivity which improves verifiability and replicability of the research.

Appendix 13   Research Sequence

The research was performed in 4 sessions, as detailed here.

Session 0 – Onboarding

A short informal session with participants to get their buy in for the research and to provide a short introduction of the research and the goals.

Session 1 – Individual Stakeholder Scores

First, a short introduction to the project with clarification of scope and goals, as well as an orientation on the subject is performed. Next respondents are requested to evaluate the ITPP based on the concepts as defined in the research.

Session 2 – Group discussion

A group meeting (1 hour) with multiple parts. First the filled-out dashboard is showed and discussed. Then a thematic discussion is performed where respondents are asked to resolve big differences in point of view. The end goal is to come to a consensus on the final score. After this the group formulates improvement measures in the registers and evaluated them on feasibility, acceptability, and effectiveness.

Session 3 – Individual interviews

An evaluative semi-structured interview is used to evaluate the proposed model**.** This interview checks for the respondents opinion on the model in 12 easy questions, following the TAM- model (Davis, 1989). A detailed description of the survey and its design can be found in Appendix 11TAM Model and questionnaire.

It is not possible to perform the proposed improvements in the scope of the research (although practitioners are free to implement results in practice). Because of this the use of the model is discussed on perceived usefulness and ease of use. Questions are asked based on the respondents' survey results from phase 2 to guide the conversation. The interviewer will ask for the reasoning and motivation behind the answers. We also gauged for any concrete improvements proposed by the practitioners.

Appendix 14   Interview Protocols

During all sessions the researcher functioned as an observer-as-participant (Saunders et al., 2016). This means the purpose of the researcher's presence is known by the subjects, and that the researcher will function as a moderator, guiding the conversation. However, the participation is purely limited to a role of moderator and observer. Special attention was given to the usability and understandability of the model.

Session 1 – Individual Stakeholder Scores

The first session was performed individually, digitally for 2 respondents and physically for the remaining respondent. All sessions were recorded, and extensive notes kept by the researcher to allow for detailed analysis of respondent's replies. These notes specifically aimed to capture participants general feeling towards the researched model.

During the interview the questions were displayed on slides along with proposed structured evaluations of the statement to help guide the discussion. An example of a slide can be found further below. This ensured the participants could capture the statement well both orally and visually. Where necessary additional information and context was provided by the researcher.

Interviews happened during business hours and lasted for approximately 30 minutes each.

Interviews followed the below sequence.

1) Short welcome and introduction of the interview. Reception of informed consent, and reminder that the interview is anonymous, and the participant is free to withdraw at any time.
2) Short presentation of the research and interview goals using 2 slides with verbal clarification. (+- 5 minutes)
    a. Presentation of the research overview and goals.
    b. Presentation of the concept of health and risk in the scope of this research.
    c. Demo of the data gathering tool (which was not shown for the rest of the session).
3) Example of question and possible answer given.
4) Repetition of the health concept
5) Questions on health (see Appendix 15) asked, presented on slide including guideline on assessment in categories.
6) Elaboration on responses if required.
7) Repetition of the risk concept
8) Questions on risk (Appendix 15) asked, presented on slide including guideline on assessment in categories.
9) Elaboration on responses if required.
10) Open questions on experience so far.
11) Introduction of next steps.
12) Closing remarks.

During and at the end of the session room was left for additional questions by and to the participant. To clarify certain items and to gather initial feedback on the participant's experience.

After the session the researcher added the replies in a structured way to a prepared Excel sheet for qualitative analysis. All sessions were documented in a single Excel sheet.

Session 2 – Group Session

The group session was performed digitally although a physical option was also offered to the participants. All elected to join through MS Teams.

The session was planned during business hours and lasted (as planned) for 1 hour.

As preparation for the session all participants received an overview of topic that were selected for further discussion, along with a list of topics that would be skipped. Feedback was requested on this but not received.

To prepare the session the researcher created an MS Excel showing each participants previous evaluation of the relevant principle, along with their reasoning. Place was also foreseen for a new group evaluation and reasoning. When the group agreed on the evaluation, but the factor was still to be carried through, the evaluation was already added to the form.

Each statement received an associated register to be filled out during the session. An example can be found at the end of this annex. The researcher aimed at 2 improvements per statement.

The session followed the below sequence:

1) Short welcome and introduction of the session. Reminder that the interview is anonymous, and the participant is free to withdraw at any time.
2) Short presentation of the research and interview goals using 2 slides with verbal clarification. (+- 5 minutes)
   a. Presentation of the research overview and goals.
   b. Presentation of the concept of health and risk in the scope of this research.
   c. Demo of the data gathering tool.
3) Discussion per statement on quotation, reasoning of each participant and a final score for the group. Previous statements of the participants were used to guide the discussion.
4) Brainstorm on measures of improvement
5) Evaluation of the proposed measures.
6) Closing remarks

After the session all participants received a summary of the evaluations and proposed improvements. Feedback was again requested but none was received.

Figure 2 - Example of tool before addition of improvement measures

Session 3 – Individual Interviews

Within 7 days of the group session individual interviews were planned to evaluate the participants experience of the tool. The timeframe was kept short on purpose to ensure participants had a fresh memory. Interviews were scheduled during office hours and conducted online through MS Teams.

The sessions were planned for 30 minutes and lasted slightly shorter than that.

The TAM-questions were prepared as documented in Appendix 11 TAM Model and questionnaire.

Interviews followed the below sequence:

1) Short welcome and introduction of the interview. Reminder that the interview is anonymous, and the participant is free to withdraw at any time.
2) Short repetition of the interview goals, the method and subsequent analysis. (+- 5 minutes)
3) Questioning with time for expanded answers and additional questions when relevant.
4) Final remarks and next steps.

The interviews were transcribed automatically using MS Teams Transcription function and corrected. These transcripts were provided to the participants for feedback, but none was received.

Used Slides
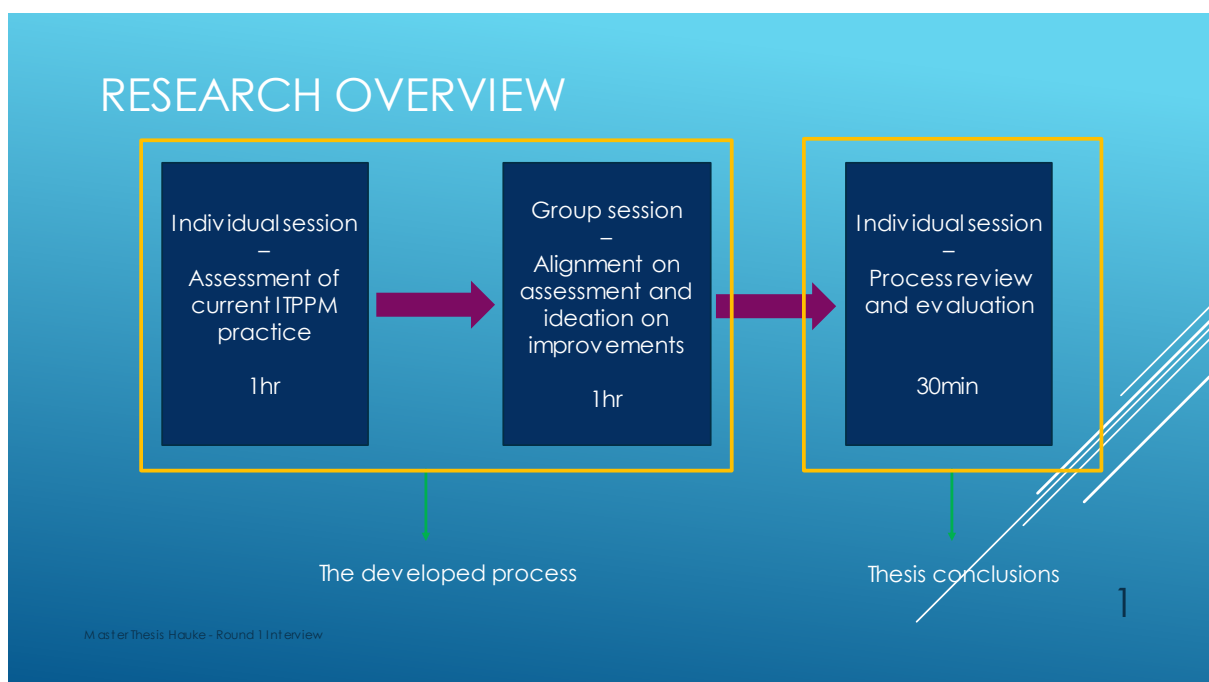
Figure 3 - Slide with research design

Figure 4 - Slide with explanation on Health and Risk Factors

Figure 5 – Example slide with question and scoring

Appendix 15   Questionnaire

The questionnaire was based on the research concepts as put forth by the proposed model. Statements were translated into English and doublechecked (automatic translation back to Dutch for comparison of result to original questions) for translation accuracy using the translation service of deepl.com.

Furthermore, statements were shifted to a more appropriate sequence for personal interviews, keeping sensitive subjects for the end of the respective chapters (Saunders et al., 2016).

The number of the factor represents its position in the original model, the new sequence represents the sequence as it was presented to the participants.

List of statements

HEALTH FACTOR		
Nr.	Criteria	Definition
1	Selection / IT-Project Selection	The correct projects are chosen to align as closely as possible to the goals of the company
2	Prioritization / Prioritization IT-projects	The prioritization of projects is correct
9	Use of futureproof technology	There is sufficient attention for the use of futureproof IT-technology (hardware, software, infrastructure)
8	Agility	The portfolio is sufficiently agile to adapt to (non-predictable) large changes in the environment
3	Access to resources	There are sufficient resources available, budget, machinery, personnel with the right skillset
7	Use of human resources / allocation of human resources	Human resources are optimally used considering their skills and FTE
5	Dependencies/Dependencies between IT-projects	Dependencies between projects on technology, goals, available resources (budget, machinery, personnel with the right skills) are managed to satisfaction
4	Progressmonitoring	There is sufficient progress monitoring in the portfolio for the factors time and money]
6	Stakeholder satisfaction	Stakeholders are satisfied with the portfolio performance
10	Employee satisfaction	Employees are satisfied with the work content and workload in the portfolio.
RISK FACTOR		
Nr.	Risk	Definition
14	Management commitment	There is insufficient commitment from management for the IT Project Portfolio
8	Roles, responsibilities, and mandates	The roles, responsibilities and mandates in the IT Project Portfolio are not properly or clearly defined
2	Communication	There is insufficient communication in the IT Project Portfolio
3	Information	There is insufficient availability of qualitative information within the IT Project Portfolio
15	Adaptability to change	There is insufficient adaptation of the IT Project Portfolio in response to changes in the environment
9	ITPP processes or process execution	The quality of the design or execution of the IT Project Portfolio processes is insufficient

16	Stakeholders	There is a lack of clarity in the roles and the degree of involvement of stakeholders
4	Interdependencies	There is insufficient attention for dependencies within the IT Project Portfolio
12	Availability of resources	The availability of time, people and financial resources for the execution of projects within the IT Project Portfolio is insufficient
5	Stability of personnel	There is insufficient certainty on the stability of the personnel
7	Portfolio components	There is insufficient insight in the underlying IT Project Portfolio components and what is happening in them
1	Conflicts	There is conflict with one or multiple decision-making stakeholders of the IT Project Portfolio
6	Effectiveness of top management	The top management is ineffective/indecisive
10	Quality of the ITPP manager	The quality of the IT Project Portfolio manager is insufficient
11	Quality of the ITPP component managers	The quality of the IT Project Portfolio component managers is insufficient
13	Organizational politics (having differing interests)	The presence of differing interests withing the organization impedes effective execution of the IT Project Portfolio

Appendix 16   Proposed Assessment Process Model

The process model as defined by the research group is represented below. The model was the results of the thesis research of Marielle Schilperoort and Ignacx de Cuijper, part of the research group, and iterations with the promotors and the group.

