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Understanding Practical Project Management

A Guide for Project Work

Content

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Understanding Practical Project Management

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Preface

It was Albert Einstein who said:

«Make things as simple as possible, but don't make them simpler!«

This was our exact motivation when we developed the idea of writing a book on project management. It was our intention to keep the entire topic as simple as possible so that everyone could get an easy access to project management. However, it also was our intention to tackle this fascinating topic as thoroughly as possible without leaving out the essentials. Projects change the world. In projects, companies and organizations implement new, unique and cool ideas, make results measurable and turn intentions into success. Behind project management stand complex structures: A group of people aim at dealing with demanding tasks in the most goal-oriented way by being on time, on budget and on quality. Most of these tasks, however, cannot be seen in an isolated way, because there are multitudes of counter-dependencies to take into consideration. Planning and coordination requires networked thinking. Project managers have to meet a lot of requirements evolving from the complexity of the assigned projects. In addition to this they also need to be leaders and role models. In companies and organizations projects play an important part, often taking over a key function, supporting the strategic path, enabling innovation and competitiveness along the way. To cut a long story short – the existence of said companies and organizations is based on successful projects and the project manager very often

needs to mutate into a ‹do-it-all superhero′. This way, project management is thrilling as well as demanding. Good project management sets standards and ensures that all project people speak the same language. In the market we already find lots of literature on the topic and a lot has been written on traditional project management, agile methods or hybrid approaches. So does the market need yet another book on PM? Clearly yes! For more than two decades we have been actively involved in projects. Together we have more than 45 years of national and international project experience in different areas and branches – and we really have seen a lot in our practical project work. In companies and organizations a lot of projects are going extremely well already – in others there is plenty of room for improvement. Good project management is no rocket science, but for project creators it is definitely helpful to dive deep into matters and to ponder on the questions of WHY we need to perform particular steps in the project and how we can contribute to leading our projects to success. We take our readers in a simple, clear and practical way on a journey through all areas of classical, traditional project management and navigate around the five standard phases based on DIN 69901: Initiation Phase, Definition Phase, Planning Phase, Execute Phase, Closeout Phase. We then talk about agile methods and hybrid process models and take a look at which soft skills, respectively power skills, we need in order to incorporate good project management. Every chapter is outlined in an identical way where firstly we introduce the topic, then explain the various steps we need to undertake in each phase and especially the reasoning behind them. With the help of a specific, practical project example (where we describe our journey of writing this book) you will receive the common thread and valuable insights into the

world of projects, because complex issues become a lot less tricky with practical, comprehensible examples at hand. All events in our practical project example that describe the phases that take place after uploading the manuscript are mere anticipations to give our readers a thorough practical insight into all project management phases and areas. After the part presenting the quintessence of the chapter we come forth with practical tools and tips to make your project work easier. At the end of each chapter you will find interviews with national and international project managers who lead us through their work and give us insights behind the scenes of projects. A big thank you therefore to our amazing interview partners who answered a multitude of questions about all aspects of project management. Thanks to Peter B. Taylor, the ‹Lazy Project Manager› and number one bestseller author who brought forth lots of valuable impulses in his unique, humorous and yet inspiring way. A big thank you also to Arie van Bennekum, co-author of the Agile Manifesto, who led us into the agile world and whose pragmatism and love for common sense made our interview quite eventful and exciting! Thanks to Carsten Mende of Valeo, our HR Project Director, to Felix Mühlschlegel from Portland, Oregon, who took us into the fascinating world of product development at global player adidas. A heartfelt thank you to Chris Schiebel for being the ambassador for solid project management, to Stephan Scharff, our ‹project rocker› and, of course, a big thank you to Petra Berleb, Editor in Chief and publisher of the *projektmagazin*. A warm thank you to Ben Ziskoven from the Netherlands, a young, active and already experienced Agile Coach and Scrum Master, to Michael Künnell, Chief Financial Officer at HEITEC and to Tobias Rohrbach, Chairman of the Executive Board and CEO at Lutz und Grub AG. A warm thank you to our wing people and companions at GPM, Astrid Beger,

whose passion for projects is outstanding, René Windus, with his extensive, thorough PM experience and Thor Möller, who inspired us with his expertise and, of course, with his valuable Project Management Dictionary. Thanks also to Olaf Piper, who gave valuable insights into his projects at FESTO, to Sebastian Wächter, who led us ‹without mental barriers› into his world of change projects, to Daniel Laufs from CAPTN FördeAreal, Kiel, and of course to the inspiring Stefanie Gries from SMA Solar Technology AG.

As we wanted to write our book in the most understandable, catchy way so that project newbies get an easy access to project management, we remained absolutely pragmatic in the main chapters, following the initial quote of Albert Einstein. However, there are one or two aspects where it makes sense to go into more detail and which are particularly interesting for those willing to take a deep dive into the world of projects or who are thinking about pursuing certification in PM. We bundled up a few specials into our advanced knowledge and hope you will enjoy this deep dive as much as we did writing it! Bold terms in the text can be found with some explanations in the glossary. At the beginning of each chapter you will find a graphic created by the authors themselves and there are also many illustrations throughout the rest of the book in order to facilitate understanding practical project management.

A big thank you to Ombretta Zanetti for proofreading the first English version of our book. Thanks to the entire Haufe Team, that accompanied us all along the way to the final book from A to Z and that supported us perfectly. A special thank you to our product manager Bettina Noé, who – yet again – did a great job: *never change a winning team*!

Thank you also to our proofreader and subject specialist Csilla Serestély.

Michaela and Mathias Flick

1 Overview on Traditional Project Management

Project management is en vogue. Whether classical, agile or hybrid, project management is a great term and who would not want to be a project manager anyway? But what exactly is project management? In order to understand that we first need to clarify what a project really is.

1.1 What is a Project?

A **project** is an endeavor or a task completely new to us. That means so far we have not carried out something similar and thus we do not know how to proceed. A project is not only something entirely new, it is also more complicated than everything we have done so far. In a project there are always many people involved that need to be coordinated. Last but not least the project has to fit to us or our corporate entity. This means it needs to be integrated into the organizational structure of the company; in an ideal way so that neither the daily business of the company nor the project are negatively impacted. This is not an easy task to fulfill and traditional school knowledge or being book smart does not necessarily lead us anywhere for the most part.

Another problem that occurs is, that we usually face all sorts of limitations. Either we have too few **resources** (thus personnel and materials) or we need to meet deadlines and do not have enough or unlimited time on hand. Money is often tight due to the fact that the authorized **budget** (the limitation for **costs**) is too low.

There may be several reasons why we still want to carry out our plan. Maybe it simply is important for us to solve a problem or a customer is about to place an order. One way or another the project comes along with a certain **benefit**, and it is for exactly that reason that we are willing to invest a lot of money and time in it. We carry out a project because we are hoping that we can use the projects' results to our best benefit, generating an **implementation benefit**.

1.2 What is Project Management?

Now that we have clarified that a project is something new, unique and complex which follows specific goals, consists of a start and end date and is executed by a group of people in teamwork, let us take a look at what **project management** actually is. This includes all accompanying activities we need to successfully carry out such as to plan, organize, coordinate, communicate, control as well as to lead people. We need to keep in mind, though, that project management is not the most important factor when working in projects, but that it is the project itself. It is important to conclude the project correctly. This means, however, that projects are not adapted to project management, but rather

that project management adapts to the project. We only use the methods and techniques necessary to successfully implement our project. Project management therefore is like a toolbox offering all sorts of specific tools (methods, techniques). We only select the ones that prove the most efficient and reasonable for carrying out our project endeavor, leading it to success! When you need to drive a nail into the wall, for example, the only tool you need is a hammer, not an impact drill.

The keynote of the project management concept is to approximate the target in small steps. This means that upon creating the plans you need to put one step after the other. For instance, if you want to plan a party, then the usual procedure is to focus on many things at once. You think about the salads you would like to make and which ingredients you need and in what order, when you need to buy what and when the relevant people in charge need to actually prepare the salads. This works pretty well for small activities, but when we talk about a project consisting of more than one hundred activities, it is no longer possible to plan in this way. Therefore, you carefully and deliberately need to separate the individual steps and plan them one after the other.

As a first step, you would probably think about what needs to be done (determination of the necessary quantities/grocery shopping/preparing salads). In the second step you may think of the logical order of the tasks (only when you know what you need, you can go for groceries; only when you have all the ingredients ready at hand, can the salads be put together). In yet another step you would complete the activities, probably using a calendar to determine what takes place when. Subsequently you would check to see who is available on

the planned dates to take care of the tasks. Now that you know who is in charge of what and which ingredients you need, you can start calculating the exact costs. In the end you would double-check to see if you have enough money left.

Due to the fact that the steps of the planning process are separated, you do not have to ponder on all eventualities for every single step and you can concentrate on the main tasks instead. Thus you are minimizing the complexity of the individual steps and everything becomes manageable. In this way you will minimize the chance of forgetting anything important and avoid possible mistakes.

Project management therefore aims at making a complex endeavor less complex so that everything becomes a little bit easier and has a better chance of success.

1.3 Quintessence

Classical project management consists of five consecutive phases where the results of a previous phase are being used in the next phase. Since the content of each individual phase is precisely defined, no task is assigned twice and we ensure that nothing of importance is left out. By navigating through these consecutive planning steps where we only have to deal with a small number of elements instead of multitasking, the execution of the project becomes so much easier and less mistakes occur. This enables us to handle projects that are completely new to us or that seem to be extremely complicated. Project management and its

methods gives us the means and opportunities to deal with everything in the best possible way.

1.4 Interviews with Project Managers

Ben Ziskoven

MF: According to your personal view – what is «good project management« and why is it important?

BZ: Project management in general and also good PM is important to me because each day is different in a project and the people we need to deal with in the course of the project are also different. It is often demanding, sure, but it never gets boring. It is important to take project management seriously and to actively engage in what we do. Projects need qualified people who have a lot of knowledge and who connect as humans. Then the projects will definitely work well.

MF: How do you think project management presumably will change over time? What should we project people be prepared for?

BZ: The future of project management is very positive! For all sorts of PM. It actually has to do with the fact that there are much more frequent and extreme changes in the world and everything is happening faster. Therefore everything will be more lean and on a short term basis, less things are plan-driven and «classical«. And the customers are asked for their input in faster loops and thus can participate more. Agile is not a trend, it is something that will stay and that is important. The customers are involved more and more – not only at the end during delivery. Topics of the future that will matter for us project people are: 1.) Sustainability and supply chain management
2.) Creativity regarding new raw materials and alternative resources
3.) Working with people and for the people becomes more and more important – work needs to make sense and be of value
4.) Big Data is definitely going to be an issue
5.) AI (artificial intelligence) and machine learning or bio-technology

Peter B. Taylor

MF: How do you think PM will presumably change over time? What should we project people be prepared for?

PBT: I strongly feel that there are two significant impactors on project management – AI/Artificial Intelligence and Team Analytics.
A recent Gartner press release made a bold claim about the future of project management: ‹By 2030, 80 % of the work of today's project management (PM) discipline will be eliminated as AI takes on traditional PM functions.' The impact of this on project management and project managers is going to be huge – and, in my view, positive since AI will ‹do› the stuff that most project managers don't enjoy so much (and no doubt ‹do› it better) and will leave project managers free to focus on the people more – and projects are (and have always been) about the people.
This is why, in my view, it is so important to focus on team analytics so that project managers can get a greater insight in building and leading the most high-performing and productive teams for greater project success. I for example am working very often and with pleasure with **Perflo.co**
My recommendation to all project professionals is to ‹get ready› for these changes – read, learn, talk about, listen to, and debate what is without doubt heading fast your way!

