

Supplementary Material A: Interview quotations relating to propositions

Here we provide transcriptions of representative interview passages referred to in our results section. The transcriptions generally stick to the interviewees' exact wording and contain only minor grammatical adjustments for better readability. We translated German quotations to English where needed. The order of the quotations listed here corresponds to the order in which they are referred to in the results section of the manuscript.

Table 5: Extended interview quotations related to the propositions

Proposition 1

Company 1, interview 1, 38:55 – “We have a relatively strong sales and marketing unit, making up almost half of our workforce. [...] Of course, there are many people with lots of ideas, also with demonstrably good ideas. The fact that there exists a certain frustration since not all good ideas can be realized, is really quite regrettable [...]. This is the organization's level of suffering [...].”

Company 3, interview 2, 15:27 – “In the past, there was often the problem that projects [...] had very strong interdependencies, were not managed well. [...] Parallel projects that do not work in a coordinated way do suddenly not fit together anymore regarding their goals. This is unfortunate, and it is even more unfortunate when it is detected too late.”

Company 3, interview 10, 4:34 – “We had the situation that [company name] business was requesting a lot of project demand in a non-structured, non-portfolio way toward IT. [...] the demand was around 22 million projects that were requested, while IT had a delivery capacity of around 8 million.”

Company 3, interview 10, 5:55 – “Prioritization mainly was by company hierarchy or by who is shouting the loudest, and this goes along with a constant switch of priorities, which led to huge frustration on the business side and IT side. [...] The result of not having project portfolio management in place was very clearly huge frustration on the business side, no one felt his project being delivered, and on the IT side, even though we work 24/7 and long hours and whatever we can, we get very bad feedback because everyone is blaming us that no projects are delivered.”

Company 3, interview 8, 13:37 – “There was a core frustration of all IT employees that they could not satisfy customer needs. And at some stage, they could also not satisfy their own needs. [...] There are basic needs of humans, one of them is security, one of them is

significance, and one of them is a nice social environment. [...] When the people at some stage do not feel significant anymore, not feel valued, that they can bring value to the company when people are not feeling secure anymore, because others are just throwing topics and they don't know what to do, and when the people don't feel comfortable in their social environment, change needs to happen.”

Company 3, interview 5, 26:50 – “The duration of the [SAP] rollout was the main trigger. [...] We had a big bundle of countries where we had to implement SAP, so that means one SAP rollout for each country, we had a lot of mergers, so a lot of things happened. [...] All the knowledge was in the people, and we had the situation that a lot of people left in one month, and we had a big problem here because we had no documentation.”

Company 2, interview 7, 3:08 – “Even though we were the fourth location, [...] we encountered a blank page, we thus had no handbook, no cookbook, for how to implement an ERP system.”

Company 2, interview 6, 11:08 – “The importance of the ERP was decisive, it enjoyed very, very high management attention, and the projects had a tremendously long duration. [...] Those were the first measures where it really became apparent that we had to change something in our methodology.”

Company 2, interview 8, 23:35 – “What is always utterly bad in projects is when suddenly the colleague with primary responsibility moves to another company [...]. This did happen, and then topics got very much stuck. [...] Some projects, therefore, took forever.”

Company 3, interview 2, 17:35 – “That was certainly a very, very broad circle [...], certainly IT, to a relatively large extent, from upper management to consultants in individual teams. [...] It takes a while until all opinions get heard until there is an exchange, workshops are held and the best results are collected. But also beyond IT, many, many were involved in this change management process.”

Proposition 2

Company 1, interview 13, 24:28 – “In my view, the challenge is that we as a company do not know a hundred percent what we want. [...] We are scoring demands and saying ‘I'm an innovation,’ ‘I'm a growth topic,’ ‘I'm a maintenance topic,’ or ‘I increase productivity.’ But, at least as far as I know, nothing in our portfolio management says: In 2017, we want to invest in maintenance or innovation such that a portfolio is being navigated. We really pour in everything simultaneously, [...] and everyone complains that demand management does not work.”

Company 3, interview 8, 26:10 – “In the end, it always comes down to what you want to achieve. You want to create value, whether it’s financial value or whatever, but you want to create something, and there should be a common understanding in the company, and this is the success factor of how to achieve this. So the management of projects is a tool, it’s a toolset the company uses to create the value, and how these tools are being used and adopted, that every company can decide on their own [...].”

Company 2, interview 6, 37:12 – “It is still a process. There were difficulties in essentially understanding why [to do] project management in the first place. What do I get out of it? What is a project? What is a project organization? [...] That was a challenge we had.”

Company 1, interview 4, 17:22 – “You really have to talk to everyone again and again and to keep documents simple enough, so that everyone knows what is meant and what you aim at.”