Two versions of the model were created, one for the actual research (Table 2 - Proposed Research Model) and one (Table 3 – Process Model for organization) which could be performed independently by the case organization after the research.

Table 2 - Proposed Research Model

	PROCESS MODEL FOR THE RESEARCHER (Model 1)							
Phase name	**Assessment preparation**			**Assessment excecution**				**Assessment evaluation**
Process step order	**1**	**Choice**		**3**	**4**	**5**	**6**	**7**
		2A	**2B**					
Explanation of process step	Initial briefing Case organisation	Compile and send: written information set for the participants	Kick-off meeting	Individual interviewing of participants over Health- and Risk dashboard by researcher/facilitator	Compile and send to participants: input plenary session	Plenary session with selected health and risk factors	Compile and send to participants: report plenary session	Individual interviewing of participants
Actors	Reseacher/Facilitator and IT-Projectportfoliomanager	Researcher/Facilitator	Reseacher/Facilitator and Participants	Researcher/Facilitator and Participants	Researcher/Facilitator	Researcher/Facilitator and Participants	Researcher/Facilitator	Researcher/Facilitator and Participants
Actions	Secure Informed Consent and information letter OU research IT Projectportfoliomanager	1. Secure Informed Consent and information letter OU research participants	1. Secure Informed Consent and information letter OU research participants	1. Offer opportunity to ask questions based on information set or kick off meeting	Process results of individual interviews:	For each selected factor: discuss factor, determine measures if required and prioritise them	Process results of plenary session:	Hand out and explane the survey and discussing participants' answers to the questions
	Explane process steps and time commitment	Compile and send information set with at least the elements: Powerpoint presentatie outline als suggestie. (hyperlink procesmodel 1)	2. Explane purpose and set-up of thesis research Powerpoint presentatie outline als suggestie. (hyperlink procesmodel 2)	2. Health dashboard: ask question, if necessary explain and give participant the opportunity to ask questions, note answer for each of the (maximum 10) questions in a scoring system	1. Select factors for discussion in plenary session. Selection is based on most negative scores or those that vary a lot.		Send the summary of plenary session which includes an overview of the resulting health and risk dashboard	
	Select research participants	Explane purpose and set-up of thesis research	3. Explane process steps and time commitment	3. Risk dashboard: ask question, if necessary explain and give participant the opportunity to ask questions, note answer for each of the (maximum 16) questions in a scoring system	2. Send selection (incl. explanation of selection) to participants		Offer the opportunity for participants to send feedback	
	Plan meetings with participants: individual interviews, plenary session and individual evaluation interviews	Explane process steps and time commitment	4. (localised) Health Dashboard questionnaire with explanation of the questions (assessment perspective is based on the current situation)				Revise summary based on feedback	
	Localise Health Dashboard and Risk Dashboard. Localisation consists of adjusting terminology and/or removing health/risk factors that are not recognised.	(localised) Health Dashboard questionnaire with explanation of the questions (assessment perspective is based on the current situation)	5. (localised) Risk Dashboard questionnaire with explanation of questions					
		(localised) Risk Dashboard questionnaire with explanation of questions	6. Offer participants the opportunity to ask questions					
		Actual planning of the individual interviews, plenary session and individual evaluation interviews.	7. Show the actual planning of the individual interviews, plenary session and individual evaluation interviews.					
Time investment per participant	1 h	0 h	1 h	1 h	0 h	1,5 h	0 h	0,5 h
legend	numbering in the actions column: handling order							
	Colours green, blue, orange: no special meaning other than to indicate an interview or plenary session. Promote graphical representation.							

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Table 3 – Process Model for organization

	PROCESS MODEL FOR THE ORGANISATION (WITHOUT RESEARCHER) (model 2)							
Phase name	Assessment preparation			Assessment excecution				Assessment evaluation
Process step order	**1**	**Choice**		**3**	**4**	**5**	**6**	**7**
		2A	**2B**					
Explanation of process step	Initial briefing Case organisation	Compile and send: written information set for the participants	Kick-off meeting	Individual interviewing of participants over Health- and Risk dashboard by researcher/facilitator	Compile and send to participants: input plenary session	Plenary session with selected health and risk factors	Compile and send to participants: report plenary session	Individual interviewing of participants
Actors	Reseacher/Facilitator and IT-Projectportfoliomanager	Researcher/Facilitator	Reseacher/Facilitator and Participants	Researcher/Facilitator and Participants	Researcher/Facilitator	Researcher/Facilitator and Participants	Researcher/Facilitator	Researcher/Facilitator and Participants
Actions	Secure Informed Consent and Information letter OU research IT Projectportfoliomanager	1. Secure Informed Consent and information letter OU research participants	1. Secure Informed Consent and information letter OU research participants	1. Offer opportunity to ask questions based on information set or kick off meeting	Process results of individual interviews:	For each selected factor: discuss factor, determine measures if required and prioritise them	Process results of plenary session	Handing out and explanation of the survey and discussing participants' answers to the questions
	Explane process steps and time commitment	Compile and send information set with at least the elements: Powerpoint presentatie outline als suggestie. (hyperlink procesmodel 2)	2. Explane purpose and set-up of thesis research Powerpoint presentatie outline als suggestie. (hyperlink procesmodel 2)	2. Health dashboard: ask question, if necessary explain and give participant the opportunity to ask questions, note answer for each of the (maximum 10) questions in a scoring system	1. Pre-select factors for discussion in plenary session. Selection is based on most negative scores or those that vary a lot.		Send the summary of plenary session which includes an overview of the resulting health and risk dashboard	
	Select research participants	Explanation of purpose and set-up of thesis research	3. Explane process steps and time commitment	3. Risk dashboard: ask question, if necessary explain and give participant the opportunity to ask questions, note answer for each of the (maximum 16) questions in a scoring system	2. Send pre-selection (incl. explanation of selection) to participants for feedback (i.e. participants can suggest extra factors to be discussed in plenary session)		Offer the opportunity for participants to send feedback	
	Plan meetings with participants: individual interviews, plenary session and individual evaluation interviews	Explane process steps and time commitment	4. (localised) Health Dashboard questionnaire with explanation of the questions (assessment perspective is based on the current situation)		3. Process feedback (i.e. suggested extra factors will be added) and determine final selection of factors to be discussed in plenary session		Revise summary based on feedback	
	Localising Health Dashboard and Risk Dashboard. Localisation consists of adjusting terminology and/or removing health/risk factors that are not recognised.	(localised) Health Dashboard questionnaire with explanation of the questions (assessment perspective is based on the current situation)	5. (localised) Risk Dashboard questionnaire with explanation of questions		4. Send final selection (incl. explanation of selection) of factors to be discussed in plenary session to participants			
		(localised) Risk Dashboard questionnaire with explanation of questions	6. Offer participants the opportunity to ask questions					
		Actual planning of the individual interviews, plenary session and individual evaluation interviews.	7. Show the actual planning of the individual interviews, plenary session and individual evaluation interviews.					
Time investment per participant	0,75 h	0 h	0,75 h	1 h	0 h	1,5 h	0 h	0,5 h
legend	numbering in the actions column: handling order							
	red text colour: not applicable in this process model for the organisation							
	grey shaded block: not applicable in this process model for the organisation							

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Appendix 17   Coding System and Results

From the research only the 3 transcripts from the individual sessions (session 3) were coded. These coded by the researcher in 2 different ways.

A sentiment analysis was carried out for each question of the TAM-survey, where the researcher evaluated whether the response was mostly positive, mostly negative, or neutral. In some cases, the participants answer indicated that he/she could not yet form an opinion, or no reply was received these cases were coded as blank cells in the data matrix.

The same was done for statements which depended more on the proposed improvement measures than on the actual proposed process, which the researcher considers should be split from each other.

A second round of coding was then performed looking specifically for reasoning behind the assessment and actual effects of the process. This was coded in-vivo over multiple rounds, iterating between the transcripts to ensure accurate, complete, and consistent coding. Analysis of redundant codes was performed using Atlas.Ti's built-in features.

The result was a thematic approach where statements on difficulty, health questions, risk questions, relevancy, … were coded consistently. These codes were grouped into 3 themes:

- Process
    - Continuous Improvement
    - Dialogue
    - Difficulty
    - Flexibility
    - Relevancy
    - Role
    - Time
- Output
    - Positive Output (of the process)
    - Negative Output (of the process)
    - Missing Output (of the process)
    - Resp. For Output (responsible for the output)
    - Team Influence
- Questions
    - Health Q's (statements on health questions)
    - Risk Q's (statements on risk questions)

This then allowed to researcher to easily pull certain statements on a part of the analysis to be retrieved, by grouping all statements on a similar topic at once. The largest codes were then used for detailed analysis in the results and conclusions.

The codes and the number of hits per code are found in Tabel 5 - Code Matrix.