Astrid Beger

MF: What are your personal «insider tips« for successful projects? Do you have any favorite tools?

AB: My most important tip, personally: encourage career changers. Promote new orientations, new beginnings. Realize that care responsibility outside of vocational goals is immediately converted into money in projects. Favorite tools – I love diversity. The more tools I have in my toolbox, the better. A canvas can be cool as long as it does not become routine. Also in working relationships my credo would be: we tend to become quite lazy in our perception. Does this mean I do not have any favorite tools? Sure I have; at the end the project contract and our formal agreement are my favorite tools. Always in a pair.

Felix Mühlschlegel

MF: «Tell me how your project starts and I'll tell you how it ends.« According to this old PM saying – which topics do you think matter at the beginning of a project and why?

FM: A project for me starts with the kickoff – even though before that a lot of the KPI planning is already done. I present those KPI (Key Performance Indicators) at the kickoff which involves all the key stakeholders. The point is to give everybody a clear understanding of what the goal is. It's showing the team the problem but not the answer. Brainstorming sessions without any framework have a low efficiency so this kickoff acts as an alignment of the overall vision. I also use this milestone to present consumer insights, market analysis and trend research which also serve as guardrails for the project team. Following this kickoff is a creative phase where each stakeholder sees how they can use their function and expertise to tackle a problem and improve on how it was handled last season/last project.

Michael Künnell

MF: According to your personal view – what is «good project management« and why is it important?

MK: Good project management for me is when we achieve our objectives with joy and when it feels like fun. In the future, I think, we will tackle more and more projects online. Even more important that we get to know each other personally and face to face, because that makes cooperation a lot more efficient, the projects are more fun and successful.

Daniel Laufs

MF: According to your personal view – what is «good project management« and why is it important?

DL: Good project management for me is a mix between agile and classical. This means that we have quite rigid structures, but we can move around within in an agile way. Self-realization is cool, but that only works when we have solid structures as framework. And it is important that the people working in projects really know what they are doing.

Thor Möller

MF: According to your personal view – what is «good project management« and why is it important?

TM: A tool is only as good as the person using it, a car only as good as its driver and every project management approach is as good as it has been introduced and implemented. With all the tools we have for PM, unfortunately the aspect of ‹leadership› is too often left out and neglected, meaning that projects very often lack leadership. To quote Siemens: ‹A fool with a tool is still a fool!›. Good project management is something truly wonderful and never goes out of fashion. After more than 20 years I am still learning something about project management – and I will continue to learn valuable things in the next 30 years. The world needs projects – but projects are much more than mere methods or tools. Unfortunately some companies still think: ‹We’re doing PM now. We need a software!›. No! That’s not how it works. We need to understand project management and we need to incorporate it, living it, that’s the bottom line. And in order to be able to do so we need extensive, profound knowledge on project management. Sure, of course also about the methods out there. But most of all, we need the knowledge about WHY we need to do WHAT and WHEN during the project. Good PM therefore means an holistic view on the project with everything that belongs to it. That’s very well possible without much fuss, it works perfectly in a very down-to-earth way, by using excel sheets or very pragmatic approaches. That’s the great thing about project management, after all!

Tobias Rohrbach

MF: According to your personal view – what is «good project management« and why is it important? Why is it important for companies to deal with PM and train their employees accordingly?

TR: Quite an obvious answer – to get the maximum potential out of everything. Time, costs, scope, quality – the classical triangle of constraints… On a meta level good project management for me is that I need to recognize if the project really is a project, whether it is good or bad. It is about not only being effective, but efficient. Good project management ensures that nothing gets out of hand. Corporate entities and organizations urgently need more knowledge with regard to PM, because this topic definitely is the topic of the future. I am thrilled by everything that is calculable – and good PM ensures that everything is calculable! Project management has a great methodology and therefore inspires me in all aspects.

René Windus

MF: Do you have «secret tips« for successful projects?

RW: At any rate, we need a proper clarification of the tasks, a clear-cut scope! Everything other than that blows it all up in our faces. And then we need a functioning, appropriate stakeholder management. That means, identifying our stakeholders at an early stage and understanding what drives them. And then doing everything necessary to keep them engaged during the project. Another important aspect – no matter, what's going on, always be honest with the people! This includes bad news. Communicating everything openly and immediately, that's the bottom-line when our project needs to work out. But that only works when everyone understands interpersonal matters. Success factors are soft skills! Plans are important, but the success of a project does not depend on the plan, but on how well I interact and cooperate with the people in the project.

Olaf Piper

MF: According to your personal view – what is «good project management« and why is it important?

OP: Good PM has a lot to do with communication and building confidence. The project manager cannot and should not do substantive matters all by him or herself, but rather concentrate on having the right people on board, building confidence and constantly listening to the things that matter in order to be able to react fast. A lot of well-known projects have proven how inefficient it can be when decisions come far too late. Often it takes a lot more effort to correct faults than to start all over again (see the project of the Berlin Brandenburg Airport BER, the ‹Philharmonic› project in Hamburg, etc.).

Petra Berleb

MF: According to your personal view – what is «good project management« and why is it important?

PB: For me, good project management results in something great and valuable at the end! When I create a product or service that thrills my customers.

The method only comes second! A good customer experience and a value-adding result to me matter more than the method. Unfortunately in Germany this is often different because we are a country of engineers and always want to have things as clear-cut as possible. Interpersonal issues very often are neglected. PM is more than ticking checkboxes or applying methods. Methods are a means to an end. Appreciation very often is a high-held buzzword – and yet often falls by the wayside in practice.

MF: Do you have «secret tips« for successful projects or maybe even favorite tools?

PB: Making room for truthfulness and trust! It is always going bad when people do not play with an open deck… Particularly when a project is not running smoothly at all – talk about it and be open! Then we will find solutions for everything. Sweeping problems under the carpet always leads to mistrust and chaos. And then, of course, it also requires good communication and transparency. In our projects we use Kanban boards, because they facilitate transparency. You can see at once where there is a bottleneck or which team member is overburdened, because he or she is involved in too many tasks. Since we work a lot remotely, we use Trello. But it's not about the software, it's about an agile mindset! This is the reason why I love PM. Because the focus lies on the human and on added value.

Chris Schiebel

MF: Why project management? What fascinates you about working in projects?

CS: Firstly – projects design the future of companies. Projects implement the strategies operatively and that fascinates me because this is why we need project managers. It is incredibly inspiring to contribute in this context and to co-create. And it's project management that enables exactly this. Success is visible effectiveness. In projects we send out a signal and are able to see, feel, touch – and, to some extent, make history. Secondly – almost nobody in a company is better connected than the project managers! So we have an incredibly high influence, co-create and set marks. Networking is the key, it leads to visibility. It is a gift to be able to contribute to bringing companies forward. Thirdly – projects mean very little repetition, there is rather a lot of novelty. And that really fits to a great extent with my personality. Leaving well-trodden paths behind, embracing new developments and having some variety.

2 Initiation Phase

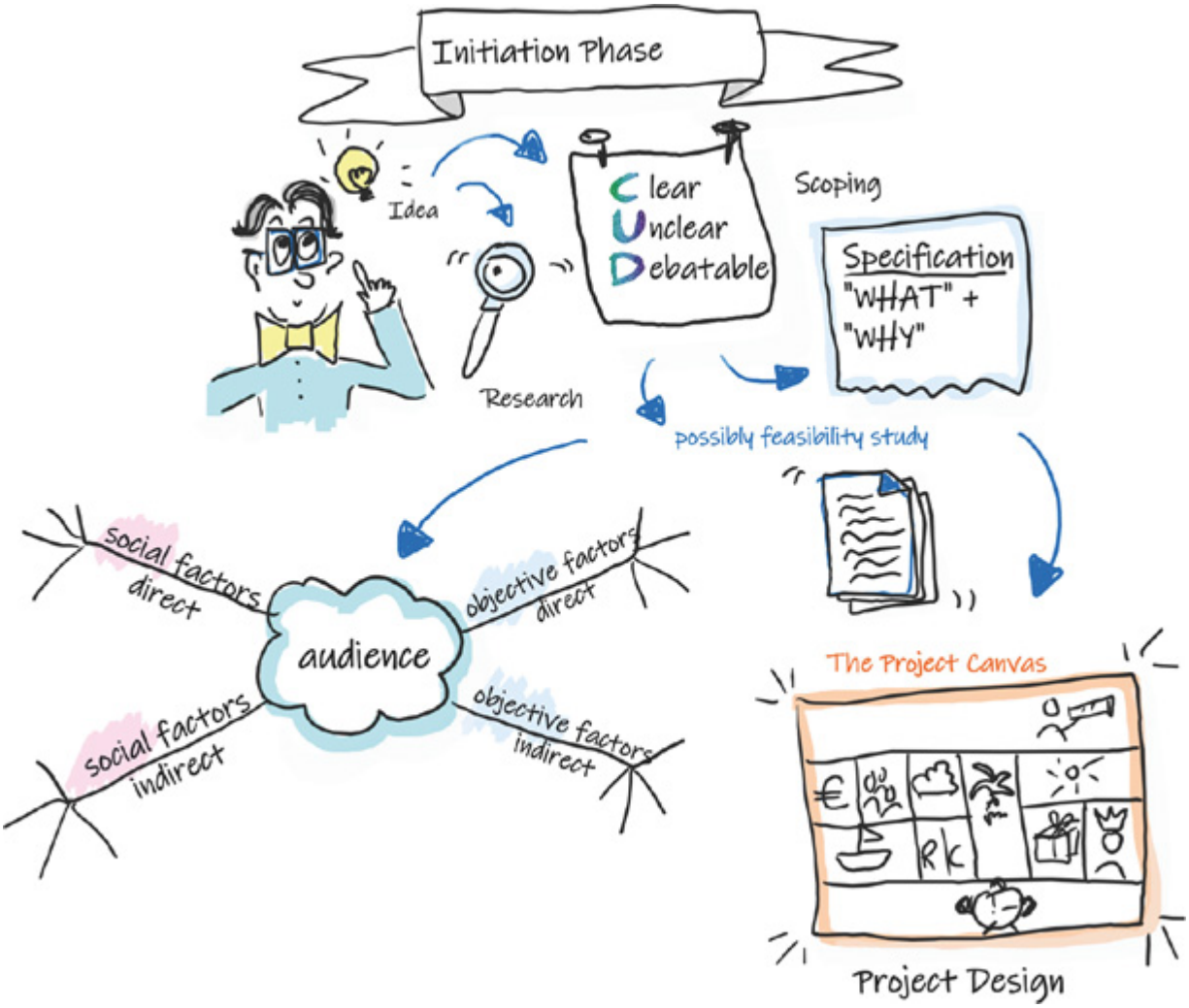

Illustration 1: Overview Initiation Phase

2.1 Fundamentals

We have an idea for a project or some circumstances lead to an endeavor that is completely new territory for us. Above all, neither we nor the customer have a very clearcut idea on the objectives, on how to proceed or on the specific content of the project. This means so far we are quite at a loss! We have a broad idea of what we want to achieve, but we cannot really put our finger on it yet. At least we have a mutual understanding that this topic is important, that we need to do something and that it is time to put it on the agenda. We get a first overview by collecting everything we can find on this very topic. This means we check to see if we have already done something similar in our company and if we have access to documents or progress reports on this. We check our **(project's) environment or audience** to see if someone has already done something of a similar nature or if there are people with expert knowledge in this field with whom we can get in touch with and exchange thoughts and ideas. Other than that we can collect information related to our potential project in the same trade or industry sector and ask around. Everything we find is recorded, structured, evaluated and little by little we gain more clarity.

