Danmarks Tekniske Universitet

DTU

Restorage Titgemeyer

42430 Project Management

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January 24, 2023

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1 Executive summary

This report describes how Titgemeyer went from a messy, almost random storage building to a well structured storage department with space enough for the forklifts to drive around and a functional digital solution which keeps track of inventory and placement of goods.

The project was carried out by the company CEO, Steen Toft Borner, and the PM, Lars Milo. They had no previous project knowledge, but still managed to work their way through to success following a Gantt chart given by a consulting firm, but otherwise doing their due diligence, making sure they managed to get everything done right and without major problems or conflicts.

Having a functional Gantt chart gave them a work flow on which they established a basis for the project lifecycle and work breakdown structure. Though they may not have had the knowledge from the beginning, they ended up following some of the core fundamentals of project management.

An example of these fundamentals was the stakeholder management as the CEO and the PM worked together closely. The CEO gathered all the information from the week and presented them to his colleagues every Friday morning to keep them both informed and interested. This is shown in the report by the Influence/Interest matrix that has been deduced from the information gathered during the interview. In said matrix it is intuitively visualized who were the most important stakeholders. Storage workers were kept high as they were essential to achieve project success. This is because if they were unhappy with it: higher risks would have incurred, as they are the ones most affected by the change brought by the project.

Even though they got off to a great start, with a little help from a consulting company, they did not really know what to expect between start and finish. However they managed to keep the project (mostly) conflict free and without hitting any major risks along the way. Despite that, uncertainties were high. This is also shown more in details through a SWOT analysis in the report. What can be extracted from the study of such perspective is that they had more to gain and less to lose. Risks were mitigated mostly by doing the project alongside the old system. Which means they only stopped using the old "pen and paper", when they were actually sure the new system had been tested and every storage worker knew how to operate with the new IT-solution.

With this new system in place, and the project a success, they were then able to increase the turnover rate in the storage department and stop a lot of paper waste. This means the office workers don't have to go trough time-consuming and disorganized paperwork anymore, but can instead spend more time to address different activities in a much more structured workplace.

2 Introduction

Titgemeyer Group is an international fastening technology company with over 700 employees spread over 16 sites across Europe. Titgemeyer Skandinavien A/S is one of these branches with 12 employees situated in Greve Denmark. The branch was established in 1979 and thus has a long history of operating in Denmark. Titgemeyer Skandinavien A/S mostly functions as a grosser, which redistributes fastening tools to professionals. This means that the management of their warehouse and their inventory is of high importance, as it allows them to run a smooth operation which can serve their customers needs expediently.

The Titgemeyer restorage project was initiated upon the request of arrival of new CEO at the Scandinavian branch. Steen Toft Borner (CEO) took notice of the disorganized chaos of the inventory and storage system. Steen appointed Lars Milo (PM) as project manager, and delegated the task of coming up with a solution to the issue at hand. Over the course of a year, both Steen and Lars went through a series of educational processes to learn as much as they could, since none of them had any actual experience running a project like this. To get inspired and work out which solution was best for their specific case in fact, they attended a few seminars to review the different IT-solutions available to use in the project.

The most important aspect of this project was the quality, there was obviously time and budgetary constraints, but of lesser importance. From the interview and case information, it became obvious that the scale of the project limited the size of the task force. It was more or less two people, learning how to optimize storage with the assistance of an IT system. The stakeholders mostly involved were those for whom the project would change the work.

Throughout this report, it becomes apparent that the Titgemeyer restoration project was carried out with a rolling wave mindset. Although the case itself was not adhering to classical project management theory, a strong relation to different models and tools could still be seen and taken advantage of. This means that the report analyses a few of the decisions made throughout the project, adding educated assumptions based on the interview and the email exchange with the PM and CEO. Whilst a project of this size doesn't necessarily have to use a lot of project management tools, it is obvious that the chosen path has led to a much longer duration, compared to the focused effort that the consulting company brought to the table.

This report has put a greater focus mainly on the purpose and complexity perspectives, because they were the most interesting lens through which we could examine the project management of the Titgemeyer restoration project as well as the ones that prompted the most interesting discussions within the group. The main recommendation for the future to the Titgemeyer Scandinavia branch is to perform an initial business case when undertaking a new project. This would allow them to analyze the costs and benefits of making the project themselves, vs. hiring experts to do it for them.

3 Methodology

All of the information in this report is based on an interview carried out in the first week. Both Steen Toft Borner (CEO) and Lars Milo (PM) were interviewed. The interview lasted for almost an hour, where a tour of the company and the storage room was initially given, and later a through introduction to the project in detail was discussed. Besides that, the group proposed and had some follow-up questions which were later answered by Steen alone over a shorter interview and email exchange. After the first interview completion, a lot of material has been gathered which really gave the group a feel of the timing and management of their project. Mostly the material gathered was:

- Consulting firm proposed Gantt chart
- Overview and planned steps of the project development
- Several before and after pictures of the storage room
- Digitalized drawings of the different zones and regions of the storage room

All the data used for this report, has been given throughout the interviews or comes from documents provided after said interviews. In regards to the quality of the data, there are the somewhat called "positives-negatives". The data from which the report work has been carried out has been mostly good, however several educated guesses had to be taken for the model construction, as the Titgemeyer team did not really directly used them.

Afterwards, a discussion in our group has taken place, in which we carefully analyzed the given information to be certain that they were unbiased. Unfortunately no financial data could be retrieved from the company, so it cannot be said for sure if the project was a success or not and if the information were biased or not. It is however trusted that no strong bias influenced the overview of the project after analysis of the data and review of the recorded interview. Time could have also been spent interviewing other stakeholders to confirm what just discussed of the project to fact check, but this was not done due to time constraints Besides, other stakeholders were mostly less involved in the management part of the project and would have been only a very small part of the story.

The models used in this project were all taken from the 42430 Project management course, however some have been slightly changed visually to best fit in the report and the overall structure in mind. The data from the interview has since been applied to the models, and if data was missing, qualified assumptions have been made, based on information and course knowledge. The models have been chosen because they were deemed most applicable and relevant to the project at hand.
As this report aims to form an objective look at the project carried out by Titgemeyer Scandinavia, the report should not be prone to research bias. But having five different group members check up on each others work has significantly reduced the risk and effect of biases and preformed opinions from individual group members. The followup interview was also carried out to correct unwarranted assumptions based on misconceptions.