The sentiment analysis

The results of the sentiment analysis show quite different results between the participants, with the IT DM and IT Bus. M for OPS being mostly positive, but the CDM being much more negative. The sentiment analysis was also carried through into the data matrix, presented in Tabel 4 - Data Matrix
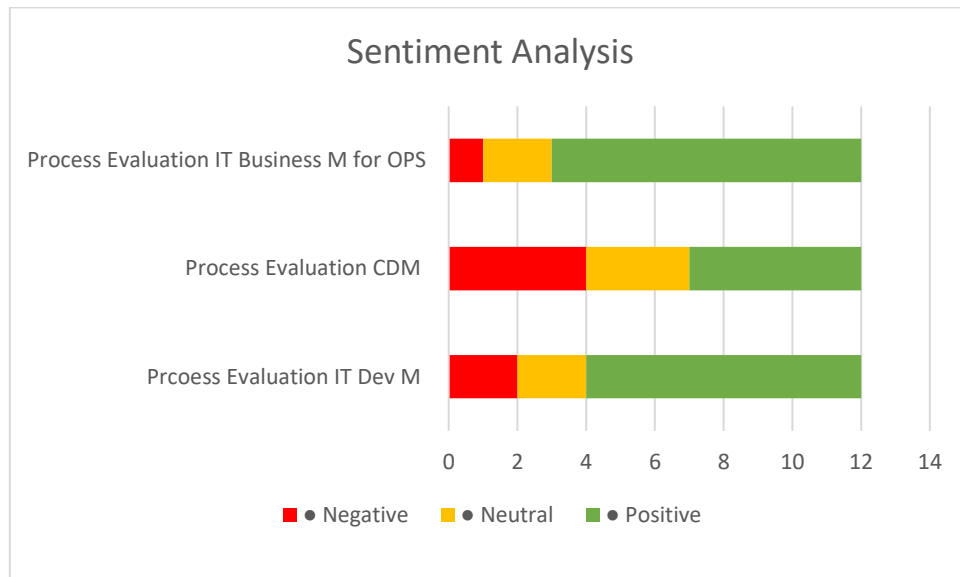

Figure 6 - Sentiment Analysis

Tabel 4 - Data Matrix

Item	IT Business Manager for OPS	Corporate Development Manager	IT Development Manager
Round 1 & 2 Observations			
	Considering risk factors as future items is quite difficult, timeframe and conditions should be included.	• All questions unclear or vague, and sometimes irrelevant. • Repetition of themes. • Questions are too academic, far from reality. • Looking at IT projects or projects with an IT stake? • Not responsible for output of process.	• Question scope is not always clear, aiming at a process or a person? • Questions are vague.
Round 3 – Evaluation			
Usefulness Items			
1. Using the prototype process in my job would enable me to accomplish tasks more quickly.	It's an iterative, stepped approach Dialogue is better than solely internal reflection, creates an Improved quality of the outcome.	Health and chance are concepts that are too far removed from reality.	Relevant process. Easier job as the process highlights structural problems and allows managers to focus on their core business. There is no plan of action (negative)
2. Using the prototype process would improve my job performance.	No as job performance is not measured to portfolio performance, but the process is valuable. Not responsible for the output of this process in current function.	It's good to evaluate current processes and performance, it might improve the future performance. Doubts however about the framework and questions. Good from a continuous improvement point of view.	Allows for focus on priorities and improves time allocation.
3. Using the prototype process in my job would increase my productivity.	If the process regularly repeated within a framework. Not only own productivity but that of the team would increase.	If the process is properly executed and results match the goals.	Overall productivity might decrease but greater quality/effect of delivered product. Better work-life balance for team. Better focus and prioritization.

4.	Using the prototype process would enhance my effectiveness on the job.	Quality conclusions because of a collaborative, structured dialogue.	If the process is properly executed and results match the goals. The process is relevant/ Continuous improvement is a good thing, but the current proposed process and questions are too far from reality.	Higher effectiveness at less output but output is of a higher quality.
5.	Using the prototype process would make it easier to do my job.	Better focus and alignment. Better team performance.	*Not answered.*	Process resulting improvements would allow to better prioritize and plan work. Continuous improvement is important.
6.	I would find the prototype process useful in my job.		Not the current process, but the continuous improvement process yes. That is a relevant idea that needs to be developed at our company.	Yes, as the resulting improvements generate higher predictability and focus to the team.
	Ease of use			
1.	Learning to operate the prototype process would be easy for me.	Yes, from a POV of administering it. Sees own function as potential administrator.	Yes, from own experience and designer of the existing process. However, for someone without experience it would be difficult. Process should be easily usable in all departments of the company by people from differing backgrounds.	It's not rocket science, learning the process would be easy.
2.	I would find it easy to get the prototype process to do what I want it to do.	Easy from the POV of a portfolio manager (which the participant is not) also easy from supporting POV.		Participant should be an actor not an administrator, fear of biases and defensive mode if not administered by outside counsel. Outside POV helps to realize improvements. Not responsible for the process output.

3.	My interaction with the prototype process would be clear and understandable.	Clear from current role as administrator. Output would be information and overview on the portfolio.	As an administrator of the process.	As an actor giving information, not as a decision maker.
4.	I would find the prototype process to be flexible to interact with.	Inflexible, some questions should be changed. Localisation should be performed as a reduction in the academical approach.	Should adapt to context and market conditions, so far, I am missing the added value of the proposed process. The process is not relevant enough. Scoring is difficult as there is no communal baseline. Questions are too abstract.	Questions are rigid and difficult to interpret as a frame of reference is missing. Difficult to make assessments in the future. Questions could be framed "in the ideal world" or "knowing what you know now on the current state and improvements…"
5.	It would be easy for me to become skilful at using the prototype process.	Yes, with basic training on the process.	Form own background.	Participant would be an actor not and administrator so not necessary to be skilful at the process. Difficult to perform assessment and create improvements from the inside.
6.	I would find the prototype process easy to use.	First needs to be in the driver's seat.	Questions are not relevant, too far from reality, too repetitive, too academical.	Yes, as the analysis work is not done by the participant. Participant only needs to provide information and feedback. Participant is not responsible for outputs.
Extra				
1.	Perceived role	Administrator, not responsible for the effective outputs.	Administrator, not responsible for outputs.	Actor, not responsible for outputs.
2.	Additional Improvements	• Written preparation would be better for the quality of the input. • More time. • More flexibility required and changing of the questions to be less academical.	Alignment on when to score something a certain way is important, so scores are made from a shared understanding. Example would be poker game prioritization.	• More time. • Actual improvement plan.

3. Interested in continuing round 2?	Yes	Yes	Yes

Tabel 5 - Code Matrix

Code	Process Evaluation IT Dev M	Process Evaluation CDM	Process Evaluation IT Business M for OPS	Totals
Continuous Improvement	1	4	1	6
Dialogue	0	0	3	3
Difficulty	4	11	3	18
Flexibility	0	2	3	5
Health Q's	2	5	1	8
Missing Output	3	0	0	3
Negative Output	1	0	0	1
Positive Output	9	0	6	15
Relevancy	4	4	3	11
Resp For Output	5	1	1	7
Risk Q's	4	4	2	10
Role	7	2	3	12
Team Influence	3	0	2	5
Time	1	0	3	4
Unrealistic/Academical	0	4	1	5
Output	20	1	8	29
Process	17	19	15	51
Question Opinion	5	10	5	20
Totals	86	67	60	213

Appendix 18   Transcript IT Development Manager

Session 1 & 2 – Notes

- Questions vague / unclear

- Transparency of project manager? Or technical execution of project components? difficult question,

- People will use company as a start for their career and a growing opportunity.

1:54
- Health Q's
- Risk Q's
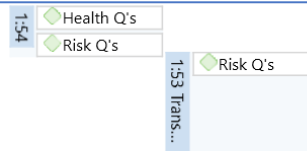
1:53 Trans...
- Risk Q's

Session 3 – Transcript

00:00:15.580 --> 00:00:24.150
Researcher
So quick introduction of what we're doing today. This is round three of the interview and this is where we'll actually assess how the process went.
And for this, we're gonna use what's called the TAM model. It's a list of questions which was devised in the 1980s and validated for the assessment of usefulness and perceived user friendliness of a tool or a process in IT.
The questions are of a yes or no kind. I will also ask some elaboration on why you answer in a certain way and it's that elaboration that we will then use to improve the process for next time.

00:00:56.510 --> 00:00:56.820
IT Development Manager
OK.

00:00:57.260 --> 00:00:58.450
Researcher
Any questions so far?

00:00:58.820 --> 00:00:59.170
IT Development Manager
No.

00:00:59.970 --> 00:01:00.400
Researcher
Perfect.
So the first items are on usefulness. How useful is the process as we went through it?
Our first question is using the process in your job would enable you to accomplish tasks more quickly.

00:01:18.000 --> 00:01:20.930
IT Development Manager

Uh, yes. No, that's it.
Yeah.

00:01:21.260 --> 00:01:24.320
Researcher
Yes, yes or no, and then some elaboration on why.

00:01:24.680 --> 00:01:41.910
IT Development Manager
But we just to make sure because we don't have a
path forward or an action. Ah, so it's related to if the
process that we described would be running as
expected, how it would influence my job. OK.

1:18... | Missing Output

00:01:40.330 --> 00:01:52.210
Researcher
Yes, exactly. So if we would implement the process
and we would have spent a little bit more time on
the register to propose actions, would it enable you
to do your tasks more quickly.

00:01:52.390 --> 00:01:53.180
IT Development Manager
Yes.

1:1 00:01:5... | Positive

00:01:53.840 --> 00:01:54.530
Researcher
Alright.
Tell me more.

00:01:57.340 --> 00:02:05.760
IT Development Manager
Uh, well, it's identified and resolved structural
problem that we have within the company or it
should.
If this process is set up in place and doing what is
expected, my job is easier because I don't need to do
the prioritization myself. So by doing capacity
management priority and the planning and
accordingly we have sufficient time to do our job or
we can identify where we have issues and can find
additional resources.

1:16 Uh,... | Relevancy

1:17 my job is easier b... | Positive Output

00:02:38.660 --> 00:02:43.570
Researcher
The next question is if using the process would
improve your job performance.

00:02:45.750 --> 00:02:46.680
IT Development Manager
Yes.
Because we can focus on uh on the priorities and
have sufficient time to do our job in equality way.

1:2 | Positive
1:19 B... | Positive Output

00:03:01.090 --> 00:03:05.640
Researcher
Using the process in your job would increase your productivity.

00:03:08.210 --> 00:03:08.930
IT Development Manager
Umm.

Is there a Maybe option?

00:03:15.560 --> 00:03:16.510
Researcher
You can say maybe.

00:03:17.130 --> 00:03:26.990
IT Development Manager
But it's a bit the the chicken and the egg thing here.
So the productivity will probably go down because we are now. Trying to do 2 projects as such but the quality, the quality of the work will go up.
So the number of projects will go down because we can focus on the right things at the right moment. So the work life balance of the team is better, but the overall performance will go bit down. The throughput will be a bit lower.
But realistically, let me put it like this. So that's why I'm saying like yes and no, it's a bit.
For the company, the current process, OK, because they drop everything on our side and we will just do it even if it takes us 20 hours a day in the future. In the future if we would have a good process, we will do 8 hours to do what is expected. So we will need to say more, no.