2.1.1 Scoping

We share the collected information with our customer and find out what is clear, unclear and debatable. The clear aspects are stipulated in written form, the unclear issues are not addressed yet – either because the customer has not thought about it so far or to him or her it seemed such an obvious topic that it was not necessary to bring it up. Thus, we ask specific questions and scrutinize the answers,

if necessary, until we obtain a clear picture. Regarding some aspects – those that are debatable – we will soon realize that we have different opinions or views to those of the customer. Therefore we need to clarify these topics! Only when there is a mutual understanding on what we want to achieve with our project and how we might proceed is the **scoping** completed.

If we are lucky, the customer has already thought about specific requirements and has stipulated preferences in official **requirement specifications** from which we establish at a later date a **statement of work** containing specific instructions with regard to the implementation and execution of the project.

2.1.2 Project Context Analysis

In order to get an overview on which factors have an impact on our project we have to establish a **project context analysis**. This contains social factors as well as objective factors regarding our audience or environment. Social factors refer to individual people or groups of people that can influence the project or who are influenced by the project. The objective audience consists of things or facts that can have a negative or positive impact on the project. From them we can detect risks or chances which help us in taking the decision whether or not it makes sense to really initiate the project. In the process of collecting, structuring and sorting out the individual factors it makes sense to differentiate between direct and indirect factors – for both social and objective factors. We can influence direct factors without any problems, whereas indirect factors need a workaround. A classification at this early stage can make

sense to avoid wasting time or resources for situations beyond our control later on in the course of the project. However, we always need to bear in mind that our project is influenced by all factors regardless of whether they are direct or indirect!

Suppose we would carry out a project context analysis for the *Titanic*. Our direct social factors would be the captain, the crew and the passengers. A captain has absolute power on the ship, the passengers need to follow his commands as well. This makes them direct factors. The indirect social factors include the families of the crew and the passengers, because the operators of the *Titanic* have no impact or bearing on them at all. The same applies for reporters not being on board. If a disaster occurs, the families might claim damages and the reporters will report on the drama despite the fact that the shipping line cannot do anything about it! The direct objective factors includes the ‹unsinkability› of the *Titanic*, the number of lifeboats, the selected route, the speed of the ship and the ‹Blue Riband› (a sought-after trophy for the fastest crossing of the Atlantic). The indirect objective factors include icebergs, weather, visibility conditions and media coverage, because the shipping line cannot influence these factors.

2.1.3 Projectification

In order to be able to make a decision for or against the project, we still have to clarify whether the project fits our company at all! The thoughts we have about this will feed into the **project design** which will be addressed and tackled in the next phase, the definition phase. Social aspects such as corporate culture and values have to be

considered as well as the organizational aspects of the company. We need to examine if carrying out the project is possible with regard to the **parent organization** of our company and if the projects' objectives can be compatible with our corporate objectives. If, for instance, the Vatican would be aiming at initiating a project on producing war weapons, this project would probably not correspond with the objectives of the Papal States. If a ‹clean company› would want to initiate a project and realize that this would not be possible without child labor, it would also not correspond with the corporate objectives.

If the collected information so far describe the project idea sufficiently well, we now need to make a decision if the endeavor is going to become a project or not! The official approval of the project idea automatically starts the next phase, the definition phase.

2.2 Practical Example

At the beginning of a project there is an idea. In the present example it was our idea to write a book. A book on project management. Why a book? Why on project management? And what benefit did we expect from this project idea?

After my first positive experiences in writing a book and publishing it with Haufe, a renowned German publishing house, I literally was in an «author's mode«, because I love writing, I feel like I have something to say and I love reading good books myself. My visibility would expand as an author and I would also become more noticed as a trainer, coach and author and find, at the best, recognition as an

expert for my topics. The success factors are that readers buy the book, want to know more about the topics addressed, become curious and contact me to book me as a trainer or coach. My husband Mathias and I are both experienced project managers and trainers, supporting our various participants in preparing for different project management certifications. Apparently we have developed the right feel for didactics and manage to ignite the «project management spark« with the consequences of more and more participants asking us to write a book on project management and explain to the world how PM really works. Mathias and I were immediately convinced and the idea for writing a book on PM got us started.

I am a big fan of the Project Canvas by Karen Schmid and Frank Habermann. This tool is very helpful when it comes to project design, because it reasonably sets the scene and helps me to ‹ask the right questions› at the very start of my project idea. In an initial creative ***brainstorming*** *session we identified a few key topics and quickly agreed on the central theme of our book and seeing that I published my first book on leadership with Haufe it was quickly agreed upon that Mathias and I wanted to cooperate with them for our new book project as well.*

We got together and collected our first ideas on what a possible cooperation could look like, what timeline we could think of and how we could integrate writing our book into our daily business as project managers, trainers and coaches without neglecting neither ourselves nor our family.

A project context analysis brought forth the objective factors such as the publishing house and its good reputation in the industry, the author's contract and also the relevant legal regulations such as the Publishing Law and copyright or the data protection regulations. Of course, our expertise

on project management and our experience as business economists, project managers, project consultants and trainers fell into the category of objective factors. It was clear from the beginning that our book would be based on good project management according to the regulations of ***GPM/IPMA.*** *We also counted in the current standards* ***ICB*** *4.0 as well as our German DIN 69901 respectively in the international context the DIN ISO 21500 as objective factors on behalf of the PCA. The list of social factors included us as the authors, the leading manager of business publications at Haufe, our product manager, logistics people, graphic designers, correctors, our proofreader, the future readers of our book or the transport agent responsible for delivering our books. A decision in favor of the project was quickly taken and even expanded by the idea of writing the book in a German and English version right from the start.*

2.3 Quintessence

In the initiation phase everything is looked at in a rather superficial, rough way as one does not want to waste too much time and money on a project that may not be carried out at all, or is not feasible at all. Efforts are only made to define the project in concrete terms, to create a common understanding between the parties and to ensure that all relevant information is provided that is necessary for the decision «Carry out the project: Yes/No«. Only when the project order is in place and the work in the project would actually be paid for, the issues collected such as the contextual factors or audience are examined in more detail – which will take place during the next phases.

2.4 Tools and Tips

After the initial communication and exchanges with the customer you very often realize that there are still a lot of things that are unclear, that have not yet been talked about and that some important information may be missing. Maybe the customer is still unaware of all that or he assumes that we certainly know what he is aiming at. Now, the most crucial point is to keep cool, not get into a blind frenzy, but rather to get a precise overview of the situation and to research it in detail. Good research resources are lessons learned from previous projects, information from industry associations and, of course, the internet. It is important to address all questions arising within the framework of scoping. Also, when realizing that important information is missing – take notes. When you have collected all items, schedule another meeting with the customer and talk about all of this until both parties have reached a mutual understanding of the steps to be taken.

A very helpful tool which has already been mentioned in the practical example is the Project Canvas. It is valuable to get an overview on all relevant project issues at one glance, with all relevant stakeholders and pose the questions that in practical project work often remain unanswered. Similar to the Business Model Canvas there is a pre-defined scheme consisting of eleven domains that we draw – in landscape format – on a flipchart (or better: on a meta board!). Every segment comes with relevant questions that lead all involved stakeholders into the perfect direction right from the start, giving valuable impulses.

We start with the *customer* domain and ask ourselves who exactly the people who have commissioned us are, who expects to benefit from our project and who finances our project.

We then move on to the *purpose* domain and question the motives, the intentions behind the project. Why is the project meaningful and important and how can we make history with our project? Subsequently we go to the *result* domain and deal with the question around what exactly is the project supposed to deliver to the customer – is it about a new product, a new service or is it about new knowledge or findings? The fourth domain is *quality* and we take a closer look at what really makes our customers happy, what expectations they have and also how much they would like to participate or be involved in the project personally. Of course, the domain *time* also plays an important role. Both in terms of the actual start and end of the project, as well as questions regarding deadline flexibility, approvals or necessary documents. Another domain reads as *milestones*, where we need to think about what the important stages of the project are, when it is time to celebrate and how we can really measure our project's success and make it visible. Moving along, we now deal with the *environment* and scrutinize which known forces influence our project in both a positive and negative way. Of course, the Project Canvas also has a domain for *risks and chances,* in order to find out which uncertain future event either blows wind into our sails or hinders our project journey. In this regard I particularly like the fact that Karen Schmidt's and Frank Habermann's Project Canvas includes for us project managers the practical tip that events that are certain to occur and that we can influence belong in the environment – they are not risks! The next domain is about the *team*, and we explicitly ask ourselves the question of who is or

should be on board as the core team, the extended team, external partners and, of course, the project manager. We then tackle the *resources* domain and think about which models or methods can support our project and which resources are available, but we also question which locations we can use and how we want to hold meetings; online or face-to-face, with what materials etc. The eleventh domain is about the *budget* and here we ask ourselves how much money is needed, what the financial framework is all about and what internal and external financial resources we need, including the budget for the team.

The concrete questions for every domain of the Project Canvas make the discussions among the project participants very goal-oriented and systematic so that right at the beginning of a project we adjust our sails onto efficiency and everyone receives valuable impulses up front. The great thing in working with this tool is that the people using it discover everything together and thus really get a mutual understanding on what their project is all about. They bring the big picture to light!