Company 3, interview 5, 17:02 – “We discuss it very often, also internally, what is the reason, and I think the reason [that employees do not stick to processes and guidelines] is that they see it as something very bureaucratic, they see it as an overload, they see it as an addition, and at the end, they do not see the reason why we are doing this. And even if you explain, and we explained it a lot, and also the Project Management Office explained it a lot, [...] the people do not see why we are doing this.”

Proposition 3

Company 1, interview 5, 47:04 – “The top management linked [the introduction of project management] to expectations that we could never fulfill. And such disappointments are of course setbacks. [...] In fact, from day one, one of the main slogans by the management was: ‘I want more and faster’. And there we have tried – over and over again, I believe – to curb these expectations, and with that, I think, we usually failed.”

Company 1, interview 2, 41:18 – “In the end, the question is ‘What is exemplified from above, and what is communicated, and what is expected?’ [...] Here we have, I think, two camps: [...] and we have those driven by opportunism, maybe also driven by the market, who see that something is growing on the market [and say] ‘We have to go there to seize the opportunity. For those, the long-term and medium-term is of course rather obstructive. Or they say ‘OK, we can do it,’ but in the end, they nonetheless do it otherwise. This camp still exists.”

Company 1, interview 1, 51:00 – “As soon as the management does not support you, you lose. [...] The management supported the introduction of the DMO and also the introduction of this whole portfolio management cluster, and this is, from my view, a very,

very critical success factor. [...] The management has to – and this is very, very critical – abide by their own decisions and by their own decision-making routes. [...] This did not work to a sufficient degree at the other company where I was in a similar role, with the result that the management at the other company made decisions at the green table based on gut feelings, decisions that were actually project decisions, and projects were initiated that neither had a proper project plan nor a proper profitability calculation [...], and then you had complete chaos in that area. [...] Maybe you have to understand it to some extent from a psychological perspective. When someone has made it to the level of a company executive, they would like to be allowed to do anything they want, and not everyone in this situation is capable of letting themselves be limited by some formalities and regularities.” Company 1, interview 6, 38:18 – “When demand management is located four hierarchy levels below the management, you of course eventually have the dilemma that no matter what the management preaches, it has relatively little force in the operative realization.”

Proposition 4

Company 2, interview 4, 50:04 – “Of course, you should not forget one thing: [company name] has now already been on the market with its products for some time and is a grown, owner-run family enterprise. For an organization like [company name], it is of course not so easy to get rid of old habits. [...] There are still many people that have been here for 20/25 years.”

Company 2, interview 5, 37:06 – “I think in the departments, the understanding of why we are doing this is developing only slowly. At first, many have the impression of ‘Why is this so complicated? Why do you install so many obstacles?’ [...] We have been doing this for some time now, and at the beginning there was a lack of understanding: ‘In the past, you always did it this way. Why does it take so long now?’”

Company 2, interview 6, 39:52 – “There is also some frustration, there is no question about it, also on the part of project managers, when we said ‘You now take the role of a project leader’, without them having the methodical experience or education. [Interviewer asks how long it took to establish the PMO.] It is never completed.”

Company 3, interview 1, 49:24 – “The first year we have to explain ‘What are we doing? Why do you ask me a lot of stupid things? Why do I have to fill out this strange Excel sheet? [...] I’m not going to get my project in?! That’s not possible, I’m doing my project.’ That kind of discussion was a lot more in the first year. And in the second year, OK, there were such discussions, but we managed to set the expectations and the understanding of the topics and how they will impact them, which means we saw also many of the stakeholders

being more proactive. So, in the first year, we had to pull the stuff out of them, second year, many of them said, ‘Wow, if I am not taking care of this, I am not going to get this very important thing that is part of my target agreement done. [...] I think it was a natural maturity level. [...] By sticking to it, we were also able to get more buy-in from the people, so they understand the impact, and they understand what it is about.’

Company 1, interview 9, 23:30 – “That was the [company name] mentality: ‘We do everything fast and unbureaucratically, and everyone who wants something can go to someone,’ and I think this change in the heads, that due to the size, everything has to work in a much more structured way and has to be supported by processes, this has still not been understood to the last detail by all employees.”

Company 1, interview 10, 55:30 – “What we had before and what we still have [is that] those who shout the loudest get what is not always in line with the strategy and company decisions. I think the whole demand management/portfolio process can be an enormous instrument of power for the company leadership, and I think the company leadership has not yet understood this and, in the end, almost views us as opponents. [...] Projects are initiated, endless discussions about what is most important, where is the highest benefit, and then a great idea from XY comes around and this idea is pushed through.”