4 Purpose

Here the purpose of the project will be introduced, alongside outputs and benefits gained from the completion of the project. Furthermore the life cycle will be studied and graphically shown, and finally the success of the case will be analyzed. Several models and tools will be proposed and explained.

4.1 Projecting

After interviewing the project manager and the CEO, a clear view of the projects raison d'etre was established. The main purpose of the project was to restructure the warehouse at Titgemeyer Scandinavia due to its very chaotic nature. Prior to the project completion, items were arranged in an inconsistent and mostly randomized way which led to goods not being placed on their respective shelves and some even stationed on the floor. The pain of this chaotic storage is the increased time it takes for employees to pick goods for customers, as well as the lack of overview over current inventory.

The location of the items was therefore difficult to track due to the lack of a systematic way to arrange and organize the inventory. It was then obvious that the disorganised warehouse was costing time and money for the company, since items were not entering and leaving the facility at the optimal and theoretically achievable speed. The inefficiency weighted down and affected both warehouse workers, who spent a lot of time allocating and finding items, as well as desk office workers who needed to have a clear overview of the inventory.

The purpose of the project is easy to see from the situation as it was, which is why the team started with a vision and a goal of having a more clean, organised, safe and functioning warehouse. Although they did not have any real structure or plan in mind as to how to get the project done. It will be shown in both the people and complexity perspectives how the project has been carried out and its different aspects.

4.2 Outputs, Benefits and Sustainable Development Goals

The project offered some interesting outputs and benefits as also shown in Table 4.2.

Outputs	Benefits
Better organisation	Greater potential revenue
Faster decision making	Less heavy lifting
Cost efficient	Potential to be up scaled

Moreover, the case involved and touched upon different SDGs (Sustainable Development Goals) and they are hereby listed:

- [03] Good health, due to the decrease in the risk of injury.
- [08] Good jobs and economic growth, because the system is now efficient in terms of time and money.
- [09] Industry innovation and infrastructure
- [13] Climate action, as an additional part of the project has been that of replacing the previous neon lights with brand new and much better LED lights.

4.3 Context

Titgemeyer, being predominantly a sales company, with no past experiences from similar projects meant that the organization started out with the so called "rolling wave" mindset. Such approach to projects consist in an iterative scheduling technique that uses progressive elaboration to plan the project as it unfolds. This is typically used when there is not enough information to create a complete schedule up front, which was exactly the case for them.
In the interview the CEO and PM mentioned that they gradually got to build up the experience needed step by step as they proceeded and moved forward with the project, which falls in line with the "rolling wave" approach to project managemment.

In regards to the organization structure of the project, what we learned from the interview was that there was no real distinction of power between the CEO and the PM, but rather equal footing (although Steen, the CEO, had clearly the final say if needed). The way they handled the planning and organization phase was to have several meetings and discussions both between themselves and with the warehouse operators to address the different issues that progressively showed up under different lights and perspectives. These verbal meetings and discussions helped define and narrow the scope of the project.

4.4 Lifecycle Analysis

Titgemeyer Scandinavia started out with an overview of the project from a consulting firm, which proposed to carry out the project with a budget of roughly half a million kroner. After careful consideration they decided to carry out the project by themselves, by adhering to the life cycle below. The lifecycle of the project is illustrated in Figure 1 whereas the proposed full lifecycle in a Grantt Chart form is shown Figure 8 in the Complexity perspective.

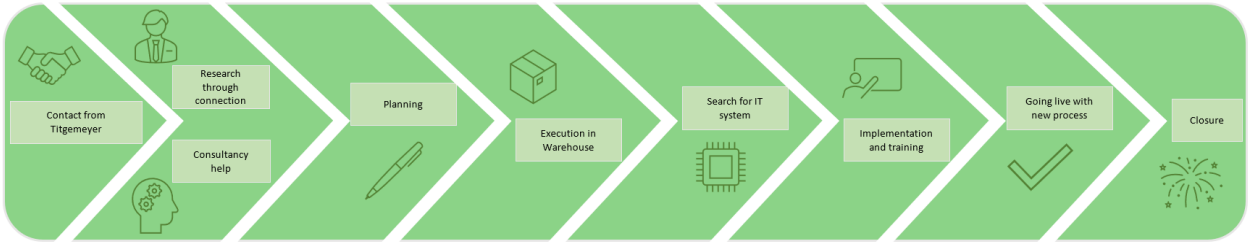


Figure 1: Life cycle analysis of the Titgemeyer Restorage project. The company started by seeking advice, then implementing their new storage and IT system before going live after 3 months of training.

4.5 Iron Triangle

Following this brief analysis of the project from the purpose perspective, the question of the success of the project remains "did Titgemeyer Scandinavia succeed with their restoration project?" Before evaluating the success of the project, it is worth mentioning that the team soon realized they had no real time constraints for the project and hence prioritized the quality and the cost over keeping specific deadlines. A further visual representation through the project management triangle, shown in Figure 2, is therefore given to represent the priorities of Titgemeyer Scandinavia in this project.

Figure 2: Triple constraint method applied to this particular case.

4.6 Conclusions

We are now ready and have all the tools and means to answer the question at hand.

In conclusion: The Titgemeyer restoration project came out of necessity, as the management of the warehouse limited the growth of the branch. Since Titgemeyer Scandinavia is a subsidiary company under their German parent division, the German CEO needed the turnover rate of goods in the Scandinavian branch to grow. The new managing director, whom had just started in the office, decided they needed more structure in their storage facilities to reach this goal. The decision to reject the old system and start working on a new one was based on the fact that there was no structure or organization in the way storage was kept. Some things were on the floor and others were inaccessible with a forklift, and needed to be lifted by hand despite the size and weight of some products. After the completion of the project the storage facilities have been cleaned up and are now at all times accessible with a forklift, this alone has been a massive success for the branch as the company can spare time picking orders for customers. At the same time, working on incoming and outgoing orders can now be done with ease thanks to the new IT-system implemented as a final round up in the project. This is seen as a success, as the project and the project managers goal was to achieve a high quality over the time spent or resources used. It took them almost a year and expenditures of around 100.000 - 150.000 DKK to reach the goal of a quality solution and a reorganized storage facility.