00:04:26.650 --> 00:04:36.340
Researcher
You have actually answered both this this question and the next question in one go. I think. So the next question is using the prototype process would enhance your effectiveness.

00:04:39.060 --> 00:04:49.930
IT Development Manager
Yes indeed it's a bit linked and it's it's it's it's the same here. Yes, we will be more efficient because we have the sufficient time to work on qualitative way on one project.
Instead of doing two or three different projects at the same moment.

00:04:58.030 --> 00:05:01.610
Researcher

Using the process would make it easier to do your job?

00:05:02.680 --> 00:05:05.070
IT Development Manager
Ohh yes 100%.
Because we know.
What to do by then we need to do it.

1:25 ◇ Positive Output

00:05:15.480 --> 00:05:25.420
Researcher
And what you're seeing there is, you know what to do and when to do it is that not a result of the measures that we propose or is it a result of the process itself?

00:05:25.830 --> 00:05:33.570
IT Development Manager
It's result of a the measures that you propose will result in an improved process.
And so the measurements, the measures itself is not for me. The solution is the improved process, because if the improved process is in place, it will, it does, the end goal it it's good to list a lot of measuress that you can perform.

1:6 It's result of a the meas... ◇ Positive Output

00:05:34.680 --> 00:05:34.990
Researcher
OK.
Yeah.

00:05:50.750 --> 00:06:02.180
IT Development Manager
To to do improvement and I'm a big fan of continuous improvement. Nothing is done. There is always something that can be improved, but at the end, the end goal should be a good process.

1:7 To to do i... ◇ Continuous Impro...

00:06:05.710 --> 00:06:13.300
Researcher
Then you're talking about a good process being a good project management process, a good portfolio management process.

00:06:13.150 --> 00:06:15.480
IT Development Manager
Portfolio management process indeed.

00:06:20.990 --> 00:06:25.830
Researcher
Would you find the process useful in your job?

00:06:28.050 --> 00:06:34.980
IT Development Manager
The yes, yes, yes, yes, yeah, it's it would.

1:8 ◇ Positive

Yeah. The process. Yeah, that's that's a bit where everything stands or falls because we have more predictability, first of all. And I can give the right focus to the, to the, to the team.

00:06:58.600 --> 00:07:04.790
Researcher
So those are the first six questions on the usefulness of the process as we went through it.

00:07:05.050 --> 00:07:05.500
IT Development Manager
Yeah.

00:07:06.580 --> 00:07:10.060
Researcher
Is there anything you would like to add on the usefulness from your side?

00:07:11.270 --> 00:07:16.380
IT Development Manager
No, I think it's quite clear that the the process as such is the key.

00:07:17.120 --> 00:07:17.560
Researcher
OK.

00:07:17.500 --> 00:07:21.010
IT Development Manager
I'm sure we should do more process analyst analytics, I think.
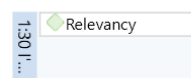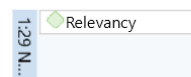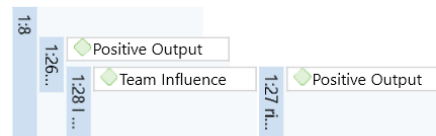
Ease of Use

00:07:23.170 --> 00:07:23.660
Researcher
OK.
Then the next part is the ease of use items. So let's say that you would have to perform the process as we went through it together. How easy would that be for you? Of course, given some training, but you can of course elaborate on how much training you would want or need, or if you would like to have a consultant doing it for you, or a specific manager.

00:07:48.090 --> 00:07:54.240
Researcher
So the first item on the ease of use: Is learning to operate the process would be easy for you?

00:08:00.140 --> 00:08:03.530
IT Development Manager
Uh, yes or no? That's again, yeah.

00:08:02.230 --> 00:08:05.550
Researcher
Yeah. Again, the questions are again yes or no. And please elaborate so.

00:08:04.670 --> 00:08:05.030
IT Development Manager
Yeah.

00:08:06.190 --> 00:08:09.700
Researcher
Would it be easy for you to learn to do this process and?

00:08:09.240 --> 00:08:12.910
IT Development Manager
Yeah, I think it's easy to learn the process. I think that's fair.
Umm, it's not rocket science I think. So learning the process. Yes, that's easy.

1:9 Yeah, I thin… | Difficulty | Positive

00:08:27.370 --> 00:08:39.030
Researcher
Will you find it easy to get the process to do what you want to do? Meaning it would it be easy for you to get the process to get the outputs or the yeah the outputs that you would like?

00:08:39.560 --> 00:08:40.030
IT Development Manager
Uh.
No.

1:10 U… | Negative

00:08:42.880 --> 00:08:43.650
Researcher
OK.

00:08:43.690 --> 00:08:57.380
IT Development Manager
And the reason why is because I am an actor in the process. So for me as a as a participant in the process, it's quite difficult to change the process because everybody.
Will be a bit biased.
I see what I if you haven't somebody from an external view, I'm mapping the process and seeing and making suggestions how to improve it. It will be much easier than when you're in the process and trying to improve it or saying like you didn't do do your job correctly or these are improvements. So I think.

1:32 And the reason why is because I am an act… | Difficulty | Role
1:33… | Role
1:34 It will be muc… | Resp For Output

00:09:02.170 --> 00:09:02.490
Researcher
Yeah.

00:09:22.200 --> 00:09:29.020
IT Development Manager
It's it's go, it's it would be very difficult to get people
out of the defensive mode.

1:35 It... ◇ Difficulty

00:09:34.020 --> 00:09:41.000
Researcher
**Would you then recommend that they use a
consultant to do something like this or or an
internal manager such as a portfolio manager?**

00:09:41.610 --> 00:09:53.210
IT Development Manager
In in all fairness, I think process engineer or process
manager should be appointed to this because they
know the inside out, the big. The biggest problem is
with the processes.
You need to start with a.
Description of the current process and that's already
something that is missing and needs a specific skill
and based upon the experience of a process
manager, they can already do some
recommendations on history. Sorry. * sneezes*

1:36... ◇ Resp For Output

00:10:17.680 --> 00:10:18.400
Researcher
Bless You

00:10:27.370 --> 00:11:10.170
[Joking between Researcher and Participant on
convertible cars and hay fever.]

00:11:14.540 --> 00:11:19.940
IT Development Manager
OK, coming back to the topic, yeah, I think process
engineer would as a as a. An outside inside view
brings more benefits than doing it. Trying to do it
yourself.

1:37 I think pr... ◇ Role

00:11:20.810 --> 00:11:21.450
Researcher
Alright.

00:11:26.010 --> 00:11:31.410
Researcher
**Your interaction with the process would be clear
and understandable?**

00:11:32.800 --> 00:11:33.490
IT Development Manager
Yes.
So in in my understanding I'm I'm giving I'm giving all
the information.
Uh. But I am not the decision maker here, so it's a
good description of roles and responsibility.

1:11 ◇ Positive
1:38 So in in ... ◇ Resp For Output
         ◇ Role

00:11:55.080 --> 00:11:58.480
Researcher
You would find the process flexible to interact with?

00:12:02.840 --> 00:12:08.840
IT Development Manager
Uh, I must say maybe some of the questions.
Uh, so the the, the, it's.
The biggest difficulty, not the first bunch of
questions, because that's the current state. But the
second part is the to be situation in two or three
years is a bit difficult to imagine because you need to
see.
How? OK, because you don't have a view.
What exactly will change at that moment? So you
can think like in the ideal world everything will
change and will improve.
But it's. Yeah, I'm a bit biased. See what I mean? So
the the second part for me was the most difficult
one and going into a mode where I'm a super
optimistic and say like we will change the world.
Realistically, I have my doubts.
On the second part of questions.

00:13:04.060 --> 00:13:10.930
Researcher
**Is there a different way of framing the questions
that would allow that to be simpler for you?**

00:13:14.340 --> 00:13:17.150
IT Development Manager
I think it might be.
In in I think it's the the second part of the second
session of questions should be in a way that in the
ideal world. If the process is is improving how it
would? Give the result expected result.

See what I mean?

00:13:41.870 --> 00:13:43.920
Researcher
Not really no, can you elaborate?

00:13:41.950 --> 00:13:50.030
IT Development Manager
So basically what what what in the the second
session the second set of questions should be?
Taking into account that every change that you have
have or every problem is resolved in the first that
were identified in the first set of questions, is
resolved in an improved process, how it would
influence the results at that moment?

00:13:59.870 --> 00:14:00.150
Researcher
Hmm.
OK.

00:14:10.290 --> 00:14:10.830
IT Development Manager
Because.
That's the missing part. You go into the situation where you see how do you see this evolve within two or three years without knowing that the issues that you identified are not resolved. So the mindset should be.

00:14:22.950 --> 00:14:23.870
Researcher
Yeah. OK.

00:14:25.920 --> 00:14:36.840
IT Development Manager
OK, say we can resolve everything and and everybody is in a good state of mind and we go for a better solution. How it will influence you in your future.

00:14:39.030 --> 00:14:47.870
Researcher
That's clear. And then the second to the last question is it would be easy for you to become skilful at using the process.

00:14:51.680 --> 00:15:03.970
IT Development Manager
It's yeah, it's yes and no again for me. And and it's a bit linked to the same question as before because I am part of the process. So it's more difficult to change the process that you're.
An actor in it's easier if you have an outside inside with you.

00:15:11.010 --> 00:15:23.540
Researcher
Yeah. So you're what you're saying, if I can recap this correctly is you're a part of the process, it should not be you who is skilful at it, it should be somebody else who is skilful and administers it to you.

00:15:23.960 --> 00:15:25.120
IT Development Manager
Yes, exactly.

00:15:25.090 --> 00:15:26.350
Researcher
OK. Gotcha.

1:44

1:45 Role
1:45 And and it's a bit ...
1:56 So it's mo...
Difficulty
1:13 Neutral

1:46 It...
Role

1:47 Role

00:15:27.740 --> 00:15:31.710
Researcher
And then the last question is you would find the process easy to use.

00:15:34.260 --> 00:15:35.030
IT Development Manager
Umm.
I think here if I'm just an actor in the process, yes, because the just questions because most of the work is not done by me.

00:15:47.090 --> 00:15:47.410
Researcher
No.

00:15:47.270 --> 00:15:50.600
IT Development Manager
The consolidation and and trying to find the solutions.

00:15:54.160 --> 00:15:57.090
Researcher
Alright. Is there anything, so that was the last question from the questionnaire, is there anything else you would like to add?

00:16:02.070 --> 00:16:05.150
IT Development Manager
So this is the last last question already.

00:16:04.270 --> 00:16:07.860
Researcher
But that was the last question already. Yeah, it's 12 questions only.