Company 1, interview 2, 40:40 – “What we actually experienced was the first round of strategic demand management, which dealt with medium-term topics. That was, let me say, a catastrophe, because at that time, [company name] did not at all have this body of thought: ‘We think strategically. We consider what will be in three years.’ [...] This has indeed manifested itself in some regard.”

Company 1, interview 8, 14:54 – “The organization first has to learn that topics should be placed early – ‘must’ is still out of the question. [Otherwise] it would still be that a topic just comes around the corner and is nonetheless pushed through.”

Company 1, interview 8, 35:11 – “Persons/projects receive money from the organization, and we should take care that it is being used accordingly, and not just ‘Here you go!’. Because this would otherwise be the case, and it is still in the heads of many.”

Company 1, interview 5, 35:44 – “Regarding the topic of tools, it is partly [...] an excessive demand for the people. MS Project is complex software. [...] I can understand that those who don’t permanently use MS Project are not enjoying it and like to shirk regularly updating the project plan.”

Company 1, interview 13, 23:38 – “Those not working 24 hours with JIRA should, I think, not be expected to deeply [sentence stops]. [...] When it is expected from someone to log

in only once a week, then the system should be such [...] that you nevertheless understand the things.”

Proposition 5

Company 1, interview 3, 12:57 – “The disadvantage that arose occurred when the analysis and the solution design for the demand management were ready [and] the contracts with [name of consultancy firm] were not renewed, which means the implementation itself was on us [...]. And this, of course, led to certain friction losses and to the fact that it took us significantly longer [...].”

Company 1, interview 9, 41:16 – “The whole trigger came from this consultancy firm, [...] back then there were already workshops on portfolio management, on resource management, on its necessity. But that was elaborated to a degree of maturity that we could, *ad hoc*, never have reached. And then everyone shied away and thought, ‘Oh God, we will never carry this off’. [...] I had the feeling that this deterred all of us a bit.”

Company 3, interview 5, 11:53 – “We have a lot of external project managers here, more than internal. [...] This was one big target, to handle all these external staff that are working here, to make them aware about our project management, what we are using, and to take care that they are using it. [...] We are working in this PMO with two half-time colleagues, and this is not enough, [...] especially to handle the external colleagues.”

Company 2, interview 6, 32:40 – “I need system support that I have not yet found on the market, one that connects all the facets to each other. This means in the end that the whole topic of capacities, resources, budget, costs, investments, projects, demands, priorities, change of priorities, and workload [sentence stops here]. How does this change when I include the project, what is then my overall situation? [...] We are still dealing a bit with in-house development. I was also at the market with bigger software providers, where there are many, many single products, but none that is tailored to a specific company.”

Company 2, interview 6, 27:44 – “That is again a matter of practical capability. There is no *one* method, I think, it is always a mix of several parts. [...] It has to be tailored to [company name], and perhaps it also has to be tailored to the departments. [...] You also have to look at it from case to case.”

Company 3, interview 6, 47:56 – “There are some projects that haven’t been finished in the last year. Why? Could be some IT issues, could be organizational issues, people have no time to define this, some unexpected things, whatever, so it cannot make sense to throw something in the basket which is nearly finished. [...] You cannot define this with a 100% proof rule setup. This has to be somehow negotiated.”

Proposition 6

Company 1, interview 3, 47:35 – “And then our former Head of IT left, who had also been an advocate and promoter for demand management and structured processes, and the replacement took, I think, three quarters of a year. These were the additional challenges that, I think, increased the braking effect a bit. [...] Of course, you start at zero again with your explanation, so the trigger, so to speak, is completely gone [...]. And the new Head of IT, I think, has still not understood to this day why we took these decisions.”

Company 2, interview 1, 40:32 – “We have also experienced a personnel change within IT [...]. Many colleagues that have been here for 15 or 20 years and who had thus witnessed the beginnings of this project guideline have left in the meantime. There are now many new people regarding project management, who have their view [...], or who have not seen so much what has been done here during the last 10/15 years, and therefore we probably have relatively high training needs, since [those you had left] had grown into it.”

Company 3, interview 6, 36:09 – “In the last years, [...] the attention went down. [...] If you have some rules defined and some templates, you need always a driver for this, [...] also you need some sponsor for this.”

Company 1, interview 3, 34:47 – “Rather a step backward that we experienced at the end of 2016 was that the RPPB [i.e., the Resource and Project Prioritization Board] was suddenly inflated by further members of the Executive Board. Suddenly the personal manager is included in this committee, who has no idea what we are talking about, and who does not know our business. [...] Wrong direction. The other way around: Have trust, give three, maybe four experts on this topic the responsibility and say, ‘You can handle it, please do it’.”

Company 3, interview 8, 43:18 – “Once people are getting known to it, they want to find their loopholes and do their pet projects. And the bad thing is that even IT management is promoting pet projects, and so they are discouraging the compliance with the process with that. [...] If IT does it, why shouldn’t the business, logistics do it?”