Recommendation: Projects like the Titgemeyer Restoration project, and projects in general will have a better success rate if they are planned out from the beginning. In this project, there was a light plan based on the recommended workflow given by the consultancy firm. Steen and Lars could have gone through this to lay out a complete plan for how they wanted their project to go before they started. This might have saved them some trouble. In short, getting a clear idea of scope/success criteria before undertaking the actual work of the project would have pushed this project to the next level.

5 People

5.1 Stakeholder Identification

In order to introduce the team and their different roles and influence over the project as well as their motivations, the decision has been to rely on the stakeholders identification model.

To quote the project manager and managing director in the interview:

"At the time we had seen the project as a necessity for the expandable storage, it was not safe nor functional anymore and something had to be done for both our customers and our workers".

This quote illustrates two of the most important stakeholders in this project. The storage workers need the project to mitigate work accidents, and the customers will benefit from this project, through reduced delivery time and better customer service.
The project team is made up by Steen and Lars in close collaboration with the warehouse workers, which made the change very smooth for all parties involved, as there was no need to push any unprompted change on anyone unwillingly.

Below is a stakeholder identification model with the most significant stakeholders related to this project. [3]:

- CEO Steen Toft Borner
- project manager Lars Milo
- Titgemeyer Scandinavia
- Titgemeyer Germany
- Customers
- Warehouse workers
- Office workers
- Honeywell (IT supplier)

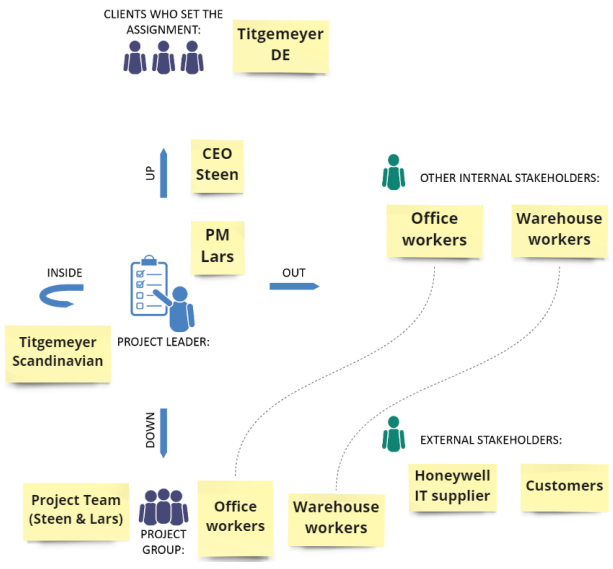


Figure 3: Stakeholder identification applied to the case to better identify their roles

Now, by analyzing what proposed, it can be seen that the CEO and the project manager are placed as the main project leaders since they worked side by side on this project. Lars, the

project manager, was responsible for the daily work and decision-making, but he also sought Steen's advice when necessary. Honeywell, the consulting company and the customers are the external stakeholders in this project. Honeywell is the IT-solution company Lars and Steen decided to include in the project in order to organize and digitalise the entire production section, while the consulting company gave them the steps necessary to fulfill the project. Finally, the customers are the end goal for the storage solution. Through such innovation, they will be able to get their products booked and delivered much quicker than before.

5.2 Influence matrix

Stakeholder management is important when working on a project and of equal importance is the fact that people can have different opinions or interests "in" or "around" a specific case.

In order to better show and assess the different interests and influences that the stakeholders had in the project, an influence matrix has been used: as shown in Figure 4.

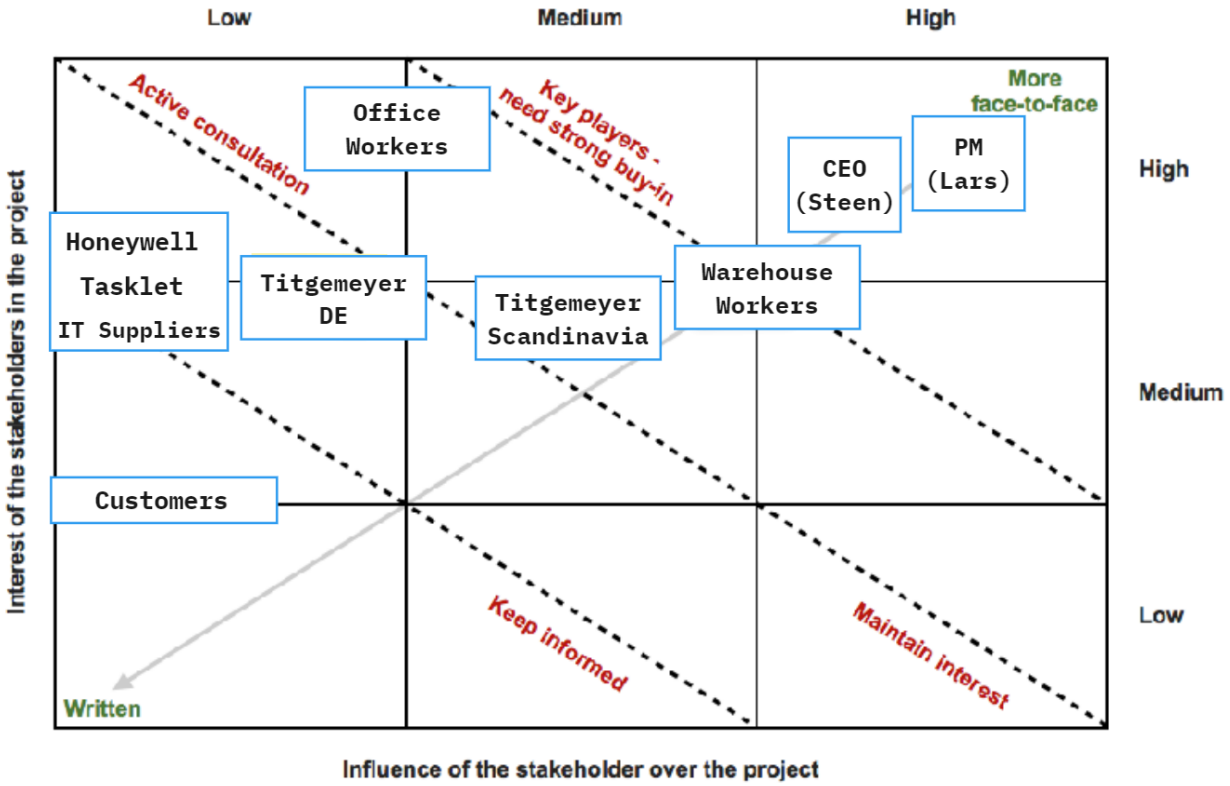


Figure 4: Influence matrix for stakeholders assessment purposes applied to the particular case