00:16:06.680 --> 00:16:07.250
IT Development Manager
OK.
Good, good, good. Uh questionnaire, let me think.
Is there anything that I want to add?
In all fairness, I think.
The complexity of the Of the Processed off the current process? Uh, I think. It would be good to have more time. I think it the time to resolve it or the time for the for the process was way too short because we identified a lot of problems, and we have some key takeaways. But I think we can acknowledge like for example the session we had with everybody around the table to discuss it, it was we did not touch every topic yet indeed. So, it's not that we have now an improved process, we have some ideas on how to improve it. But there is.

00:16:53.480 --> 00:16:54.750
Researcher
Oh, this, yeah.

00:17:02.430 --> 00:17:08.400
IT Development Manager
We didn't go through all the list of the of the items,
that's one. Secondly, there is no.

00:17:07.040 --> 00:17:07.240
Researcher
No.

00:17:09.690 --> 00:17:20.100
IT Development Manager
Action planned afterwards, but I think it's bit part
since it's an exercise regarding the process as such,
but it should resolve in an actual improvement plan.
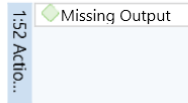
00:17:12.210 --> 00:17:12.460
Researcher
Yeah.

00:17:20.910 --> 00:17:42.310
Researcher
Yeah, absolutely. I can maybe add two things onto
that. So the the time frame I from what was actually
foreseen by the university was a I think it's almost an
individual stake of each participant of almost 7 hours
and I compressed it because there was no way that I
could get that passed managers it because we were
just too busy.

00:17:35.640 --> 00:17:36.270
IT Development Manager
OK.
Yeah.

00:17:43.020 --> 00:17:47.420
Researcher
So in real life, the process would take longer.

00:17:48.000 --> 00:17:48.850
IT Development Manager
Good, good.

00:17:49.200 --> 00:17:55.450
Researcher
And the I will still prepare a sort of management
summary of the process and of the items that we did
touch upon.

00:17:56.200 --> 00:18:11.990
Researcher
And so there's a there's a follow-up question stating

1:52 Actio...

Missing Output

what we already have from the group session. **Would you be interested in completing the other items?** And then if if both you, the Corporate Development Manager and the IT Business Manager for OPS say that you all still want to spend some more time on it, then I will set something up.

00:18:13.500 --> 00:18:19.320
IT Development Manager
Yes, for me it's a. It's a fundamental. So because it's the the problem is not resolved, we have. I learned interesting things during the the sessions at at least during the last session.
Some expectations or some items I had my ideas about what confirmed that actually there is no. There is no plan to do actual portfolio management within the company and what we as a IT expected that corporate development would be doing.
Is now confirmed that they won't do it because they say like. Yeah, it's maybe a bit under respectful, but it's a waiting area for potential senior managers to find a more interesting job, I'm being very politely here, but it's not a structure.
I think corporate development, how it was presented in the beginning like they will do their job to make sure that the processes are improved and that we pick the right. That's not how going to happen. So we I think we need to come back to what IT and find a solution for that problem within it and not count on anybody else. So it was a very interesting learning and confirmation about my hunches that I got.
So yeah, let's see.

00:19:48.300 --> 00:20:03.160
Researcher
[Closing Remarks]
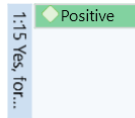
Appendix 19   Transcript Corporate Development Manager

Session 1 & 2 – Notes

- Opinion on questions - not very clear sometimes, and not all relevant (employee satisfaction for example as it is a different point of view, scope, repetitive.

- Entire Q list is vague not necessarily relevant to PPM. Should focus on company view and departmental view

- Questions are too far from the reality

- The setup is a bit blurry, - curious to see further evolution

- Scope is difficult, IT projects or projects with an IT stake

- Not responsible for output of process, should come bottom up.

2:45 Opinion on questions - not ve...	Health Q's
	Risk Q's
	Unrealistic/Acade...

| 2:46 S... | Difficulty |

| 2:41 N... | Resp For Output |

Session 3 – Transcript

00:00:00.000 --> 00:00:00.770
Researcher
[Transcription Start]

00:00:01.650 --> 00:00:18.840
Researcher
So the questions are in a yes or no fashion and we also want some elaboration on why you're saying yes or no. If anything isn't clear, then you just let me know. So, first question, the first questions are on the usefulness. So, if you found the process useful.

00:00:05.560 --> 00:00:05.960
Corporate Development Manager
OK.

00:00:19.790 --> 00:00:25.980
Researcher
First question is if using the process in your job would enable you to make to accomplish tasks more quickly.

00:00:27.430 --> 00:00:40.400
Corporate Development Manager
But can you just? Sorry because use which process because we have talked about uh, we have talked about a lot so. So we talked about prioritization portfolio.

00:00:40.590 --> 00:00:40.810
Researcher
Yeah.

00:00:41.500 --> 00:00:49.600
Corporate Development Manager
Involvement of management, I mean which which process because so far I haven't seen any process from your side.

00:00:45.090 --> 00:00:47.340
Researcher
So the process is, yeah.
Ah, OK. So no, the what I'm gonna I'm talking about is the process for assessment of a portfolio. That's what the thesis is really on. So we the process is at first we did the individual questions and you installed me how you thought things were going. And then in the second step we went through it in the group and we tried to come up with some ideas on how to solve it. Now in real life, the process would be a little bit bigger and it would take a bit longer. But in general, the process as we went through it, so assessing how it's going right now and then trying to come up with.
Ideas on improvement with the methods that we that I used? So a bit with the Excel sheet with the questions.
That's the process that we're evaluating.

00:01:30.400 --> 00:01:33.730
Corporate Development Manager
Well, no, sorry for.

00:01:33.230 --> 00:01:34.560
Researcher
It wouldn't help you now, it's OK.

00:01:35.400 --> 00:01:53.350
Corporate Development Manager
For me the I, I, I I I think you saw a bit my confusion when we talked about the chance and the the the I I don't feel like health and chance and are very useful and are far from the reality when we use these kinds of words.

00:01:56.070 --> 00:02:06.510
Researcher
They're not to do not hurting my feelings at all. Please be as honest as you can. [assuring participant to be as honest as possible, without considering researcher's feelings to the model]
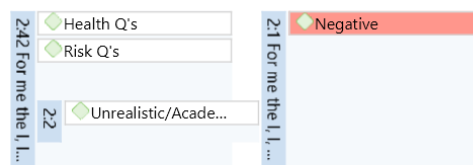
00:02:05.510 --> 00:02:05.800
Corporate Development Manager
OK.

00:02:09.150 --> 00:02:14.950
Researcher
OK. The second question is then using the process
would improve your job performance.
Or the performance of your function. Let's put it that
way.

00:02:25.760 --> 00:02:27.110
Corporate Development Manager
But it's a yes or no question.

00:02:27.900 --> 00:02:31.440
Researcher
It's a yes or well. You can also say maybe and then
expand a little bit.

00:02:31.790 --> 00:02:32.500
Corporate Development Manager
Maybe.

2-3 ◇ Neutral

00:02:33.030 --> 00:02:34.880
Researcher
Maybe and why maybe?

00:02:35.540 --> 00:02:57.430
Corporate Development Manager
Well, I think I think the good part of this process is to
evaluate and to assess if it's working and to date
something that we're not doing. So it it puts the
right framework to ask yourself questions. Now the
way the questions are asked and the rest I have my
doubts, but the fact that we reassess.
Uh, the the process performance that I think it's
important.

2-37 Well, I think I think the go...   2-40 No...   ◇ Continuous Impro...   ◇ Health Q's   ◇ Risk Q's   2-8 Well, I think I think the goo...   ◇ Relevancy

00:03:06.270 --> 00:03:12.520
Researcher
Using the process in your job would improve your
productivity or the productivity of your function in
general.

00:03:13.990 --> 00:03:18.790
Corporate Development Manager
Well, if my previous answer is maybe then I would
say yes.

2-9 W... ◇ Positive

00:03:20.540 --> 00:03:20.830
Researcher
OK.

00:03:24.470 --> 00:03:30.220
Researcher
Using the prototype process would enhance the effectiveness in your job.
Saying that your job is, the management of the portfolio.

00:03:43.580 --> 00:03:45.560
Corporate Development Manager
It's a bit the same as the previous question, no?

00:03:46.290 --> 00:03:47.720
Researcher
Yeah, I agree.

00:03:47.150 --> 00:03:54.870
Corporate Development Manager
The the questions are a bit repeating or I'm trying to understand what the difference is, but then you can put the same answer as the one before.

00:04:00.590 --> 00:04:01.160
Researcher
Yeah.
It's the methods again that they told us to use. Well, we are gonna asses all cases with the same questionnaire and as the questionnaire is validated in science in like the 1980s they went with this idea. That's why we're using it.

00:04:15.470 --> 00:04:30.610
Corporate Development Manager
But you, you, you, I I understood that you you are not uh behind that process you're the the your your your school is just trying to have data from companies and then they can consolidate correct.

00:04:31.500 --> 00:04:59.080
Researcher
Yeah, pretty much so the, the, the actually the bigger picture is that they're trying to build up this process to do the assessment and the master thesis students, they try to iterate on the process, make it better than the previous version and then they have to evaluate it in a company to see if it's actually working. So that's a bit how it works, but it has to be, yeah, administered in a standardized way. And that's why I'm stuck with questions and and the model that I'm not necessarily a fan of.

00:04:59.600 --> 00:05:14.130
Corporate Development Manager
Yeah, but I so so it's a bit. So what I like is a bit that it's continuous improvement. So you're trying every

2:10... | Continuous Impro... | 2:47... | Neutral

time to improve the process, which is very important in every company I think. But the the questions are a bit far from reality.

00:04:59.900 --> 00:05:00.820
Researcher
Absolutely.

00:05:20.070 --> 00:05:27.340
Researcher
So in general, would you think that if we use of this process maybe in a further iteration, it would help you?

00:05:27.900 --> 00:05:28.320
Corporate Development Manager
Yes.

00:05:28.040 --> 00:05:29.000
Researcher
In a in, yeah.

00:05:30.720 --> 00:05:38.370
Researcher
Right, right. And again next question is again, it's pretty much the same thing. Is it useful the process?

00:05:39.550 --> 00:05:39.940
Corporate Development Manager
Yes.

00:05:40.620 --> 00:05:40.910
Researcher
OK.

00:05:41.240 --> 00:05:44.070
Corporate Development Manager
If it's in a continuous improvement mindset, yes. Not this process, the continuous improvement process.

00:05:52.880 --> 00:06:05.380
Researcher
OK, maybe elaborate how you. So, we're looking at the assessment process as we performed it, maybe in an improved form. You're talking more vaguely just in general continuous improvement.