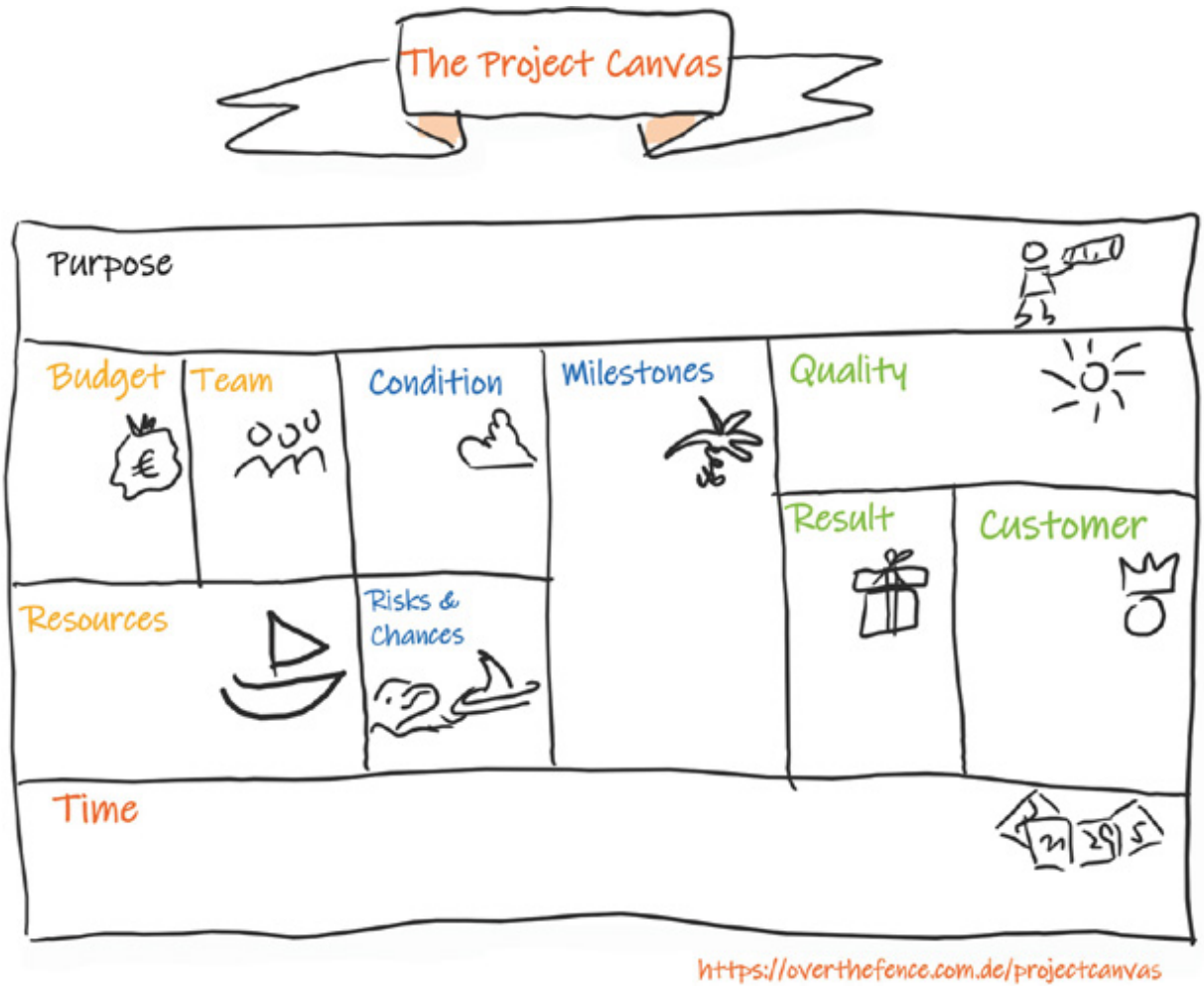

Illustration 2: Project Canvas

At the beginning of our project a particular creative technique can help us to adopt a new perspective and get impulses that are of value further into the course of the project. I am talking about the so-called headstand method. The approach is as follows: Instead of asking ourselves how we can manage to lead our project to success, we turn the question into the exact opposite and, together with our project team, we think about what we could do to sabotage our project instead! How would we need to work and what would we need to do in order to fail? This way of thinking might seem awkward at first, but the moment the first person from the team boldly utters a specific idea, the

floodgates open and creative work starts. Once we have an array of ideas on how to make our project fail, it is time to implement the second step of our headstand method by doing another headstand, reversing the question once more. That means that we now take an item from our list and turn it into the opposite. This way we are back to the initial question about the project's success. The only difference is that by approaching the problem indirectly by doing the headstand twice, we are able to be a lot more precise and we may have received quite a lot of new, inspiring impulses that will be helpful in the further course of our project. The headstand method is a great way of integrating skeptical people and people with a rather negative attitude, taking their skepticism and concerns seriously. This change of perspective inspires us to leave the trodden paths and to conquer new domains of thought. And it is precisely this that may really set us on the path to success.

! Engaging Questions for the Initiation Phase

- CUD – What is clear, unclear, debatable?
- What potential is hidden in our endeavor?
- What is our main objective?
- What benefit do we expect from our project?
- What is the measure for success of our project?
- To what extent is our project important to the strategic orientation of our company?
- What exactly is our plan and why is that important?
- Who is our customer and who is the ‹audience› for our project?
- Why has the customer chosen to work with us in particular?

- Have we already done something similar or are there empirical values of something similar?
- What are we going to implement/not implement?
- How do we want to regulate the contractual aspect? (General contractors? Consulting contracts etc.?)
- What if we fail?

2.5 Interviews with Project Managers

Ben Ziskoven

MF: Which project initiation remains specifically in your memory and why? (Good or bad equally!)

BZ: Ad hoc project management right from the start is very good to get solutions for specific problems and it works relatively quickly, meaning, that we're acting freely without already having a specific method in mind. In the long run that requires a lot of energy and the results are rather mediocre. Constant ad hoc PM won't work in the long run, it will rather make you go crazy. But thinking very freely in the short term and approaching things without constraints is good and offers a whole lot of possibilities. Generally it is better to have just any method at hand than no method at all – even if it is not the ‹right› method. And when the focus is placed on what the customers want right from the start, and lessons are being learned flexibly and continuously from our experiences, then that is quite inspiring.

Carsten Mende

MF: How do you make sure that customer and service provider have the same «view« on the project and are on the same page?

CM: «To have the same view on the project« I say it up front, should not be considered a stable condition. A great kick-off event alone does not guarantee the project turning into a sure-fire success. Every step forward in the project, every milestone has the potential to create an ‹aha moment› that can influence the existing mood positively or negatively. Behind this stands the fact that in the beginning you only paint the picture of a different future. Both parties might be talking about the same thing and yet picture something entirely different. Summer temperatures for me start, let's say, at 20° C. The colleagues with which I am looking forward to ‹summer temperatures› might have entirely different views on this matter. And that's the same with projects. Have a look at communication issues in your daily business with your colleagues. You will realize that there are always issues where we have deviating interpretations. Clarity comes when speaking… talk with every stakeholder about important terms and agreements, talk about everything that leaves room for interpretation. Become a communication whiz and make sure repeatedly, that both sides say AND understand the same thing.

MF: Which project initiation remains specifically in your memory and why? (Good or bad likewise!)

CM: The implementation of a central Talent Acquisition Center. I came on board at a time when the project has already started and the participants were already in the process of exchanging details on task allocation by means of a **RACI Matrix**. I assumed that a mutual understanding has already been reached. Well, I soon found out that there was still major resistance against the introduction of a Shared Service Talent Acquisition and there was a lot of disagreement on all objectives involved. It cost so much time and energy to level out the missing groundwork and to win the confidence of all participants. Therefore I urgently recommend to never ever rely on assumptions in your project, but only rely on sure knowledge and data.

Peter B. Taylor

MF: How do you make sure that customer and service provider have the same «view« on the project and are on the same page?

PBT: Through regular health checks of our projects the PMO can identify common issues that are hindering the projects and where there are difficulties. One of these occurred on one of the larger projects that we were involved in. On a large and complex project (or program) there would be many parties involved, ourselves as suppliers, our sub-contractors, and third-party partners. Then there would be the customer, the other supplier's customers, system integrators, consultants, contractual partners and many more. So, what we always ended up with

was a lot of people and therefore the communication was also complicated.
During our ‹health checks› of the project we found that many of the team members no longer understood (or had never really understood) what the project was aiming to deliver, and what the plan was that needed to be fulfilled, business-wise.
So, think of a software developer working for an offshore sub-contractor. Did they for example realise that some small piece of their written code was an important part of the data transfer for us and that the programmer thus made a significant contribution to the overall project for our client, in a project to reduce the waiting list in hospitals in the public sector? It is just an example, but the point is that you would probably move through quite a few layers of the project structure before the project deliverables are directly associated with ‹people›, but everything to be delivered in the project is ultimately about ‹real people›.
The key is to keep the purpose in mind at all times and make it visible so that everyone on the team has clearly internalised it, no matter what their role is, so that the project remains quality-focused. Make it personal. Make it real. And keep it fresh.

Astrid Beger

MF: How do you make sure that the customer and service provider have the same «view« on the project and are on the same page?

AB: Now, after having more than 25 years of experience in projects and in the industry, I go with my gut feeling from the first contact onwards – WITHOUT doing this in secret. Sometimes I will say: «I have understood the following and my gut feeling says this and that out of the blue«. Back then I used to do all of this in secret, being afraid to risk my authority in doing it openly. Now I cannot imagine going about it differently. I think, meanwhile a social change has taken place so that young people and old people are allowed to communicate entirely differently.
Eyes are dominant, the other senses barely come through. So listening to my gut feeling is the way towards a first mutual anchor, towards a mutual understanding. I never get the whole picture at once, it is my gut feeling, no crystal ball, but it is enough to derive the next steps. If possible, I ask for introductory conversations with people from the project's framework. In the beginning I always set a timebox with exit options for both sides. The assignment never comes ‹from up high›, but framing it is the first step along the way. The result of the first timebox is a project contract – or a farewell. Live and let live.

MF: Which project initiation remains specifically in your memory and why?

(Good or bad equally.)

AB: Project work differs greatly according to whether you are an employee, a leader or a freelancer. My worst project start as an employed leader was a so-called promotion – which proved to be more like a suicide mission instead. Patriarchal prejudice per definition creates as many blind spots regarding female careers as vice versa. Now I, as a woman, have been assigned boss of a billion Euro deal in an autocratic, misogynistic state. On eye-level with high ranking people deadlocked in a conflict for years. One thing was clear: turning the job down would be an affront and accepting it, a pawn sacrifice. For me this had been quite a dilemma. Damage could not be prevented, at most, controlled.
As a freelancer a very good project start was as follows: engineering company, family business, thousands of employees all around the globe. No project culture. A business partner and I got assigned the first A project in the company, so to speak. In the project team – only managers and executives. People from the management wanted to be enrolled in the project, in pricing. Role reversal without end. That was never going to work, I thought. And this is what I told the customer who realized with the clarity of an engineer how important roles are in a project. From that moment onward I was more than once astonished, because this horde of role swapping executives brought forth such enormous project excellence and they showed an amazing cooperation. We have reached the project in time and on budget and even exceeded the long-term objectives.

Felix Mühlschlegel

MF: What does an opening event or kick-off look like in your projects and which participants do you generally invite?

FM: Our kick-offs usually last a whole day across the teams so that the individual team members can get to know each other, and we then combine the whole thing with a team event or a joint dinner to promote relationship building and to develop a bond with each other right at the beginning or to overcome possible barriers which would otherwise hinder the project later on. During the pandemic, the whole thing was only possible online and this really robbed the team of that important initial spark to a project. But as a result, the whole thing was approached rather more lovelessly and the work in the project was a working off of the obligatory deadlines and less of a heart and soul project.

Sebastian Wächter

MF: You accompany a lot of change projects in companies and organizations. Which positive or negative examples have you got regarding project initiation?