Key observations from the influence matrix are listed below:

- The CEO and PM had the strongest interest-influence ratio over the project.
- Office workers and warehouse workers were actively consulted and questioned over the whole duration.
- Both Titgemeyer DE and Scandinavia have been kept informed and up to date with the project for financial reasons.
- IT suppliers in general had a strong role as they were the ones to provide scanners and the overall system, however very low influence over the project.
- Customers were just kept informed about the relevant developments, but they did not play a particularly important role as of influence-interest ratio.

In the figure 4 we have noted Lars and Steen as the stakeholders with most influence and interest in the project. This means they have to agree and take action before the project can get further in development. They only really managed to disagree on a single major thing, which pushed their timeline: The amount of training in the new scanner system before they were ready for full implementation. Steen wanted as much training as possible but after three months, Lars managed to convince him it was enough. Now this was their only actual conflict in a project spanning over almost a year. The conflict was quickly managed as they talked it over and never became more than a discrepancy.

5.3 Internal value proposition canvas

The value proposition canvas (Figure 5) describes the situation as it was before the project, from the customer perspective. In this model, the role of the customer is presumed to be the workers in the office and the warehouse, and thus the gains, pains and jobs describe the status prior to the project. Steen (CEO) and Lars (PM) sought out to reorganize the storage of their goods, whilst simplifying work processes by digitizing their product management. If successful, the project would do well in alleviating the pains and providing the gains that are sought after by the affected workers. This model shows that the internal stakeholders needs and wants are well managed.

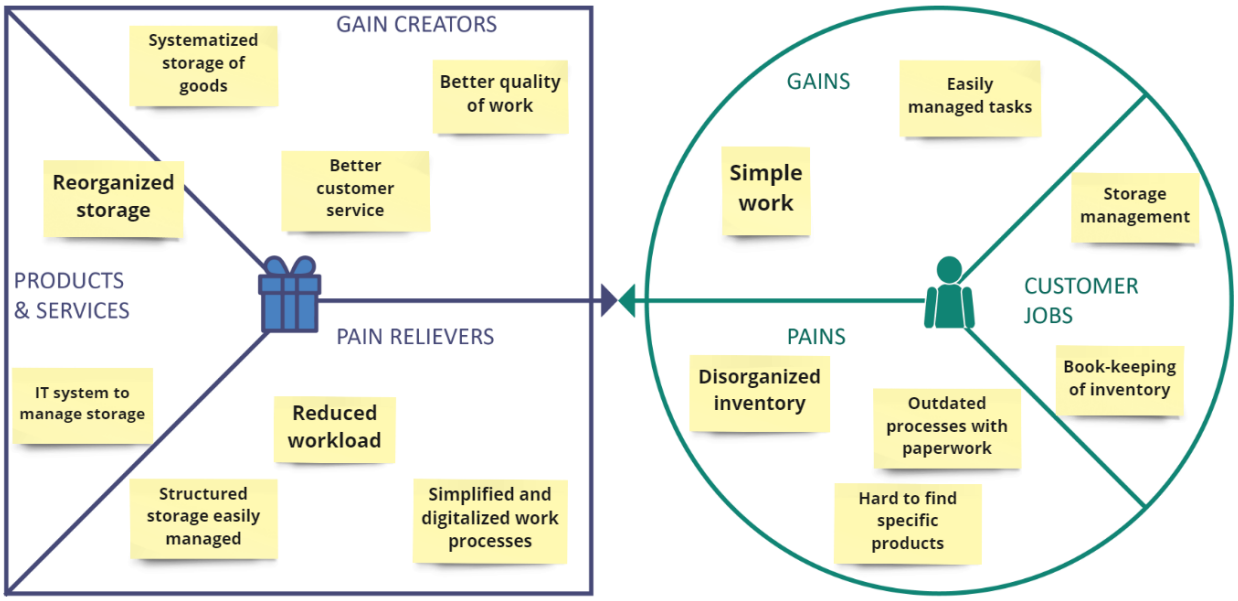


Figure 5: Value Proposition Canvas for the warehouse restorage project at Titgemeyer

5.4 Conclusions

In conclusion: From the different models, we have covered who the different stakeholders are, and to what extent they are related to the project. We worked through the stakeholders and how they are connected, showing how they had influence in connection to their interest in the project and what the project had to offer when finished and the hindrances it removed. The PM and CEO worked together on this for some time to get it done. They took their time getting from phase to phase, but managed to get there in the end. Having gone through such a project, they learned a lot when it comes to those around them, such as stakeholders. They are experienced people to begin with and could draw on some of that when it comes to managing stakeholders from a business perspective. This was adequately enough, as the project was mostly based on cost and less on time, so the stakeholders would not really care about the timing of it all, just that it was done within a justifiable budget.

Recommendation: Even though they did well in managing some of their stakeholders, they did not go in depth finding every one they could, neither did they dive deeply into the wants and needs of stakeholders indirectly affected by the project. This is important, as changes to scope can come from people with some influence and if they are not kept regularly informed, those changes can be presented when they are least wanted. Therefor it could have been smart to get every stakeholder informed and have them included in making the scope. This way there are no unwanted surprise change to the scope later in the project, as it has been discussed in the beginning of the project. So keep everyone informed and lay out a clear scope from the beginning that everyone can agree on just to avoid later changes.

6 Complexity

Throughout this section, an overview of the work breakdown structure is given as well as a few intuitive models and tools to better visualize and grasp the complexity of the project itself. Furthermore, the role of the consulting firm is explained.

6.1 Scoping

In the case study, the scope of the project was initially defined as a goal breakdown. However, with the help of a consulting firm, it evolved into a work breakdown structure. A graphical representation of the WBS following the progress of time is then shown in Figure 6. However, it should be noted that the scope was not comprehensive at the beginning. It started off as a very rough idea and got polished with time and experience.