00:06:05.430 --> 00:06:35.460
Corporate Development Manager
Yes, so continuous improvement is the fact that you have a process that is established and that you're really always trying to make it better and better and it should actually be part of the company DNA to say

to, to challenge and but in order to make your process working, you need standards. Of course, you need tools, you need, you need to make sure that all the companies speaking the same language etcetera, otherwise you, you.

You compare Apples with pears and it's not working and so the continuous improvement is also a change in mindset.

It's a way where people are not just in their seat and being relaxed, they're trying to every time to make things better and it's today something in the company where we don't have a framework yet. Why? Because we don't have a process-based company yet.

Difficulty

00:07:01.230 --> 00:07:18.680
Researcher
Yeah, exactly. And this is where I think this this is the goal of the process is to be such a standard pretty much of what we did that's such a standard I would. That's the idea behind it. Now you're seeing it as well from the point of view like six sigma and lean and those kinds of things plan to act, yeah.

00:07:10.170 --> 00:07:10.490
Corporate Development Manager
Yeah.

00:07:11.720 --> 00:07:12.030
Corporate Development Manager
Yeah.

00:07:16.590 --> 00:07:17.630
Corporate Development Manager
Yeah. Yeah, exactly.

00:07:18.830 --> 00:07:19.180
Corporate Development Manager
Yep.

00:07:20.260 --> 00:07:30.440
Researcher
Those were the first six questions. Like I said, this isn't going to take very long. This is on general the usefulness of the process. Would you like to add anything except from what you already said?

00:07:31.270 --> 00:07:36.370
Corporate Development Manager
No. Let's go through the questions and then if I have something to say afterwards, I, I I'll let you know.

00:07:33.680 --> 00:07:34.010
Researcher
OK.

OK, the next items are on user friendliness or ease of use. Let's say that you would be using the process yourself or administrating it yourself or involved in it.

Ease of Use

00:07:48.050 --> 00:07:51.440
Researcher
I'm learning to operate. The process will be easy for you.

00:07:52.620 --> 00:07:53.450
Corporate Development Manager
For me, yes.

2:19 ◇ Positive

00:07:55.080 --> 00:07:56.100
Researcher
OK, tell me why.

00:07:55.450 --> 00:07:56.060
Corporate Development Manager
Because I have designed the process myself in the company, so I know exactly what all the difficulties and to to put such process in place. I know today what are the barriers. Why are certain people not using it etcetera. So for me myself yes, but for somebody that has to start from scratch, no.

2:20 Because I have de... ◇ Difficulty

00:08:26.230 --> 00:08:29.410
Researcher
Do you think that if we do a if you would go through this process?
Umm, like we did it. So the with the data gathering and the reflection together. Would it have to be done by somebody on the portfolio or would it have to be done by an external person or somebody with an oversight view?

00:08:44.270 --> 00:08:46.290
Corporate Development Manager
But I guess that's your process is supposed to be designed by every person that's suddenly has to start something, so not necessarily a portfolio manager. So you should have. So it should be ease of use by anyone.
Not only a portfolio manager.
Because like I mentioned, you could have a portfolio that is specific to IT, but you could have a portfolio that is at company side and you could you could you could say to a team let's say procurement if they want to have that implemented in their own team, they should also be able and they don't necessarily have the portfolio experience you see, so it it for me, that's the benefit of this kind of things is that you

2:21 But I guess that's your process is supposed to b... ◇ Difficulty ◇ Role

can use it in standalone but also in consolidated view
by a company.

00:09:48.030 --> 00:09:48.380
Corporate Development Manager
No?

00:09:49.040 --> 00:09:57.690
Researcher
Yeah, absolutely.

00:09:59.980 --> 00:10:01.470
Researcher
OK. Next question.

00:10:05.880 --> 00:10:06.250
Corporate Development Manager
OK.

00:10:09.410 --> 00:10:11.680
Corporate Development Manager
OK. But they're going to look at our recording?

00:10:12.000 --> 00:10:27.000
Researcher
[Information on anonymization process and
information given to the university.]

00:10:27.480 --> 00:10:33.790
Researcher
**Would you find it easy to get the process to do what
you wanted to do?**

00:10:34.600 --> 00:10:35.020
Corporate Development Manager
Sorry.

00:10:35.650 --> 00:10:49.180
Researcher
**So would you find it easy to get the process to do
what you wanted to do? So would you find it easy
to correctly assess the performance of the portfolio
and then also come up with valuable improvements
and evaluate those improvements?**

00:10:50.170 --> 00:10:51.960
Researcher
Following the steps that we did, yes.

00:10:50.440 --> 00:10:50.780
Corporate Development Manager
Yes.

00:10:53.520 --> 00:10:56.350
Researcher
OK. Anything else you'd like to add or not there?

[Participants indicates no]

00:10:59.380 --> 00:11:05.900
Researcher
Your interaction with the process from a portfolio management point of view then would be clear and understandable.

00:11:10.260 --> 00:11:10.750
Corporate Development Manager
Yes.

2:24 ◆ Positive

00:11:14.430 --> 00:11:25.940
Researcher
OK. And how would you see your own interaction? Would you be the person taking the project members through the process or would you want to be the one getting the questions put to you?

2:25 OK. And how would you... ◇ Role

00:11:27.880 --> 00:11:28.820
Corporate Development Manager
The first option.

00:11:29.630 --> 00:11:31.320
Researcher
The first you would want to be a OK.

00:11:32.440 --> 00:11:34.260
Corporate Development Manager
Again, this is very specific to me.

00:11:35.070 --> 00:11:46.690
Researcher
Yeah. No, but that's what I want to know because I can already see there's a big difference between the answers that you're giving and that the others are giving. That's exactly what I'm looking for.

00:11:37.810 --> 00:11:38.040
Corporate Development Manager
Mm-hmm.

00:11:43.220 --> 00:11:43.610
Corporate Development Manager
OK.

00:11:48.350 --> 00:11:51.780
Researcher
Would you find the process flexible to interact with?

00:11:52.450 --> 00:11:52.980
Corporate Development Manager
Flexible.

00:11:53.500 --> 00:11:53.810
Researcher
Yeah.

00:11:54.230 --> 00:11:54.520
Corporate Development Manager
No.

00:11:55.440 --> 00:11:58.470
Researcher
OK. And why not and and is it required to be
flexible?

00:11:59.610 --> 00:12:01.630
Corporate Development Manager
Yes. Enfin.
Is because you have to. You have to adapt to the
context, you have to adapt with the with current
market situation. So that's one thing.
So far I haven't really see the added value found. I
haven't seen the process.
In life, so it's still very hard for me to imagine or to
assess how we how the process will.
Would go, you see, so.

00:12:34.720 --> 00:12:42.610
Researcher
Well, the process would go like we did it, so that
those two first steps, but then a bit more in detail
and a bit longer.

00:12:43.340 --> 00:12:45.190
Researcher
Maybe with some more stakeholders.

00:12:45.220 --> 00:12:51.770
Corporate Development Manager
But so you mean the. So you first have data
gathering, but then you you have all these scoring.

00:12:52.470 --> 00:12:53.300
Researcher
Umm yeah.

00:12:52.730 --> 00:12:53.080
Corporate Development Manager
To be honest,
Uh. With the health and all of that, that part, that
part I I told you, I I didn't really like.

00:12:56.030 --> 00:12:56.300
Researcher
Yeah.

Negative

Flexibility

Difficulty

Health Q's

2:27 No. 00:11:55.440 --> 00:11:58.470 Researcher OK. And why not and and i...

2:28 Is because ...

2:39 S...

2:29 To be honest, Uh. W...

2:43 U...

00:12:59.650 --> 00:13:00.580
Researcher
Yeah, yeah.

00:13:00.610 --> 00:13:04.870
Corporate Development Manager
So that part is for me to to rigid for a company.

2:27 2:29

2:30 ◇ Flexibility

00:13:05.490 --> 00:13:06.070
Researcher
Yeah.

00:13:07.790 --> 00:13:09.840
Researcher
Umm OK.

00:13:09.220 --> 00:13:23.160
Corporate Development Manager
Because how do you assess a one or two or three 4-5 if you don't have a reference, your reference might not be the same reference As for others, so I have reference. We will not assess a three the same way.

2:31 Because ... ◇ Difficulty

00:13:23.840 --> 00:13:24.150
Researcher
No.

00:13:25.540 --> 00:13:52.440
Corporate Development Manager
You see, and that's the thing. When you do a prioritization round, you have to make sure that you have a standard or a reference that when you score and you give something, it's it's it's everybody has the same way of of waging. Otherwise you can't compare. And then you have you have you have really then wrong interpretations or you have extremes and then that's that brings you to too many discussions.

2:32 you have to make sure th... ◇ Difficulty

00:13:39.340 --> 00:13:39.600
Researcher
Umm.

00:13:40.910 --> 00:13:41.130
Researcher
No.

00:13:52.830 --> 00:13:55.800
Researcher
How would you solve that issue from your experience?

00:13:56.460 --> 00:14:11.620
Corporate Development Manager
Well, I I would be very careful with scoring. Uh you.

2:33 ◇ Difficulty

There is a a game that is called the poker game and that you can do when you do prioritizations and you have to make sure that before you start you, you first you have to put people around the table.

You you have to make sure that you put people around the table that are.
Let's see that are close to the business that they can really assess, but also people that are doing project management that you can really make sure that when you do the poker game, so you imagine that you have cards and then you can give scores, OK, you have to make sure that you define the rules very well and that before you start really going to the prioritization, then you do rounds where you're sure that everyone has maybe a pitch of a project that they want to bring forward and then you can listen to the others and make sure, OK.
So he's referenced for five. Is that so? Then you can you have two extremes and you make sure that you have a certain basis for the scoring, otherwise it otherwise it's what I told you when we did the partition in the company. We said one business critical to legal necessity three, but we had to explain it really well what were these categories. Otherwise, everybody will put the one because they want it. It's politics, people want their project.
Approved or budgeted.

00:15:26.880 --> 00:15:32.350
Researcher
Thanks. So that's really helpful for us to take us to take it along for the conclusions.

00:15:32.540 --> 00:15:38.890
Corporate Development Manager
But you you can see our poker game prioritization. It's something used a lot in in projects.

00:15:35.340 --> 00:15:35.550
Researcher
Yeah.
I'm gonna look it up for sure.

00:15:44.120 --> 00:15:48.120
Researcher
Would it be easy for you to become skillful at using the process?

00:15:48.580 --> 00:15:49.820
Corporate Development Manager
What to become what?