SW: To me it is very important to create an awareness right from the very start that change means way more than just targets and figures. In a first step the management and the entire board of executives need to be open to the topic. When we deal with changes it is always all about ‹away from› and ‹towards›. Here I collect a lot of emotional and rational reasons, because very often the emotional needs of the people affected by the change process are not taken seriously enough. We need a well thought out communication process from the very beginning. From the change projects I am enrolled in I have learned that companies often are very good tackling the ‹why› and really meet their employees on their own ground, so that everyone can see how meaningful the changes are going to be. The visions are clear and the targets are put in words nicely. That is extremely helpful in the beginning of a change process. It was just like that in a project I was able to accompany for a customer from the pharmaceutical industry. But in other areas respectively in other projects very often there is a lot of room for improvement. The issue of communicating clearly or saying no often doesn’t work well in practice and in projects. This is the reason why I am very often asked to come on board to accompany change processes of that sort, because very often I connect a lot quicker with people – due to my personality, but also because I broke my neck at the age of 18 when I went hiking and ever since that day I have thoroughly dealt with the issue of change.

Thor Möller

MF: How do you make sure that customer and service provider have the same «view« on the project and are on the same page?

TM: It is crucial to invest a lot of time in the beginning making sure customer and supplier have a mutual understanding of the project so that we avoid ‹communication accidents›. The six crucial questions (who, what, where, when, why and how) calibrate and orient the team. When the customer and the supplier answer these six questions together, we manage to look in the same direction. It is also about describing our vision of the project together, or even better – drawing the vision. This is very easy when we use a product vision board for instance, a method coming from agile project management. There it is all about the areas vision, target group,

requirements, product and economic objectives. When we reach a mutual understanding, our project becomes more successful. It is important to visualize! Project management serves us to avoid a great deal of mistakes. And that's why we need to communicate and use our tools – to calibrate ourselves.

MF: Which project initiation remains specifically in your memory and why? (Good or bad equally.)

TM: One project start is engraved in my memory until this day. In 2005 I was about to kick-off the super yacht of a Russian oligarch. It was not until later that I found out that it was about the *Eclipse* of Roman Abramovitch. The original deadline for the kick-off was only a few weeks after the calculated birth date of my first child, so it could have worked out nicely. But unfortunately the customer brought the deadline forward – and that would have collided exactly with the date my son was to be born. I was thus forced to send my back-up who took over the project. Too bad for me, but that's the way it is. When you drop out in the beginning of a project, then you're out. In my training and consultations I always say: »The start of a project is like the opening in a game of chess. The first gambits decide on the course of the entire round.«

Tobias Rohrbach

MF: How do you make sure that customer and service provider have the same «view« on the project and are on the same page?

TR: By an extensive documentation prior to the start of the project. Therefore, a ‹real› project starts tackling all important questions that need to be asked beforehand; what is it all about, who wants to achieve what, what can we expect, who needs to come on board, data, facts, figures, possible impediments etc. This must be a real ‹solid paper›, as I always call it, and therefore something that requires an equally solid documentation, that needs to be signed and supported by all relevant stakeholders! And I mean it exactly like this – it needs an extreme amount of commitment, otherwise the project won't work out. Plus, everything needs to be documented right from the beginning in a very transparent and deliberate way. Quite a lot of effort, sure, but definitely worthwhile. We need to speak the same language especially when it comes to terms of project management!

MF: Which project initiation remains specifically in your memory and why? (Good or bad equally.)

TR: That was about implementing a CRM system for a hidden champion in the field of dental implants. The opening event was particularly positive, because the executive board put great emphasis on making it a major

event right from the start, with all pomp and ceremony for everyone involved. The event lasted the entire day and it was to really get everyone on board, in order to clarify content, schedule and scoping of the project. The executive board also wanted to make sure that everyone developed the correct mindset. Especially when we are talking about the implementation of new technologies and when we are in the midst of change management, it is very important that the mindset fits. This project start has remained extremely positively in my memory. And whenever a project start was not clear-cut and communicated well, it failed. Or when the executives were convinced to know everything better or that they had way more knowledge than the (external) project professionals by means of a project manager or a Scrum Master.

René Windus

MF: «Tell me how your project starts and I'll tell you how it ends.« According to this old PM saying – which topics do you think matter at the beginning of a project and why?

RW: This quote is so true in many ways. Unfortunately I have seen it more than once that project managers start a project having no clue on the specific expectations or requirements. Very often there is no clear-cut scoping, no stakeholder analysis, no risk analysis and certainly no planning whatsoever. When a project is initiated like that, it will probably fail big time. Often people try to save the project by adding intensive project controlling measures during the execute phase. However, this won't work.
Especially when having little time at hand, it all depends on solid scoping. Otherwise you focus too much on the wrong or unnecessary tasks.
The reason for such an unfortunate start very often lays in the claim from the customers that they want to see results as quickly as possible, without previously specifying the targets correctly. The pressure thus created has a negative impact on the success of the project. A lot of inexperienced project managers have difficulties to withstand such immense pressure. Many years ago I said to a customer in a similar situation: «Every customer receives the project results he deserves.« Maybe that's also some project management wisdom. So what should we do instead? The minimum for me would be this:

- Clear targets
- Stakeholder analysis
- Risk analysis

Stage plan/project phase plan
If the targets are not yet describable, then schedule a pre-project or carry

out a pre-study in order to elaborate what the real expectations and requirements are. For that you can perfectly use agile or hybrid approaches.

MF: How do you make sure that the customer and service provider have the same «view« on the project and are on the same page?

RW: There are three important things that matter: communication, communication, and again communication. It is important to understand that customers very often live in a different conceptual world, they have entirely different associations with certain technical terms than a project manager. The only thing that helps is active listening, meaning that you summarize what you have heard in your own words to indicate to the sender what you have received. This is something not only project managers should do, but they should also ask for it from the customer. Another practical tip: Putting a quick «ok« underneath an e-mail containing performance specifications is definitely no indication that the receiver has understood correctly what the sender was aiming at. Very often we have to deal with blurry requirements and particular stakeholders literally impeding scoping. «But you cannot ask the board of directors what they meant.«, I once heard from the chairman of the executive board. Back then I accepted this and later on my project was in big trouble. Acting in an honest, open and appreciative way with one another and not cultivating some hidden agenda, building trust is what I always found extremely helpful.

Olaf Piper

MF: «Tell me how your project starts and I'll tell you how it ends.« According to this old PM saying – which topics do you think matter at the beginning of a project and why?

OP: It is important to have a proper kick-off event face-to-face, not online because this has a major positive impact on the quality of cooperation. We also need to know at a very early stage who is in charge and how the roles are allocated. When this is not done in the correct way right from the start, it will definitely go wrong. This is especially true when it comes to the issue of who has what powers. Very often things go wrong in the project because people don't know who is in charge and who is the final source of information for specific topics. Here I love working with RACI charts – that helps.

Petra Berleb

MF: «Tell me how your project starts and I'll tell you how it ends.« According to this old PM saying – which topics do you think matter at the beginning of a project and why?

PB: For me a project start always has to do with the question ‹what for?›. I find it very important and I also challenge my team on this point. What do I invest my valuable time in? Without a ‹what for‹ – no project! From the agile philosophy we know to ‹ask why›, but ‹why› doesn't seem to be sufficient. A ‹why?› addresses the past whereas I consider it a lot more important to face the future instead and ponder on ‹where do I want to go?›. This is why I favor a ‹what for?›. And if we have the future result in mind right at the beginning of our project, then the chances are good that our project will also be good. This introductory question makes a big difference for me.

Chris Schiebel

MF: What should we implicitly still learn about project management? Not just at the beginning of a project, but with regard to the entire project?

CS: We should gain some lessons from the ‹agile wave› which has been sweeping over us for quite some time now and which is actually nothing new, but the values and principles manifested in there unfortunately very often get lost in a great number of projects, or are not lived or observed at all. Obviously projects are all about human perspectives! This can only work out when we not only confront ourselves with values, but when we incorporate and live them. Project management should definitely take one leaf out of this book and become more attractive. Invest emotions and become much more personal. We should learn to take over responsibility for our budget and shape it, until right into the projects themselves. Project managers must not be ‹toothless tigers› or puppets on a string without any real power, but instead, we need a lot more management scope and freedom for the project creators. Very often the projects' executives are disempowered. That's no fun – having nothing to say but feeling the full impact of pressure nonetheless. My wish is also that we learn how to make project management a transparent career path. By this I mean not only becoming a project manager just like that, more or less accidentally, but ensuring that there is a clear-cut choreography instead. That someone is enrolled in a project first and works in the project team, then adopting a junior project manager position, then becoming senior project manager and that there is a structured setup. Thus it becomes evident which skillset I

need when, what the salary structure looks like and when I am ready to be assigned which specific tasks.

3 Definition Phase

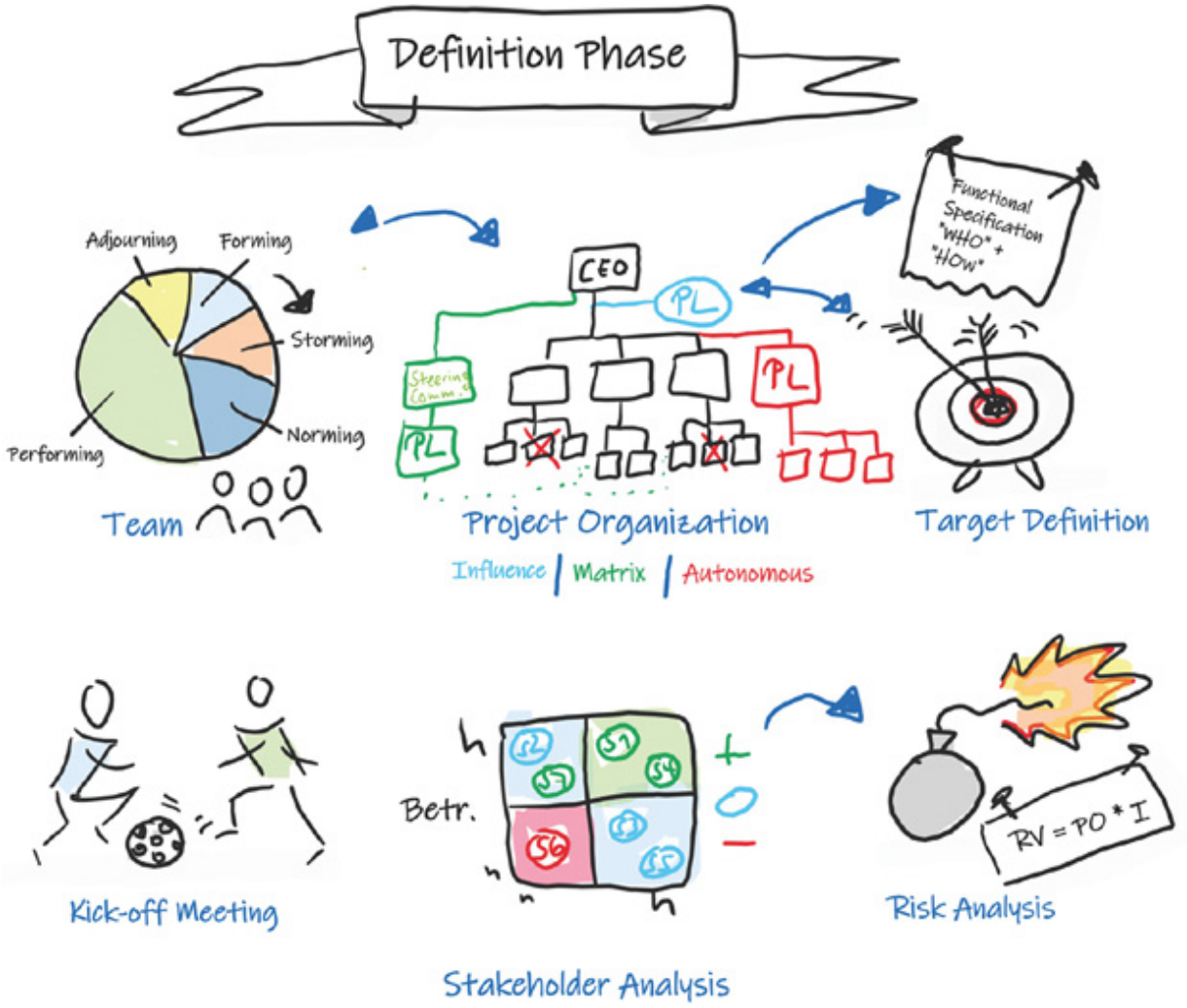

Illustration 3: Overview Definition Phase

3.1 Fundamentals

This phase starts with designing the project, in other words, with interpreting and rating the needs, desires and influences of our stakeholders so that we can derive from all of this the best approach for a project and to actively ensure participation and success. In doing so we only take into consideration essential decisions and the consequences thereof with regard to the project's success.