As the project progressed, the scope was refined and expanded upon, taking into account new information and feedback from stakeholders. This helped to ensure that the scope remained aligned with the overall project goals and objectives, and that all necessary tasks and deliverables were accounted for.

Figure 6: Goal breakdown identifying different activities. Here the implemented downward pointing arrow shows time progressing. Furthermore boxes containing said activities on the same horizontal level are to be understood as possible to perform at the same time.

6.1.1 IT-System

The PM and CEO, Lars and Steen, attended a seminar where they were introduced to two different companies within the IT-solutions for storage maintenance department: Zebra and Honeywell. Since both of them operate on the same software it was only about choosing the hardware that felt best. They ended up with the Tasklet system provided via Honeywell scanners. This system is based on Microsoft's Navision system (ERP-system). A contract was made with them for a monthly subscription of the software and the scanners were later bought. (The hardware) outright.

6.1.2 Consulting firm

As for what concerns the help sought from the consulting firm, it has been learnt throughout the interview and the email exchange had with the team, that it helped providing milestones and deliverables to the scope which allowed for a more detailed and structured approach to the project. Moreover it helped the former and the team to better understand the specific tasks needed to be completed in order to achieve the overall goals.

6.2 Learning curve

It was noted that the project team was unable to use historical data as it was the first real project they did of its kind. So, as previously noted, they used expert judgement from a consulting firm, which was brought in to provide insight and guidance. Although not all of it was of value, they got some important information out of it and ended up adopting a learning curve approach as shown in Figure 7, where they gradually had more information and better understanding of what they were doing, as the project progressed.

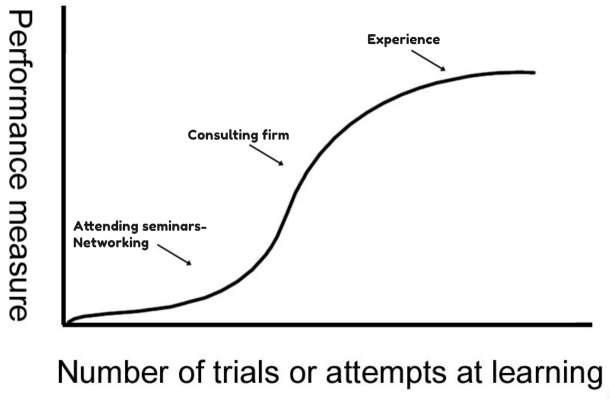


Figure 7: Estimated representation of the learning curve tool, in which we can appreciate the measured performance against the so called "attempts at learning" plotted in an increasing fashion. Point of interest is the steep increase when consulting the firm and the plateauing due to the accumulated experience

According to the information provided, the estimates were accurate in terms of time and money. However, it is to be mentioned that the consulting firm required a significant amount of money which could have been avoided since the expert judgement was not that useful overall, as specifically mentioned by both the CEO and the PM during the interview.

6.3 Scheduling

From the interview we learned that the project team had a Gantt chart, seen in Figure 8, developed by a consulting firm that was brought in to provide guidance on project management.As we know they never actually used the timing of the Gantt chart proposed by them, but fortunately the expenses of the consulting firm was paid for, through an initiative by the government after Covid called "GenstartNu", so it was not a complete waste of money.

"We did use some of the Gantt chart, the objectives, so it was not completely useless. But we would have like to use the money somewhere else".

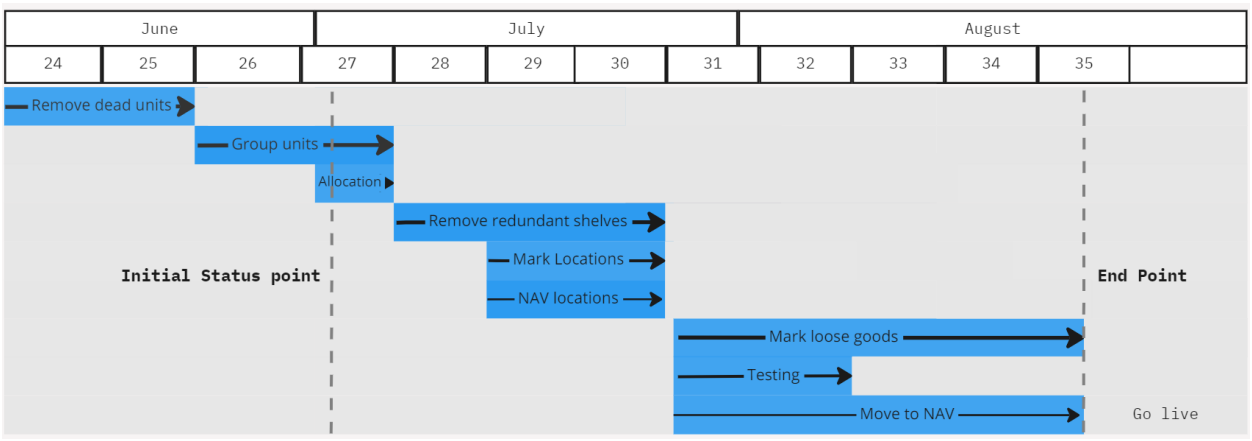


Figure 8: Gantt Chart proposed by the consulting firm, redesigned by the team for better visual impact of the scheduling

In particular the tasks may be further elaborated as follows:

- Remove dead units: getting rid of all the outdated/ not for sale inventory lying around inside the warehouse
- Group units: collect and subdivide the inventory in smaller categories for later smart storage
- Allocation: deciding where said small categories of inventory should be placed
- Remove redundant shelves: getting rid of multiple shelves with the same items, grouping them up instead

- Mark locations: labelling all the different locations and regions of the warehouse to easily find them later
- NAV locations: implementing the different locations in the IT-software
- Mark loose goods: labelling of the goods that do not belong to any category to be able to specifically find them if need be
- Testing: trying the different and new method
- Move to NAV: finally leaving the "old system" and moving to the better, improved new version

The firm was responsible for creating the initial version of the chart (which is not included here, instead a revised version is attached) , which included all the major tasks and milestones for the project and the team then modified the chart to accommodate their specific needs, such as adding more tasks, adjusting the duration of certain tasks, and updating the dependencies between tasks. So in the end it was not used for anything else but tracking the milestones throughout the project's life cycle.