00:15:49.710 --> 00:16:04.380
Researcher
Would it be 3 comes skilful at using the process so it would be easy for you to become skilful? Yeah. To be skilful, to be able to apply the process well, you would be skilled at administering the process.

00:15:53.740 --> 00:15:54.490
Corporate Development Manager
Skillful,
Yes.

00:16:10.470 --> 00:16:18.540
Researcher
Yes, OK, I got it. I I think that's pretty much you said that before as well from your, from your experience that would be yeah.

00:16:17.570 --> 00:16:20.060
Corporate Development Manager
Yeah, it's, it's, it's again a.

I'm wondering what you are doing with this kind of answers.

00:16:26.900 --> 00:16:32.430
Researcher. I'll explain it to you in a second. There's a last question, so.

00:16:31.500 --> 00:16:31.740
Corporate Development Manager
Yeah.

00:16:32.980 --> 00:16:36.920
Researcher
Umm, you would find the process easy to use.

00:16:42.710 --> 00:16:43.110
Corporate Development Manager
No.
Umm, no.

00:16:45.950 --> 00:16:46.630
Researcher
Because?

00:16:47.270 --> 00:17:04.930
Corporate Development Manager
Right. Like I mentioned, uh, for me this scoring and the health factors and the risk were for me really too far from reality and all the questions that you're asking are sometimes repeating and are too far from the reality from, from the field.

Appendix 20   Transcript IT Business Manager for OPS

- Timeframe assessment - quite difficult prompting is required from the assessor

- Risk questions are not intuitive should include a timeframe

- the questions are not easily interpreted and a timeframe along with conditions should be included.

3:3 Timeframe assessment - qu... ◇ Risk Q's

Session 3 – Transcript

00:00:00.000 --> 00:00:19.640
Researcher
And then I'll switch to English from now. So the, what what are we gonna do today? We're gonna evaluate the process as we went through it. So first we had a call and I explained it a little bit to you the process and then we did all the risk assessments and the health assessments with the 26 questions.

00:00:02.740 --> 00:00:03.080
IT Business Manager for OPS
Yes.

00:00:20.520 --> 00:00:31.960
Researcher
That was the first part in the second part, we sat together. This three of us to align a bit on the quotations and also come up with some improvements and evaluate those improvements. So that's the process.
As we did it that that we want to evaluate now to do the evaluation, we are using the TAM model which is a questionnaire devised in 1989 by Davis and it's a validated method of doing these kinds of assessments in IT.
There are 12 questions. They are split over usefulness and ease of use, so usefulness. Do you think it's valuable. Ease of use
Can you do it yourself or can you participate easily? Answers are in a yes or no way. Maybe is also an option of course, and I'm in general, I'd like some elaboration as well why you think it's a yes or no or a maybe.

00:01:21.070 --> 00:01:21.960
Researcher
Everything Clear?

00:01:22.880 --> 00:01:23.290
IT Business Manager for OPS
Yes.

00:01:23.900 --> 00:01:29.430
Researcher
OK, if at any moment you want to add anything else
or have a question, don't hesitate to ask me.

00:01:30.630 --> 00:01:38.580
Researcher
**Usefulness items. The first question is using the
prototype process in my job would enable me to
accomplish tasks more quickly.**

00:01:40.000 --> 00:01:51.190
IT Business Manager for OPS
To show the the question on the on the screen, how
car is that not the idea? That would be easier
because sometimes I can read it, I can capture
probably better.

00:01:44.820 --> 00:01:45.110
Researcher
Yeah.
Uh, I can. I can.Absolutely I .
So.

00:01:57.480 --> 00:02:02.730
Researcher
**So using the prototype process in my job will
enable me to accomplish tasks more quickly.**

00:02:03.510 --> 00:02:08.490
IT Business Manager for OPS
And the prototype process which is referred to
means what exactly then?

00:02:09.060 --> 00:02:20.260
Researcher
That's the process that we did together. So our first I
come and ask your opinion on how are all of these
things going? And then the second step we try
together to evaluate and come up with
improvements.

00:02:14.840 --> 00:02:15.250
IT Business Manager for OPS
OK.

00:02:21.080 --> 00:02:21.550
IT Business Manager for OPS
Yes.
And why yes? Because I think it's a more iterative.
And step approach which allows as well as dialogue

and then it will improve the I think the quality of the outcome.
Compared to
Internal reflections or
Pure cognitive approach.

00:02:52.920 --> 00:02:53.220
Researcher
OK.

00:02:55.140 --> 00:03:03.940
Researcher
Second question is using the prototype process would improve my job performance.

00:03:04.790 --> 00:03:06.520
IT Business Manager for OPS
I think it's not the case.
Umm.

00:03:07.440 --> 00:03:07.710
Researcher
Mm-hmm.

00:03:09.560 --> 00:03:17.740
IT Business Manager for OPS
Because that's for me personally. If I look at my job, it's more linked. I would say to people, management and steering.
Based on a clear mandate.
Rather than to come to the conclusions that were in the scope of the this exercise for which the process is indeed valuable.

3:7 Rath...   3:8 f...   ◇ Resp For Output
◇ Relevancy

00:03:33.250 --> 00:03:33.650
Researcher
OK.

00:03:35.240 --> 00:03:39.660
Researcher
Using the prototype process in your job would increase your productivity.

00:03:43.300 --> 00:03:47.690
IT Business Manager for OPS
Maybe I think there if it is becoming
A routine and is documented as such. Uh, so that we would not lose time to each time set it up.
However, if there's a framework in which this process can be repeatedly executed.
That I think it's it would, yeah, it would be more.
Efficient and help. Uh. My productivity, yeah.

3:9 Maybe I think there if it...   ◇ Continuous Impro...   3:42 ◇ Positive

3:10   ◇ Positive Output
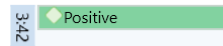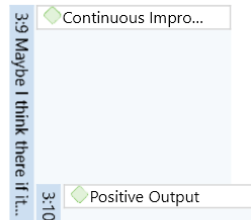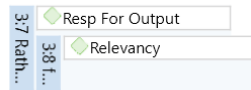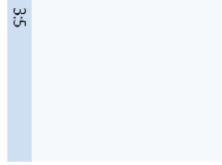
00:04:19.280 --> 00:04:26.930
Researcher
That's then on your productivity yourself, the productivity of your team so the people working for and with you, would they also gain productivity?

00:04:25.870 --> 00:04:34.330
IT Business Manager for OPS
I think it's a yes, then and then. Yeah, I think it's yes as an outcome of the process of course.

| 3:11... | ◇ Positive Output |
| | ◇ Team Influence |

00:04:28.940 --> 00:04:29.290
Researcher
OK.

00:04:41.430 --> 00:04:45.690
Researcher
Using the prototype process would enhance your effectiveness.

00:04:50.080 --> 00:04:51.130
IT Business Manager for OPS
I think so as well.
Yes.
Because I think because of the process you will come tomorrow, quality conclusions.
Again in a. A collaborative way because you. Yeah include more.
People and have a structured dialogue.
So again, if it's well done, then probably the effectiveness of the job which a result of the process.
Let's see of the process will improve as well.

3:12...	◇ Positive
3:13 Because I t...	◇ Dialogue
3:14 So ag...	◇ Positive Output

00:05:31.210 --> 00:05:31.530
Researcher
OK.

00:05:33.260 --> 00:05:37.000
Researcher
Using the prototype process would make it easier to do your job.

00:05:38.930 --> 00:05:39.690
IT Business Manager for OPS
Ohm.

00:05:40.840 --> 00:05:45.900
IT Business Manager for OPS
I wouldn't say it's easier, uh, because the complexity would remain the same.
But let's say the focus would improve.
And the alignment.
Amongst the team would improve as well on the priorities on the focus items and so on so.

3:15...	◇ Neutral		
3:16	◇ Positive Output		
3:17 And t...	◇ Positive Output	3:38 And t...	◇ Team Influence	3:18...

00:06:05.810 --> 00:06:08.720
Researcher
You would find the process useful in your job.

00:06:09.320 --> 00:06:10.280
IT Business Manager for OPS
Yes, I think so, yes.   3:19 ◆ Positive

00:06:12.220 --> 00:06:12.530
Researcher
Right.

00:06:13.330 --> 00:06:13.550
IT Business Manager for OPS
Yep.

00:06:15.010 --> 00:06:18.430
Researcher
Are there any additions on the part of usefulness?

00:06:19.630 --> 00:06:21.860
IT Business Manager for OPS
Putting a said most of it, I think, yeah.

00:06:22.310 --> 00:06:22.750
Researcher
All right.

Ease of Use

00:06:24.090 --> 00:06:45.500
Researcher
The next part are the ease of use items. So if you would put yourself in a position where you are either performing the process so administering it to a group, or you are like we did it now in a group where people are asking your feedback and your input, how easy would it for you to use and follow that process to be a part of it?

00:06:46.880 --> 00:06:53.440
IT Business Manager for OPS
You're a practitioner of that already you've done that yourself now in this very exercise, right? So.So, I have to put me in your shoes.

00:08:34.010 -->00:09:09.280

[CONNECTIVITY ISSUES IN MS TEAMS]

Researcher
Yeah, ease of use items learning to operate the prototype goes this would be easy for you.

00:09:09.560 --> 00:09:13.620
IT Business Manager for OPS
Would you show it again? Eventually I could help.
Thanks.

00:09:15.720 --> 00:09:16.430
Researcher
There you go.

00:09:17.970 --> 00:09:20.930
Researcher
So learning methods that process would be easy for you.

00:09:23.130 --> 00:09:23.590
IT Business Manager for OPS
Yes.

3:20　◇ Positive

00:09:25.690 --> 00:09:30.400
Researcher
And that's then from the point of view of you administering it to people, OK. [Participant nods]

3:21 A...　◇ Role

00:09:37.000 --> 00:09:41.900
Researcher
You would find it easy to get the process to do what you wanted to do.

00:09:47.570 --> 00:09:49.500
IT Business Manager for OPS
Maybe should. Maybe there clarify again what is the goal of the process?
to compare the objectives of the process with my own intentions and to to map that which is not crystal clear for me yet.

00:10:06.990 --> 00:10:07.220
Researcher
OK.

00:10:08.100 --> 00:10:15.210
Researcher
So objective and the process is to come up with improvements for the management of the portfolio. So it's a tool to support the portfolio manager.

00:10:25.190 --> 00:10:35.310
IT Business Manager for OPS
It would be. Uh, maybe your yes, it would be easy. Should I be specifically in that role of program manager? Of course, which is not the case, but I think it then.
Will be easy to to apply and to.
To supporting the role now.

3:39 It would be. Uh,...　◇ Difficulty

3:23 Of course...　◇ Role

3:22　◇ Positive

00:10:46.650 --> 00:10:50.040
Researcher
Your interaction with the process would be clear and understandable.