Company 1, interview 5, 41:18 – “It has, I think, also been realized that the role of a project manager is none that can be imposed on just any colleague, but that it also requires certain skills and competencies. Today, it happens only rarely – we still have it, but rarely – that someone is appointed as a project manager because they are available at the moment or because they accidentally have some interest in the topic. I regard this as enormous progress.”

Supplementary Material B: Interview guide

1. Introduction [5 minutes]

- Welcome the interviewee and introduce the team (+ give business card).
- Explain the reason why we are here and the interview's aim
- Duration of the interview
- Anonymity
- Explain that there might be some redundancies or questions you might think we should ask someone else => intended! I want to capture your specific perspective.
- Explain that we sometimes need to interrupt to refocus – apologize
- Explain briefly how we define PM and PPM and perhaps ask if they use other terms or are familiar with our definitions
- Ask for permission to record the interview
- *[Turn on the recorder]*

2. Personal information (maybe in combination with identification of their values/structural arrangement) [5 minutes]

- Personal Data: Name, position, employed since, departments/roles in the past, anything else?

3. Start with PM/PPM points of contact [5 minutes]

- Could you please describe your responsibilities in COMPANY with PM/PPM?

4. Overview of PM/PPM at COMPANY [10 minutes]

- Roughly how many projects have been run at COMPANY – per year / last five years
- How is the project portfolio currently managed?
Initiation, Selection, Steering
- Only for operative staff:
How are projects managed?
Along the project lifecycle: initiation, planning, execution, closing
Tools, methods, processes, standards, norms, ...
High-level overview!
- Is there a dedicated PM/PPM governance? If so,
Who makes major decisions?
How does monitoring work?
How does escalation work?
- What is the role of the PMO?
- What is the benefit of PM/PPM? – in general / regarding organizational success

5. The history and development of PM/PPM at COMPANY [3 minutes]

- Looking back at COMPANY over the years, please describe its history of PM/PPM in the organization.
Development of a rough timeline with dates and changes to PM/PPM
Important: Timeline needs to contain successful and less successful attempts to advance/change the PM/PPM
- For each change:
What was the trigger for the change?
What exactly changed in terms of processes, structures, tools, governance, etc.?
What was the outcome of the change?
- Let's now talk about the changes you are most familiar with and can talk about:
For each change, how exactly did the change happen?

Phase 1: Problem Analysis

- What was the trigger for the change? Repetitive execution and failure / low success rates? Or planned experimentation?
- How was the situation before the trigger (normal mode)?
- Were you surprised? Did you (other people) expect the problem?
- What were the underlying problems? Please describe in more detail
- Did you analyze the problems?
 - If yes, how? Discussions, workshops, communication, ...
 - Who was involved?
 - What information did you use?
 - Where did this information come from? PM/PPM Information systems
- How did these problems and the analysis change the way how these people (you) think about PM/PPM? Definition of PM, how it is applied, how it solves problems, how it contributes to success

Phase 2: Solution development

- How did you develop a solution to the problem(s)? Workshops, ...
- What was the process like?
- Who was involved?
- Did you use any external resources (e.g., consultants or knowledge resources)?
- If yes, which?
- Why?

Phase 3: Approval

- Was the solution formally approved?
- Who approved the solution?
- How did your solution change the way how these people (you) think about PM/PPM? Definition of PM, how it is applied, how it solves problems, how it contributes to success
- What was needed for approval?
- Did the approval help with the later implementation? Why?

Phase 4: Implementation

- How was the solution implemented subsequently?
- How was the process?
- Who was involved? Top management, middle management, team, further stakeholders
- What were the roles of the involved people?
- How did you realize the organizational change? Training, participation, communication, ...
- Was there any resistance? Why? What were the fears/beliefs of the people who resisted?
- Did the new solution change the way the whole organization (you) think/s about PM/PPM? Definition of PM, how it is applied, how it solves problems, how it contributes to success
- If yes, what changed?
- Was the solution accepted?
- How long did it take to make the change sustainable?
- Was there any kind of backslide to old habits?
- Why? Why not? Elaborate.

Phase 5: Impact

- Was the change successful? Were projects or the project portfolio more successful? If not, why?
- Eventually, how was the way people (you) think about PM/PPM affected? Definition of PM, how it is applied, how it solves problems, how it contributes to success
- Were any further conclusions drawn?
- How did you go on?

6. Own belief system

- Definition of PM, how it is applied, how it solves problems, how it contributes to success

7. Conclusion and wrap up

- Thanking them for their support
- Explain the further process: Interview summary (small protocol) will be sent for approval
- *[Turn off the recorder]*
- Outlook: Further project phases