3.1.1 Project Design

The first step in designing the project is to find out how our customer interprets the success of the project and which **success criteria** is to be specified. Criteria for the **succes of implementation** are, for instance, functionality and quality of the results, meeting deadlines and budgets, qualification and work motivation of the project staff, behaviour during conflicts and applied leadership style. Of course, it is also important to consider what ‹makes the customer happy› and what benefit the project brings him. Criteria for application success, for instance, may be long-term user satisfaction, insusceptibility to failure and subsequent follow-up projects. In a second step we determine the success factors – that is, the factors favoring the project's success. These not only include general project management success factors such as a strong project manager who is well integrated into the organization, motivated, qualified employees, management support, good communication, clearly defined objectives, but also specific success factors only valid for this very project. Let's assume, we want to build a school in a region where there is no compulsory education, then an important success factor would be that the population accepts the lesson

content and all the topics addressed at school. This is important because what good would a school do with no one to attend? Or, do you still remember the flood disaster in Asia caused by the tsunami in the Indian Ocean in December 2004? An important success factor was the fast drainage of the area, because what gain would other measures have brought, if the vast majority of the population would have died of the cholera which would have spread a few days later? So, every project has very specific **success factors** that need to be fulfilled so that the project has a chance of being successful. And it is precisely these success factors that you have to identify and take into account. As a third step we need to use the accumulated experiences from other projects and which we have found out during our initiation phase, so that we literally don't have to reinvent the wheel all over again. The fourth step follows which is all about determining the type and complexity of the project. There are investment projects, organizational projects or research and development projects. For all of these types of projects there is a great deal of experience in the various sectors that can be used. Complexity also plays an important role in choosing an adequate project management method. There are simple, complicated and complex projects. Simple projects have clear-cut requirements and possible solutions are already known, whereas complicated projects don't have all cause and effect interdependencies revealed; however, with a little bit of effort all of the answers can be found. Nearly all projects concerning technical systems belong to the category of complicated projects. In complex projects, tasks, requirements, practical approaches or possible solutions are to a great extent unknown and everything is quite uncertain. Projects where a lot of people are involved with different interests following their own,

specific objectives, belong in the latter category. This includes projects with a high dynamic of change, for example, like dealing with natural disasters. Classical or traditional project management with its predictable process is perfect for simple or complicated projects, whereas agile methods, due to their step-by-step approach, are better suited for complex projects. (Note: You can find more information on all of this in our advanced knowledge part in the chapter ‹Stacey Matrix›.) In the last step the concept for project implementation is drafted as an «overarching, rough sketch« which will then be further refined during the planning phase. We only pay attention to general decisions and their effect on the project's success, such as, e.g., answers to the following questions:

- What is more suitable – a traditional approach or an agile one?
- Which tools do we want to use and which methods?
- Do we need to use internal resources only or can we access external resources too?
- Do we want to make our own parts and components or do we buy from external suppliers?
- Should the product be brought to market as quickly as possible and therefore only contain basic functions, or is a fully developed end product preferable?

This completes the creation of the project design. Now it only needs to be communicated and possibly further developed over the course of the project.

3.1.2 Project Team and Project Organization

By determining the project design we already have dealt with initial ideas, possible processes and desired results and defined a basic course of action, like a ‹blueprint›, for the execution of our project. Now it is time to think about the WHO (which team members) we need for successfully executing our project and how we want to make sure that we have access to these people when we need them. When putting together a project team we need to make sure that all necessary and required qualifications are available, that the individuals interact and get along and that all are willing to cooperate well. That means that, when we already know that there might be difficulties between certain people, it would not be a good idea to put them into the same team. Of course, we have the golden rule in business saying «You do not necessarily have to like each other, but at least you should be able to work together professionally!«. Unfortunately that is not enough when working at projects. As a team we work a lot closer together than usual and when team members are ‹at war› with each other, the entire team is affected. Motivation levels fall, ‹enemy camps› might be formed and the team performance worsens, for example. The same applies for people not backing up the project or its objectives; they do not belong to the team, because one single troublemaker can thwart the efforts of the entire group. You certainly all know this phenomenon too: the one person with a negative attitude that comes into a group of positively thinking people. This one person ruins the entire spirit and in the end everyone has a negative attitude. This is the reason why, when composing a team, the most qualified person should not necessarily be the first choice, but the person that is qualified and fits into the team well.

Once we know who belongs to our team, we need to regulate access to these people and thus need to implement

a project-specific organization within the company. This project organization will be attached to the **project organizational structure** of the company – for the duration of the project.

The simplest form of connection is the influence project organization (staff project organization). The project manager is assigned a staff unit and is integrated between the CEO and the department heads. Thus the project manager is not really ‹managing› but rather serves as a project coordinator, because he has no defined authority and can therefore only have an effect in an advisory, coordinating capacity or due to his personal influence. This is the reason he cannot be held responsible for any goal attainment. In an influence project organization the project manager only communicates with the department heads – without having any direct access to the people assigned to projects' tasks.

In a matrix project organization the project manager obtains horizontal powers. This means, he may decide WHAT to do and WHEN to do it. The disciplinary powers remain with the department head. He decides WHO is doing it and HOW it is done. Let us assume you are project manager of a construction project and need an excavation pit sized 30 m long, 20 m wide and 5 m deep. You go to the head of civil engineering saying that you need an excavation pit with the a. o. specifications (= WHAT) by the end of next month (= WHEN). With this you have exhausted your authority. The head of civil engineering can now decide if the excavation pit is done by means of an excavator or by hand with shovels (= HOW) and who operates the excavator respectively which employees need to use shovels to do the job (= WHO). The department head informs the project manager and then the latter can contact

the relevant employees for further coordination. In this organization form employees all of a sudden have two bosses: a horizontal superior for all technical matters (the project manager) and the disciplinary superior (the department head). One or two conflicts will surely arise, especially when there is no solid coordination between project manager and department head or when they do not reach agreement. Nevertheless more than 80 % of all projects in Germany take place in a matrix project organization.

Then there is the autonomous project organization (pure project organization). In this form of project organization the project manager receives his own team, premises and full authority for the duration of the project. Thus a ‹temporary department› is established. People are taken from other departments and assigned to the ‹project department›. At the end of the project they are transferred back to their normal departments. This process of withdrawal and later reintegration is very laborious causing all sorts of problems along the way. Even though this organizational form is ideal for the project manager, it is bad for the rest of the company (due to the fact that employees are borrowed from the other departments and the remaining team needs to cope and cover). This is one of the reasons why this project organization form should only be used for very important or time-sensitive projects.

As you can see, it is not easy at all to implement a project into the organizational structure of a company in such a way that the day-to-day business is affected as little as possible, yet the project manager can still react flexibly to all possible project requirements.

3.1.3 Objective Definition

Another important aspect we need to take care of in the definition phase is, of course, the definition of the project objectives. There are three factors determining the success of a project: time, effort and results. These three factors correlate and influence each other. This is the reason why we also talk about a system of objectives, the so-called **triple constraint/magic triangle**. When one of the factors changes, it has an effect on at least two other factors. Often the magical triangle is about time, cost and scope, probably due to our presumable German thoroughness. The time available for a project can be described, for example, by a project start date and an end date. The **effort**, in other words the use of manpower and/or use of materials necessary to carry out the project, may be converted into costs (quantity × price with regard to materials; number of hours × hourly rate with regard to manpower). The result or the project itself that we hand over to our customer at the end in economics is defined as goods and services in a required quality.

When defining objectives we need to take some things into consideration, such as to operationalize the objectives. In other words they need to be defined in an unambiguous way and need to be quantifiable and measurable with regard to quality. Also, the objectives need to make sense, accepted by all people involved and achievable until the end of the project. Very often we use the mnemonic SMART (an abbreviation for **S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**imely) or we talk about SMART objectives. During goal definition, a performance or **result target** is the description of a desired state, but one that is still in the future. Result targets will only be controlled upon project closeout and

approval (at the end of the project, mostly by means of a checklist). Since all results must have been achieved by the time of acceptance, we normally use the past tense form to describe the objective, for instance «The computers have been delivered!«. If one were to write «Deliver the computers!«, it would represent an activity or a **process objective**. For all other objectives (such as time- or cost-related objectives) the tense we use does not matter at all.

Along with these main objectives there are numerous other objectives such as social objectives (e.g. vacation requests of the team to be taken into account or doing something against old age isolation by connecting a trendy coffee house to an old people's home so that the residents get more visitors), ecological objectives (e.g. environmentally friendly production, waste reduction, recycling), economic objectives (e.g. minimizing costs, increase of market shares), increase of stakeholder satisfaction or generating a better image.

As soon as you have defined all individual objectives you should verify whether the objectives negatively influence each other. If there are objectives that can only be fully reached when other objectives are sacrificed, we talk about contradictory objectives or conflicts of objectives. Let's assume that goal number one is «car with super luxurious interior« and goal number two is «car with the lowest possible fuel or energy consumption«. Here, mere physics shows us that achieving both objectives at the same time is next to impossible. The more luxury is built in a car, the heavier the car gets. And the heavier it is, the more fuel or energy it requires. A possible solution would be prioritizing. We can ask our customer which objectives he considers more important. Or we have him explain to us how much luxury he really expects and how much fuel per 100 km he

would still consider to be within the specifications. These explanations need to be integrated and considered for our objective definition.

Why do we need operationalized objectives in general?