00:10:53.750 --> 00:10:54.680
IT Business Manager for OPS
I think so, yes.

3-24 ◇ Positive

00:10:56.870 --> 00:11:05.980
Researcher
What kind of interaction would you see in general? So in your current function, would you be the person giving it to people or the person giving information?

00:11:07.830 --> 00:11:08.700
IT Business Manager for OPS
Umm.

00:11:10.430 --> 00:11:16.260
IT Business Manager for OPS
If I place myself in the role of a program manager, I would use it towards.
Other staff, stakeholders.
To get additional informations and.

3-25 If I place myself in the role of a program manager, I would use it tow... ◇ Role

00:11:26.230 --> 00:11:29.610
Researcher
You can speak from your current role because you're another group/function.

00:11:26.520 --> 00:11:26.770
IT Business Manager for OPS
Yeah.
Yes. Yeah, from my current rule basically as well.
It's there not. Yeah, it's different than the program manager, but.
My interests or my curiosity is the same, let's say, to make things clear and to see. Yeah. What this, what is living in the portfolio. And there I think It can help and what I've seen it's clear understandable as well so.

00:12:00.560 --> 00:12:03.880
Researcher
You find the process flexible to interact with.

00:12:07.350 --> 00:12:08.030
IT Business Manager for OPS
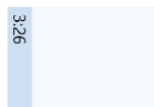Ohh.
Flexible. Not really, no. I think it will.
Pretty standardized.
Questions.
Ohm.

3-26 Flexible... ◇ Flexibility ◇ Negative

Yeah, I think we're the binary from the interaction point of view. So don't see there
a lot of flexibility as such?

00:12:38.700 --> 00:12:49.720
Researcher
Maybe to add to that that the process is not flexible, if you could modify the questions, would that improve it or or reduce the user usability?
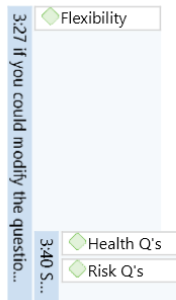
00:12:50.250 --> 00:12:53.580
IT Business Manager for OPS
That would probably improve it, I think from what I remember, yes.
I would.
Suggest a change there. Probably some of the questions.

00:13:05.680 --> 00:13:09.310
Researcher
Would be easy for you to become skillful at using the process.

00:13:13.520 --> 00:13:14.440
IT Business Manager for OPS
Ohh.
Maybe I think you had the skills come more from.
A certain.
A program more or methodology and experience rather than for the certain questionnaire or set of questions as such.
So I don't think it's.

00:13:41.900 --> 00:13:42.190
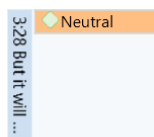Researcher
Good.

00:13:42.940 --> 00:13:47.110
IT Business Manager for OPS
Yeah, I don't think it will affect the skills directly.
But it will be an addition. Let's see in the.
Your toolbox.
That can be of use rather than than improving the skills itself, I think.
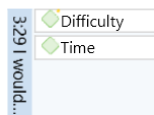
00:13:59.970 --> 00:14:02.670
Researcher
Do you require training on the process?

00:14:04.490 --> 00:14:21.810
IT Business Manager for OPS
I would have a basic training on the process that I think yes to get really it into the into the fingers because we've tried but yeah we had didn't have that the luxury of of a lot of quality time together

3:26

3:27 if you could modify the questio...
◇ Flexibility

3:40 S...
◇ Health Q's
◇ Risk Q's

3:28 But it will ...
◇ Neutral

3:29 I would...
◇ Difficulty
◇ Time

neither so that that I would prefer to have yes.
To capture as well the most of out of it to grab most
of the.
Out of the process.

00:14:31.510 --> 00:14:41.280
Researcher
So the so the the process is it's put forward, but
university is quite a bit larger with a lot of extra
steps, but it was already quite hard for me to get
people.

00:14:39.720 --> 00:14:39.990
IT Business Manager for OPS
Sure.

00:14:42.260 --> 00:14:49.250
Researcher
But to get the right people and definitely for calling,
it was really difficult. So I reduced it to the bare
minimum that I could.

00:14:42.300 --> 00:14:43.610
IT Business Manager for OPS
Yeah. Yeah, yeah, yeah, yeah.
Yeah.
Yeah, you done well I think.

00:14:52.970 --> 00:14:55.500
Researcher
Would you find it easy to use?
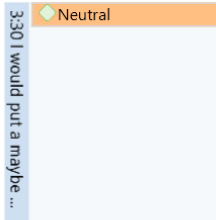
00:14:58.760 --> 00:15:00.850
IT Business Manager for OPS
I would put a maybe again because I'm.
I would, yeah, actually to to use it first or from me in
the driver seat, let's say to.
And using it before I can make a good judgment on
on that one, it has potential, I think from what I've
seen, but.
Yeah. And they cannot give a firm answer to that yet.

◇ Neutral

00:15:21.410 --> 00:15:25.320
Researcher
**Would it be easier to use for you if you would
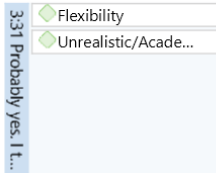modify the questions?**

00:15:27.810 --> 00:15:31.850
IT Business Manager for OPS
Probably yes. I think tailoring is always a good
practice.
I think you are up to your own organizations and the
dimensions and.
As well, little bit the the overall.
Framework or context in which you are going to use

◇ Flexibility
◇ Unrealistic/Acade…

it.
So I think it's always good to adapt some of the more purely academical approach of things.
So yes, probably yes.

00:16:02.160 --> 00:16:06.650
Researcher
Basically looking at so this is, this wraps up the standardized part of the questionnaire.

00:16:07.270 --> 00:16:07.860
Researcher
Umm.

00:16:08.980 --> 00:16:14.270
Researcher
Just in general, what kind of things would you change to the process as you've seen it?

00:16:17.400 --> 00:16:19.950
IT Business Manager for OPS
Ohh changes uhm.
Yeah, which maybe?
Yeah. For me it's more.
I think we we had to go quickly, I think and so.
Probably it would allow the interviewee to have more.
Quality time maybe written?
Written comments now we had to do it in online sessions, verbally or orally. I think the quality of feedback maybe would be better. OK, you, you missed the first intuitive response then, but I think the overall quality on the answers would be better if it can be done and written so that I would consider. But it takes then time. Of course, again and maybe. The time to get there will then be be enlarged.

◇ Time

◇ Difficulty

00:17:22.710 --> 00:17:33.320
Researcher
Yeah, as a frame of reference. The time foreseen by the original process is almost 7 to 8 hours per participant.

[Removed for brevity, not relevant]

00:18:17.390 --> 00:18:25.480
Researcher
And I didn't feel right for me to do that in this company, seeing how busy people were. And I know it's also the Corporate Development Manager already said that she's felt like she was writing my thesis.

00:18:30.060 --> 00:18:39.290
IT Business Manager for OPS

Yeah, yeah. No, no, but yeah, if you're interested in this type of process, then you're more process oriented. A thing to do it well.

00:18:40.570 --> 00:18:45.370
IT Business Manager for OPS
If you want to, yeah, build an the quality from the.

00:18:46.850 --> 00:19:01.880
IT Business Manager for OPS
From the provision of information point of view that I think it was rather quick, like we we handled it and there's maybe a personal opinion here like 10 to to reflect a little bit on it and eventually write it down, but OK let's.

00:18:57.980 --> 00:18:58.350
Researcher
But.
I agree with you it's it was quite quick. Yeah, but that's that brings me to the last question. Then I'm would you still like to invest some time in further expanding on the group session?

00:19:16.530 --> 00:19:17.040
IT Business Manager for OPS
You mean?

Yeah. So for me, after this interview, this is not what I need for the thesis is done. I have sufficient information. I can start my analysis. From a personal and professional point of view,
Would you like to go back to the to the group session and still expand a bit on more of the items?
For me that is OK because I think it was very useful and we we definitely had no time. I think you had done to jump to questions which had a certain relevance, or which would allow a good discussion based on the differences in in replies from the first session.

00:19:50.690 --> 00:19:51.090
Researcher
Mm-hmm.

00:19:59.640 --> 00:20:05.400
IT Business Manager for OPS
But I think it was a very good debate, and because we don't apply it directly on the organization itself. You know current processes and we are working and the fact that we had different.
The angles of viewpoints with the different functions amongst the tree made it very useful and and interesting debate. So yes, I I think it was a pity that

3:36 Yeah, yeah. No, no, but yeah, if you're interested in...

◇ Time

3:34... ◇ Positive

3:41 But I think it was a ... ◇ Dialogue

3:35... ◇ Relevancy

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we had to cut them after that hour.
I think it was the most interesting part actually of the
of the exercise.

00:20:32.480 --> 00:20:43.830
Researcher
Asking the question because I can still try to set
something up. IF everyone is interested I can still
organize something.

00:20:39.230 --> 00:20:39.450
IT Business Manager for OPS
Yeah.
Yeah, of course you will. Will go? Yeah. For her?
Depends. Yeah.

00:20:45.140 --> 00:20:46.290
Researcher
She's going on the same time.
But what's so special is just you, me and very mental.
Still brainstorm.

00:20:51.220 --> 00:20:58.780
IT Business Manager for OPS
Yeah, that's OK. So because the interesting thing is
that's why he is interested as well is that we are of
course doing.
But the the content and the subject of your exercise
here is very relevant and hot now, because we really
try to get better grip on non portfolio and and so on.
So that's why I think we have a certain interest as
well.
When there myself as well because the CIO asked
towards the end of Q2 end of June.
Uh to come back with an intake document and
intake process for IT for
Projects, but as well to yeah, to have progress on the
inventory.
The management part, which is rolled out, what
myself aware that need to do, everybody has to
contribute and IT, but it would have have meant a
good input and another value for that as well.
So the outcome there for just for information that
we would make it kind of a Gantt chart with an
overall project name and very short description, but
then put it against the timeline on with the monthly
or quarterly window, not in too much detail.

Relevancy
3:37 Yeah, that's OK. So because the …

00:22:05.770 --> 00:22:24.120
IT Business Manager for OPS
Uh to actually visually view then already the the the
magnitude of the projects, the the number of
projects that we're dealing with from IT side which is

1 approach of of of viewing it, but it's can be much further than that one of course.

00:22:24.830 --> 00:22:36.140
IT Business Manager for OPS
But just to show that's OK, they're actively tasks assigned, let's say within the IT department, which go fully in line with the the the scope of of your exercise and the the content.

00:22:37.580 --> 00:22:42.080
Researcher
I'm gonna stop the recording now.

[End of recording. Closing remarks]