Gantt charts are commonly used to represent the start and end date of each task as well as their relation with one another in terms of dependencies. Had Titgemeyer chosen to stick to the Gantt chart, or develop a different scheduling model to stay on track, they would have been able to cut down on the duration of the project.

6.4 Conclusions

In conclusion: There was a limited amount of contracting connected to this project. The first contract was a subsidized consultancy project which produced a project plan, with budget, estimated schedule and resource plans. Titgemeyer signed a contract with Tasklet which provided them with setup for the organized storage, a subscription for the IT-system and the accompanying hardware needed to keep the system running. The solution proposed by the consulting company had a budget of half a million DKK(Danish kroner), which was found to be excessive by the team and this is why Titgemeyer chose not to sign a contract with the consulting group. However, from the interview, it became obvious that there was no real budget, and they instead chose to limit their expenses by conducting most of the work internally. It was then known that the project should be considerably cheaper than the one proposed by the consulting firm, namely five hundred thousand DKK. That budget did not change over the duration of the project. A budget is a crucial component of project management as it sets the financial boundaries and helps the team to manage the expenses. Without an accurate and specific budget, it can be difficult to plan and manage the project, as well as ensure that it is completed within the specified time frame and budget. This lack of budget specificity can also make it hard to identify potential cost overruns and make adjustments accordingly. In this case, it's possible that the team could have faced difficulties in managing the project and controlling the expenses.

Recommendation: From the sections above (Purpose and People), it becomes clear that the informal and unstructured approach to the project has resulted in an extended time frame, with difficulty in tracking costs, due to the amount of work put in by the PM and CEO. The lack of a clear, specific planning and structure can lead to delays, overruns, and wasted resources. To optimize the project plan, it's important to establish clear objectives, detailed tasks and deliverables, a defined timeline and budget, and defined roles and responsibilities for all team members. Additionally, regular review and progress tracking should be in place to identify areas for improvement and make adjustments as needed. Establishing realistic and well-defined timelines and milestones could have helped the project team to track the progress and make adjustments if necessary, and to meet the expectations of the stakeholders and ultimately optimize the realization of value while limiting waste.

7 Uncertainty

Throughout this section, an overview of the possible strengths, weaknesses, opportunities and threats will be analyzed using the SWOT module. Furthermore an insight of how Steen and Lars analyzed, monitored and adapted to the possible risks will be given.

7.1 Anticipation

The risk anticipation and planning phases of the restorage of Titgemeyer's warehouse facility were first conducted by Steen and Lars, who recognized that a key factor of improving the profitability of the branch was the optimization of the storage. From lack of experience in this sector, they deliberately spent a lot of time planning ahead, and defined which steps to take in order to create the best solution (see Figure 8).

However, since the danish group did not have any specific time constraints, they did not focus particularly on potential risks that would occur in the future. Indeed, the managers knew they would need to find ways to relocate shelves, and search for the correct IT solution to digitise the locations of the products in the warehouse. But they chose to operate from one step to another, dealing with the problems as they came.

7.1.1 SWOT analysis

Doing a project often suggests making predictions and decisions for the future. Taking such actions requires a lot of experience from the past, but also the ability to make accurate assessments of the potential risks that lie ahead in the project.

There are several stages of uncertainty in a project that are key elements for keeping track and staying within the given time and monetary constraints. First, the majority of the risks should be recognized and evaluated in the phase preceding the beginning of the project, so the project manager and stakeholders involved are aware of their impact and likelihood.

This can be done by the help of a SWOT analysis, which Steen and Lars performed on their own. A similar version constructed by using the information gathered from the interview is therefore given in Figure 9.
In particular the attributes gained by achieving the project presented in Figure 9 may be further elaborated as follows:

Strengths

- More competitiveness: by having faster delivery time and easier access to inventory
- No time constraints: Titgemeyer at the time of the project had no real time constraints, which played in advantage
- Digitalize inventory: by having everything digitalized less time looking for the items could be wasted
- Higher turnover rate in the warehouse: faster pace in the warehouse and hence possibility for more customers to be satisfied

Weaknesses

- Inaccessible software: might be hard for warehouse workers to adapt to the new method.
- Lack of knowledge: since no real experience was matured in such a field before starting the project

Opportunities

- Environmentally friendlier: as society requires companies to have a lower footprint, having less paper-waste and LEDs play an indirect role in the SDG 13
- Funding from "GenstartNu": self explanatory

Threats

- IT-Solutions become outdated: future constant investment
- Competition already uses a digitalized solution: so the project may not give the expected outcomes