- As a measure for answering the question whether the project has been a success or at least a partial success (= control function)
- In order to realize ‹what we are aiming for› and ‹which direction should be taken› (= orientation function)
- If we formulate the objectives accordingly we might create enthusiasm and a sense of togetherness for the participants (= connecting function)
- Through goals, sub-tasks are integrated and directed towards a common reference point, namely the goal itself (= coordination function)
- We can select the best options out of a vast number of alternatives (= selection function)

3.1.4 Stakeholder Analysis

In the project context analysis we collected all factors influencing our project one way or the other and we divided them into social and objective factors. The social factors refer to people or groups of people, in project management called **stakeholders**. They are involved in the project, affected by the outcome of the project or they are simply interested in the project itself. Interested parties, interest groups and everyone somehow related to the project therefore is called a stakeholder. This includes the customer as well as the project manager, employees, contractors, suppliers and the larger population. Stakeholders can be

the supporters or the opponents of the project. This is the reason why we need to know who the stakeholders are and how they operate and think. In doing so we have the opportunity to plan how to deal with them in order to have the supporters back us further, to possibly win over the undecided as supporters and to deal with our project opponents in a way they cannot do any harm. There is only one small problem with stakeholders: They are people! And people often act impulsively, unpredictably and are driven by emotions. In addition to this, the same people very often react differently in identical situations. You don't believe me? Then do the following test:

You go home, sit on the couch, start the TV and ask «Honey, is there any beer left in the fridge?«. Maybe you will get a simple «yes« or «no« as a response (factual information) or you'll get the answer «Go look for yourself – I don't feel like doing it!« (self-revelation) or you are lucky and get a cool, fresh beer immediately (appeal). Let's assume, you got your beer and now you follow the same procedure every day. How long, do you think, you will get your beer delivered ‹free couch›? Two days, an entire week or maybe even longer? I guarantee, it will not take very long before the beer delivery stops and you're getting responses like: «Am I your maid or what?«. (relationship)
Note: This example is based on the four-sides model of communication of Friedemann Schulz von Thun. (See chapter 8.1.6)

A friend of mine who is a project manager once told me: «Project management could be so nice and easy, if it weren't for the people!«. He is so right in saying so, because it is, in fact, the reason why most projects fail. Expert knowledge and necessary project management competencies are often there or can at least be obtained.

So that’s not the problem. The problem is, that there are way too many human factors involved. We need to deal with sensitivities, power struggles, squabbles between different parties, different interests, ideals or principles and the actors waste a lot of time and energy with all this. Time and resources would be better invested into the project itself. Since we do not have a crystal ball and cannot read minds, the only thing we can do is deal with the situation in a very structured, professional way, such as by working out a stakeholder analysis. In a first attempt we need to know who the stakeholders are. We have already done the preliminary work, because all social factors in our project context analysis are the stakeholders – direct as well as indirect ones.

Now these stakeholders are (or need to be) rated. In order to do so we need to find out which interest each stakeholder has in the project. What are his expectations or fears? The captain of the *Titanic,* for instance, desperately wanted to win the ‹Blue Riband›. He was afraid that the prevailing record could not be broken due to icebergs or fields of drifting ice. Possible passengers expected a luxurious passage, but feared, at the same time, not to be able to afford the journey. Another assessment point is the attitude of the stakeholders towards the project. This can be positive, neutral or negative. Another and probably the most important assessment point is the power or influence that someone has, because he can use this power to either support or harm the project. A rating by means of high or low is sufficient in this case. In the example of the *Titanic* the power of the captain is high because on board his vessel, he is authorized to make decisions about everything. The power of the passengers, on the other hand, is low. They need to follow the instructions of the captain and the crew. Then we also examine how affected

the stakeholders are from the outcome of the project. Two possible values would be high or low. Very often we use conflict potential instead of rating how affected the stakeholders are, using the values high and low. We can detect a high conflict potential when the objectives of one stakeholder strongly vary from the **project objectives**, when he is very affected by the outcome of a successful project or when he simply has a negative attitude toward the project and therefore is not willing to cooperate much.

In the next step we need to find an adequate strategy to deal with the relevant stakeholder. We can choose from the following strategies:

- When applying a **participative strategy** you try to let the stakeholder participate in the success of the project. Stakeholders are actively involved in the project through active co-decision-making, participation and proactive communication. Possible ways to integrate them would be, for instance, to have them participate in decision making workshops. A participative strategy is suitable for the following stakeholder:
  - Power: high | Conflict potential: low
  - Power: high | Degree of impact: high
- With the **discursive strategy** we focus on factual confrontations with the project's environment or audience and we are aiming at levelling the stakeholder interests by applying the Harvard method (Note: For further insights please see the soft skill chapter on negotiating) or active conflict management. It is particularly suitable for the following stakeholder:
  - Power: high | Conflict potential: high
  - Power: high | Degree of impact: low

  - Power: low | Degree of impact: high

- By applying a **repressive strategy** we try to influence the stakeholder by means of pressure, coercion, power or plots. Examples of this would be management directives, apparent participation of the stakeholder or selective information. A milder form of the repressive strategy is the restrictive strategy where the stakeholders only get little or no information at all and need to get the information by their own effort. The repressive or restrictive strategy is suitable for stakeholder with:

  - Power: low | Conflict potential: high
  - Power: low | Degree of impact: low

After determining the strategy we define specific measures to deal with the stakeholders. Of course, a stakeholder analysis is a mere ‹snapshot› and only temporary. During the course of a project the stakeholder's attitude, power, degree of impact, conflict potential or interests may change. Also, new stakeholders may come forth or known stakeholders may leave – and former supporters might very well turn into opponents, if these stakeholders don't feel appreciated any longer or when we treat them incorrectly. This is why it is not only useful to carry out a stakeholder analysis, but to practice stakeholder management. It means to observe the stakeholders during the course of the project and to adapt the stakeholder analysis when changes occur.

3.1.5 Risk Analysis

By means of the stakeholder analysis we thoroughly examined the social environment or audience of our project and dealt with all of the people who get into contact with our project in one way or the other. We thought about how to deal with these people correctly. What is left over now is to deal with the external environment, meaning things, factors and situations that have nothing to do with people and their feelings or attitudes. These objective factors may lead to **risks** or chances. Before dealing with risk analysis, however, we want to take a look at what risks or chances actually are.

Project risks are events or uncertain situations with a negative impact (damage) on the total project success, single project result or events related to the project. They are determined by the probability of occurrence of the risk and the possible damage when the risk occurs.

Risks – according to ICB – are uncertain events, meaning that a risk is a potential problem that might occur but that has not yet occurred or it is a condition that is not certain yet or that might occur with a certain probability. If, however, the risk occurs, it causes damage. The counterpart of risks are chances. Chances, too, are uncertain events, however, their impact on the project is positive instead of negative. In practical project management we differentiate between one-dimensional and two-dimensional risks. One-dimensional risks are ‹real risks› that only contain the possibility of deterioration (like e.g. a volcanic eruption). Two-dimensional risks are ‹speculative risks› that inhibit both deterioration and improvement (like e.g. exchange rate movements).

But how can risks be identified? Identifying stakeholders was easy: We transferred all social factors of the project environment one-to-one into the stakeholder analysis. It

becomes a bit more complicated with risks: We find risks in our project context analysis as well, but we cannot unfortunately transfer the objective factors one-to-one into the risk analysis. Moreover, we now need to find out if one of the objective factors or a combination of factors might present a danger and this danger is described as risk. Let us assume that one of the objective factors of our project context analysis is a volcano. Then the risk is not just ‹a volcano› because if a volcano is not active any longer or entirely dormant (like all volcanos in Germany), then this volcano is not dangerous. If the volcano, however, is still active (like, for instance, the Vesuvius or Mount Etna in Italy), then this volcano creates a risk. The risk then would not simply be ‹a volcano›, but ‹eruption of the active volcano Vesuvius›. Note: In 79 after Christ – after no eruptions for centuries – Mount Vesuvius erupted and destroyed the antique city of Pompeii.

Let us take a look at the project context analysis *Titanic* from the initiation phase. Here we have the objective, indirect factor ‹iceberg›. Now, an iceberg per se is not a risk, the iceberg is just there. However in combination with the objective, direct factors ‹Blue Riband/speed of the vessel/course/unsinkability› it becomes an entirely different situation. When the captain wants to win the ‹Blue Riband› and therefore chooses a course through an area of icebergs going way too fast – because he assumes that nothing can happen due to the unsinkability of the *Titanic,* we would then have the risk ‹sinking of the *Titanic* due to collision with an iceberg at excessive speed›.

Risks can be derived from the objective project environment but there are additional possibilities to identify risks:

- By using risk checklists that we have generated from similar projects.
- We take another close look at the objective definition, because conflicts of objectives might also result in risks.
- Contract requirements may also contain risks that very often hide in the so-called ‹fine print›. (Note: Contrary to public opinion the fine print is not called fine print because it is unimportant, but because the authors explicitly used fine (small) print so that you can not read it too well.)
- Stakeholders might be risks as well – very often you realize that already during stakeholder analysis.
- You carry out a risk assessment workshop with as many participants as possible and everyone expresses what, in their opinion could go wrong (the risks can already be rated during this risk assessment workshop).

As soon as the risks have been identified we need to rate them. From statistics and figures from the past we determine the probability of occurrence (in %) and the impact (= damage in €). When we do not know exact figures, we need to estimate. Multiplying the probability of occurrence (PO) with the impact (I) equals the risk value. This value tells us which damage we will probably have to face for this risk and it also serves for prioritizing. The higher value of a risk, the greater the need to do something about it. The risk value can be calculated as follows:

RV (in €) = PO (in %)× I (in €)

The sum of all risk values of all risks indicates how much money we need to reserve to carry out mitigating measures. If the sum is too high, we need to decide with which measures we can minimize the risks that have been detected. In this way we differentiate between preventive and corrective measures.

Preventive measures protect us from the probability that the risk occurs (or are effective against the damage amount). Therefore we start an adequate activity proactively.

Corrective measures protect us from the effects when the risk actually occurs. We react to the risk and carry out relevant measures as a correction. In doing so we limit the damage. So we are literally going for a ‹plan B› as soon as a risk occurs. Ideally we also have ‹plan C› ready at hand if our emergency plan is not working.

Of course it is always better to do something against the risks beforehand (if you have the financial means to do so), than hoping that the risk will not occur or that you get off with a slap on the wrist. The following provision strategies can be differentiated:

- Avoiding the risk
  Main goal of this strategy is that we do not take a chance at all.
- Minimizing the risk
  This strategy minimizes the probability of occurrence (PO) by taking precautions.
- Limiting the risk
  This strategy aims at limiting the damage of the risk.
- Transferring the risk
  This strategy tries to transfer the project risk to other organizations.
- Accepting the risk
  We accept the hazards of the risks.

Let us assume you are thinking about marrying your dream partner and at that exact moment you run across the divorce statistics. You then learn that the divorce rate in Germany is at 38.5 % and that a marriage in Germany

lasts approximately 14.7 years on average. How could you deal with the divorce risk? One possibility would be to limit the risk, meaning that you devise a prenuptial contract beforehand. In the event of a divorce at least you are not financially ruined. Of course, this does not prevent you from the inner pain! Another possibility would be accepting the risk, because you are utterly convinced that a divorce certainly is not going to happen to you – after all, you chose your partner wisely. In addition statistics show that the divorce rates are declining. In 2003 the divorce rate was at 55.9 % and since 2009 has dropped to below 50 %. You could also go for avoiding the risk, meaning that you do not get married at all. But then, of course, you would miss out on all the advantages of a marriage.

Speaking of avoiding risks: In our world of projects this does not automatically mean that we should not accept a project in the first place, but we often start a project with changing conditions. Let us assume you need one million liters of crude oil to conduct your project and the customer insists on a fixed price. In the wake of energy costs rising incredibly fast it would be irresponsible to accept a project under such conditions. You thus agree upon a small contract amendment: You carry out the project at a fixed price, however, the customer is responsible for procuring and paying for the crude oil. If you love to have a fairy tale well in your garden but you have small children, the risk is obvious: The kids can fall into the well and get severely hurt. Here we better go with minimizing the risk as a strategy. You cover the well with a bolted grating. Thus the probability of occurrence is minimized to 0 %.