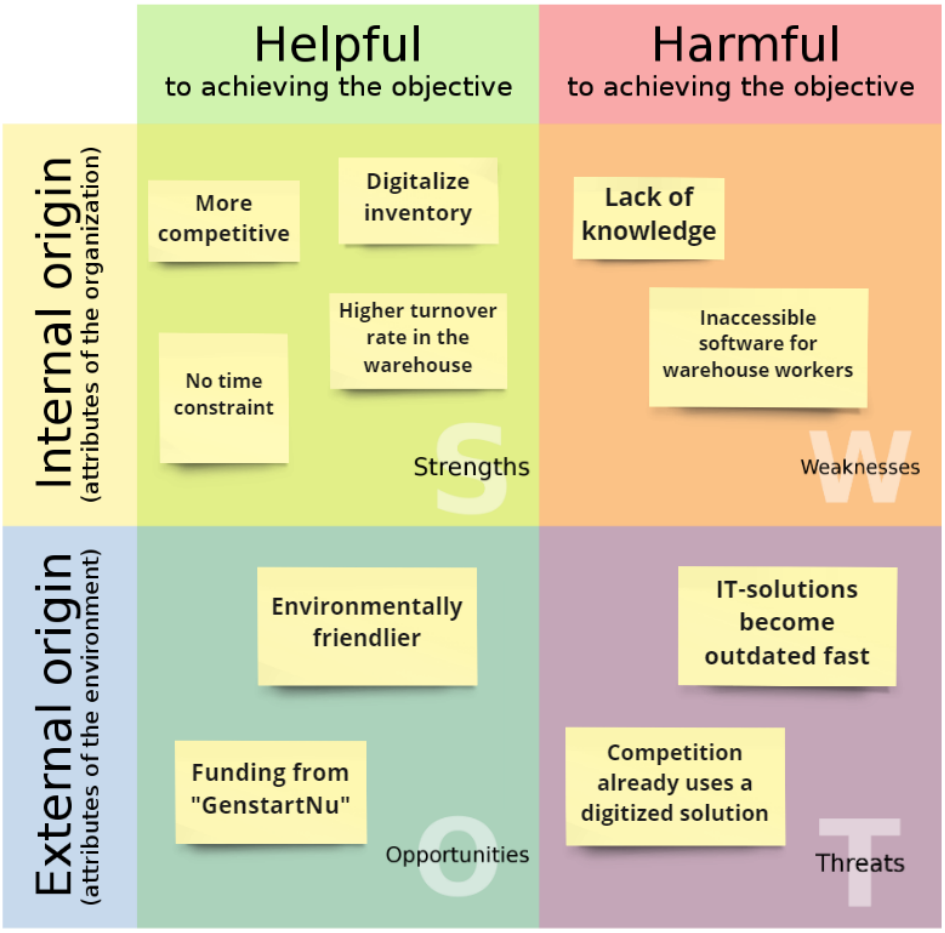


Figure 9: SWOT analysis made based on a before image of the project. What would they have to gain when finishing the project and what should they be careful no to do when going through it.

7.2 Monitoring and Adapting

During the project, the managers focused on clear communication both between themselves, the staff and warehouse workers. They had weekly meetings on Friday mornings, where Lars would update everyone else on the progress. This showed an inclination towards transparency where the managers listened to the needs and expectations of their employees in order to reduce risks. For example, risks due to lack of communication could have led to different views on the setup of the warehouse and IT system, resulting in potential conflicts between managers and employees. This was prevented thanks to Steen and Lars' monitoring and communication with the team, as well as Lars' daily presence at the warehouse.

When the implementation of an effective IT system became of interest, the managers took the time to attend seminars and soak up information about the different solutions available. This part of the project could have been planned in advance, but Steen and Lars adapted

to the situation and decided to reduce risk and uncertainty by learning about the systems.

Furthermore, after the IT system from Tasklet was chosen the employees needed some time to adapt to the new process of receiving and shipping products from the warehouse. The new system was tested and used in parallel with the old system several months before going live. This approach is typically used in IT projects, and is great at mitigating unknown unknowns. By doing so, the managers monitored the team's learning curve with respect to the new system, both from the staff and the warehouse workers perspective. Steen and Lars thus managed to mitigate any risks related to adapting to a new working method.

As a result, both managers relied on clear communication and time spent on adapting, to reduce the risks throughout the project's progress. On the other hand, they could have increased their efficiency to the level of their effectiveness by thinking ahead of their future problems, such as finding a good IT system from the start. However, since time was not a crucial factor in decision making, Steen and Lars chose the right approach by taking enough time to learn and find the appropriate solutions.

7.3 Learning and Interpreting

When the project started, neither Steen or Lars had any experience with warehouse restoring or digitalization. However, throughout the project they both took the time to search and learn before acting, in every step of the process. Preferring to wait in order to find the right steps to make, as well as looking for the correct placement of shelves and the ideal IT system greatly: all contributed to why the Titgemeyer Restorage project was successful. The team in Denmark had to go several times through the "Plan-Do-Check-Act" (Figure 10) phases whenever they were facing a new step, since they only had an overview of the project's process and didn't define any specifics ahead of time.

However, because cost and quality were prioritized over time (see Figure 2), this method substantially reduced the risks and uncertainties for the project.

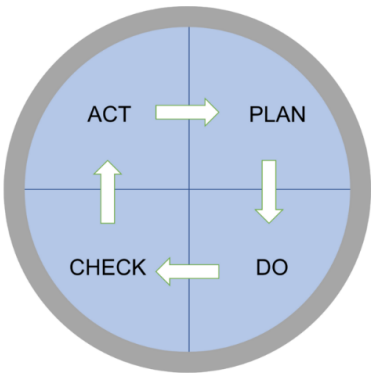


Figure 10: Plan-Do-Check-Act useful tool and guideline to follow for project managers

Now it is also worth interpreting what influenced the managers' decision-making process. The main influence was the emphasis on having a new system of great quality, which gave the managers the freedom to spend money and especially time the way they wanted to. One important decision that helped lower uncertainty was to implement the solution only months after training with the new IT system. This lowered the potential malfunctions with respect to either the IT system itself or the organization in the warehouse. Also, another more subtle risk which can be seen as an opportunity was the managers' openness to learning. In fact, since they were new to this project type, they were able to get inspiration from seminars and consulting firms, an opportunity that would have otherwise been avoided if the project was undertaken by an experienced manager in warehouse restoration. This gave the possibility to take risks in order to find new and better technology that could be implemented and yield an better solution.

7.4 Conclusions

In conclusion: Thus, although Steen and Lars both had low experience with such a project, their patience and instinct to learn before acting resulted in a successful project with low uncertainty and risk. Even without using many of the risk assessment tools, they were able to provide a great solution that increased both efficiency and effectiveness for the staff and the customers. Looking back at the interview with Steen and Lars at Titgemeyer Scandinavia in Greve, the managers mentioned that the job could have been done within a couple months if they had hired a consulting group, but for a much larger cost. If Steen and Lars had taken some time to plan ahead, with respect to choosing a reliable IT solution and delegating the tasks, then the new warehouse system could potentially have taken less time to implement. But as mentioned previously, time was not a considerable factor in the project, which is why Steen and Lars decided to wait longer in order to finish with a great product.

Recommendation: Just as the project starts, Steen and Lars could have gained some insight as to where the project might take a bad turn or take extra long by working through what might go wrong along the way. If they had implemented some risk assessment into their planning, the timeline might have looked different today. However it might not be too different, since they did have other tasks in the mean time next to the project. But having taken this into account when evaluating the risks of the project, then Lars might not have had such a pile up of work to deal with after the termination of the project. This can be seen as a risk that could have been dealt with ahead in the planning phase, saving the managers some time.

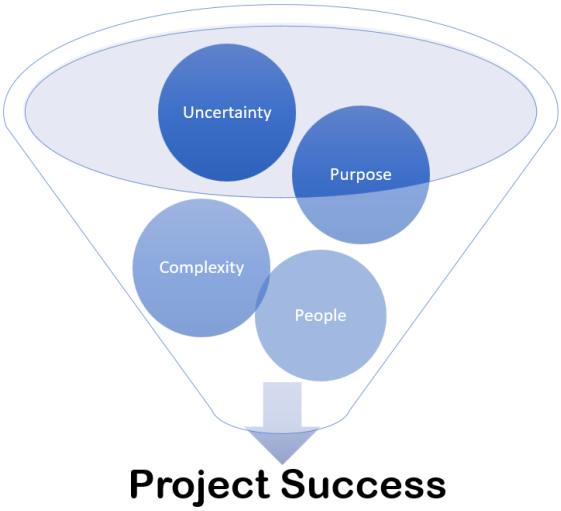
8 Connecting the dots

As the extensive analysis of the Restorage Titgemeyer project case comes to an end, it is now finally time to "Connect the dots". This will be done in a visual and intuitive way.

The four perspectives here discussed, namely:
Purpose, People, Complexity and Uncertainty; can be visualized in many ways.

For instance one can think of them as single bricks that when collectively used may be able to turn a mix of clay, water and iron oxide into a beautiful and compact wall inter-depending on every single other brick.

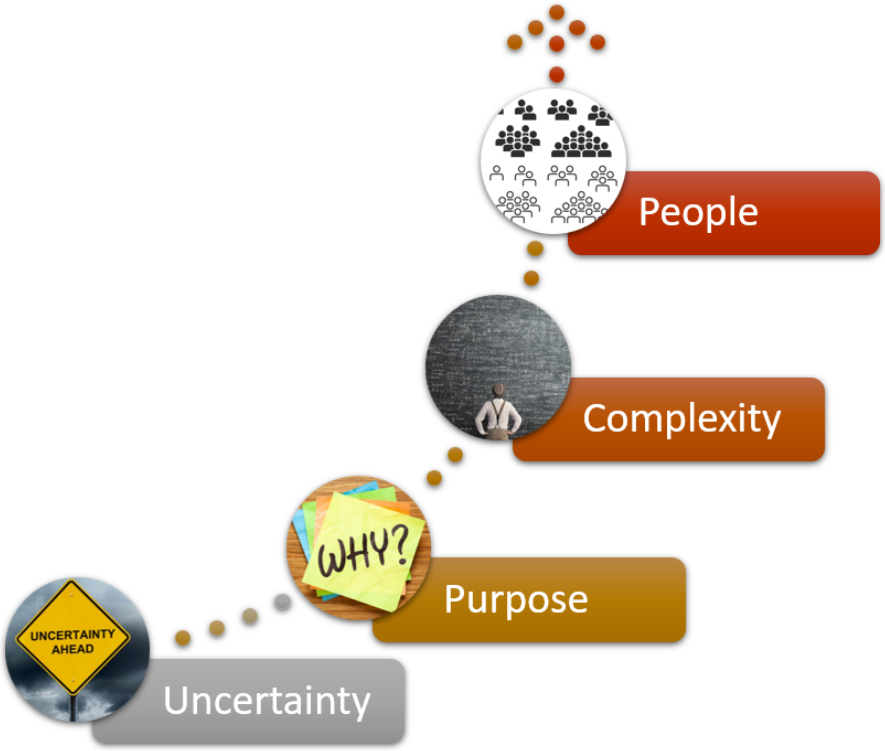
Or perhaps, as even more intuitively visualized and proposed here on the right: as different little marbles - with different value and weight depending on the project - that when put together into the same funnel, give out an output much bigger than the single marbles per se.



But let's move away from imagination and stick to DATA and facts. At the end of such a complex analysis it is clear that each perspective had its successes, its failures and some possibilities of improvement.

Certainly starting a project with just a draft idea and no real experience sets the team and the company up for great risks. By not having a strong business case and no real risk management it was, to exaggerate, a walk in the dark. This is said, not entirely because the project could possibly fail or suffer, but because it may have been even better with the right preparation and tools.

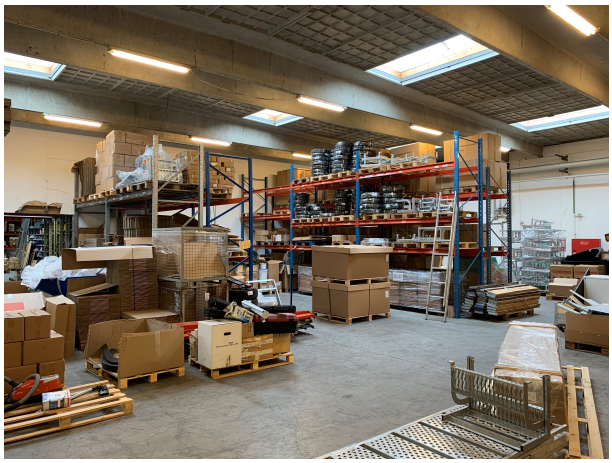
As mentioned in the people perspective, the stakeholder management was done mostly well, as it appeared they did not have many people to respond to. This has proved to be a very good way to keep everyone close to the project always up to date and excited for the change, which was an incredibly strong way to keep everything moving as smoothly as possible. It is furthermore seen, how uncertainties dictated many choices, at times shaped the purpose, made it just that more complex: but also how a good team, communication and desire of learning have overcome such adversities.



Although it was not clear from the data gathered if the extra time spent on the project had been a relevant factor for the project success, a quick, hopefully non biased, analysis may suggest that it somehow was. Finishing the project in a shorter period of time would have probably set the company up to bigger profits overall, however had the change been too fast, more risks and complexities may have arose. It is therefore difficult to address the actuality of the project with the DATA available.

It is known that the main difference between project success and project management success is that the former focuses on the outcome of the project, while the latter focuses on the process and practical tasks involved in delivering the project itself. The project is therefore evaluated as a project success, but an *almost* project management failure: as many things could have been done in a much more professional and thought-through way: such that everything could have been even further optimized and safe.

Finally, to finish off on a good note, a set of before and after pictures is proposed to show how the warehouse drastically changed after the so called "Restorage" of Titgemeyer.



(a) Before Restorage

(b) After Restorage