If you have just bought yourself a new car and are afraid of any damages at all to the vehicle, go for the strategy to transfer the risk. Obtain a comprehensive insurance for

your car so that if and when a damage occurs the insurance covers all costs.

3.1.6 Project Start Workshop or Kick-Off Meeting

The motivation of all participants is very high during the starting phase of a project, so it is the job of a good project manager to keep this motivation up as long as possible. Being able to decide or at least being involved in decision taking processes is a lot more motivating for most people than merely obeying and meeting requirements others have determined. That means that in an ideal scenario, a **project start workshop** lasting two to three days would take place during the definition phase after designing the project, where the members of the core team as well as – at least partially – the customer participates. It is important that at this stage there is enough information about the project to be able to work with it, but not all the facts are fixed yet, so that there is still enough room for development. At the beginning of the project start workshop we give an overview on the project management regulations, then we determine the rough project objectives and establish a rough **work breakdown structure** which then can also be used for a first cost estimation. Together with the customer we often also define the project phases and our most important milestones. Then we proceed with determining the **project organization** and identify the most important stakeholders. Subsequently, we implement an information and communication system. To this end, information requirements of the individual stakeholders are recorded and it is determined which information a

stakeholder needs at which point in time in order to properly perform his or her tasks. From this **information requirement matrix** we elaborate a **communication matrix** containing an action plan to satisfy all these requirements. Last, but not least, we tackle the project risks and we can also plan the upcoming project phase in detail.

Unfortunately in many companies there is no project start workshop at all, but all important topics such as team composition, objectives and content of the project are predefined top-down by the management or have been elaborated in a pre-project. Then a so-called **kick-off meeting** takes place to inform all project team members on all relevant issues. This meeting does not include an extensive elaboration of information and no workshop takes place. It is only to inform about the project data and specifications. Note: In a matrix project organization the kick-off meeting usually does not take place sooner than the beginning of the execute phase, because the relevant project participants only become known at the end of the planning phase.

3.2 Practical Example

Once the decision was made to write a book on project management and when we knew what our intentions were and what benefit we expected from our book project we set sails and left the shore; the adventurous book writing journey began! We got together for a project start workshop in order to properly define the outline for our

project. Our success criteria were, for instance, that we wanted to generate a book of high quality offering the utmost functionality giving our readers profound insight into the individual topics. For one, by means of a wide range of illustrations (produced by us), and by profound practical examples and best practice. In addition to our know-how we, the authors, found it important to also conduct interviews with experienced project people, because we were convinced that these personal accounts would prove extremely valuable for our readers. As project managers we are used to applying solid time and priority management, because meeting deadlines is essential in project business and therefore an ever-present issue. Naturally in our project we kept a constant eye on the timeline. We were well aware at any given time that we needed the legwork of our interview partners which, of course, needed quite a lot of time to fill in the questionnaire we had elaborated beforehand particularly for our book. Conducting the interviews was also very time-consuming and yet we were bound to a very tight schedule.

A major success factor of our book project was that we were able to sail to 100 % in our favorite waters, so to speak, because project management is indeed a big part of our DNA. Since our project was relatively moderate and due to the fact that we agreed upon all content requirements beforehand with the publishing house – no major changes regarding content to be expected – our project could be classified as a relatively simple one and choosing the methods and tools of ***classical or traditional project management*** *just made sense. We never meant to reinvent the wheel or to take the world by storm, we simply wanted to highlight those capabilities and qualities that we considered important to be able to set the sails towards a bright future for any project manager.*

For our book project we defined performance targets as well as deadlines and we pondered on cost and social objectives. We were already used to formulate SMART objectives from our profession as project managers, trainers and coaches, and in project management it is also important to formulate operationalized objectives and in the adequate tense. At that point we always tell our participants: «Just imagine you are beaming yourself into the future now, where you hand over your project or product to your customer. And then you are looking back at your performance targets. So now you are looking at these objectives as if they were already successfully completed! And exactly this is how you need to formulate them and put them into words.« The advantage of doing so is that our brain perceives everything as lived reality and we are able to condition ourselves positively so that in the end we will achieve our objectives.

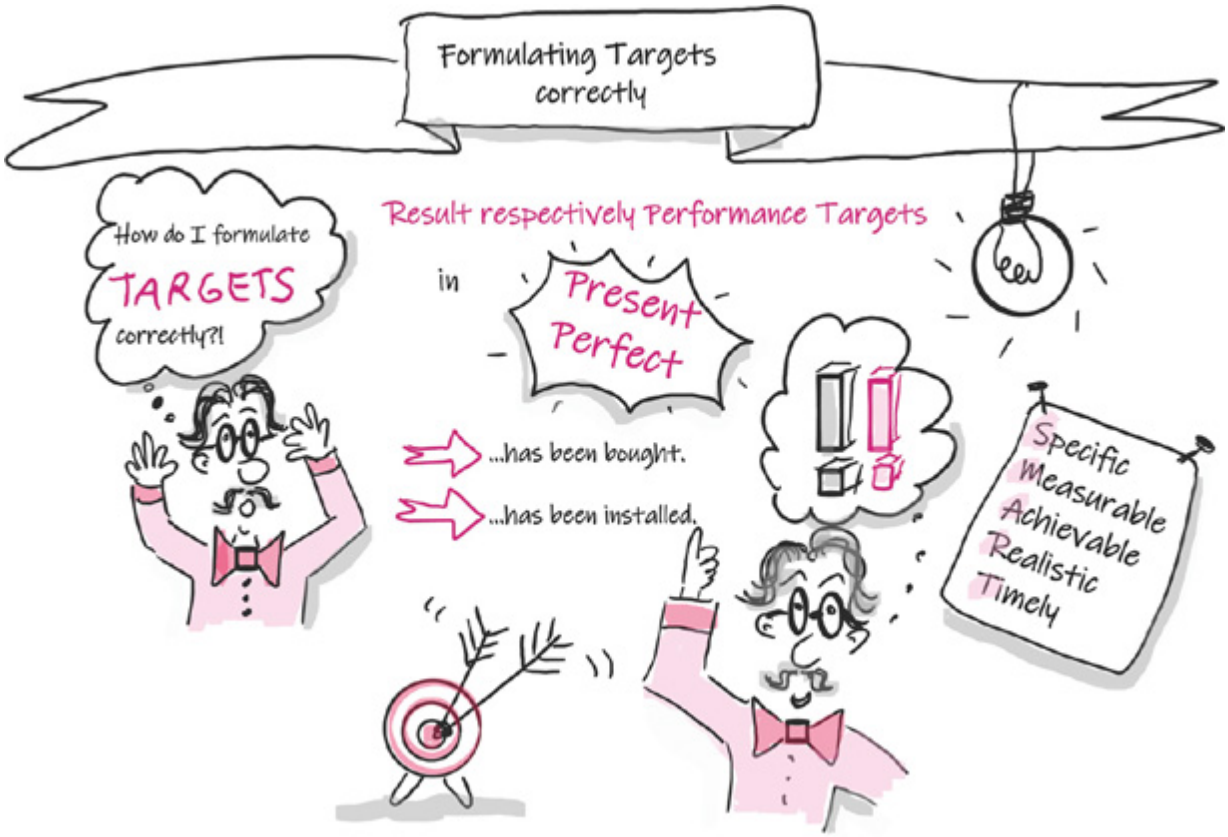

Illustration 4: How to formulate targets correctly

Performance target P1: The nonfiction book on practical project management has been published at Haufe.

Performance target P2: Interviews with project managers have been concluded and we have at least four interviews per chapter.

Performance target P3: All sketches and illustrations have been made single-handedly by the authors.

When formulating all other objectives it is important to operationalize, but which tense you use does not matter much:

Deadline D1, January 17th, 2023:. Uploading of both manuscripts in German and English. Deadline D2, March 21st, 2023: Final content approval.

During the definition phase it is our job to put our book project into a rough time frame, to define important milestones and to elaborate the phases we agreed upon during our project start workshop in more detail. On March 5th, 2022 we laid the cornerstone of our project – milestone M1, the start of our project. The first phase (brainstorming) was a conceptual phase where we collected ideas, determined our major topics, defined our target group and came up with ideas for our interview partners. Milestone M2 completed this phase and the preparation/organization phase began. Here we collected initial ideas and thought about which activities to expect during this phase: contacting Haufe publishing house, filling in the authors' questionnaire, defining the overall structure of our book etc. Milestone M3 meant for us that the following manuscript phase could be started – the imaginary project traffic light was green and we were ready to rumble, to produce

content. Followed by milestone M4 (uploading of both manuscripts in German and English) and the releasing of the editing phase on January 17th, 2023. This phase was successfully completed with milestone M5 on March 21st, 2023 and hooray, we headed into the finale. The end of our project manifested itself in milestone M6, the official publication of the German version of our book on April 15th, 2023, and the publication of the English e-book version on May 15th, 2023.

From the social factors of the project context analysis we were able to identify a large number of stakeholders – all different with regard to power or influence, expectations, fears and attitude towards the project. In addition to us authors – and I had the additional role of project manager here because as Lead PM at Lutz & Grub AG Mathias had already been fully enrolled in other important tasks so that he could not also take care of leading our book project – there were some important players from Haufe that became important stakeholders for us: Let's start with the Head of Business Publications, our product manager, logistics people or the graphics team and, of course, the proofreader and editor. Other important players were our interview partners, our potential readers, our customers, the participants to our trainings and coachings who showed immense interest in our book beforehand, already looking forward to getting a copy of our work. Last, but not least, very important stakeholders for us were members of our family who supported us all the way. It was mandatory that we found out, stakeholder per stakeholder, how much power or influence each one of them had and how much impact our project would have on them, because with the gained knowledge we were able to determine an adequate communication strategy for each stakeholder and take care of well-rounded stakeholder management.

Another important topic during the definition phase of a project is to tackle chances and risks. With our book project a big chance could be seen in the fact that by officially becoming authors we gained more expertise and visibility and continued to be seen as experts on project management issues. Possible risks we faced were, on the one hand, of course, that Haufe would not publish our book and thus deny us the opportunity to become authors with our favorite publishing house. On the other hand there was the latent danger that the graphics team would elaborate cover drafts we did not particularly like or approve, leading to long discussions back and forth.

For each anticipated risk we set up preventive as well as corrective measures in the event that the risk occurred. As a preventive measure we thoroughly prepared for presenting the publishing house our arguments and reasons for cooperating with us. The corrective measure of looking for an alternative publishing house was an acceptable choice neither for me nor for Mathias so we firmly put this issue out of our heads. We relied on the preventive measures and elaborated valid benefit arguments that we used for our authors' questionnaire and in the end, success proved us right.

Choosing the right project organization for a project is a very important aspect you really need to think about thoroughly. Matrix PO? Or maybe a pure PO (also called projectized or autonomous organization)? Probably a line PO (also called influence organization)? Big corporate entities or organizations are often much more experienced on this behalf with clear-cut hierarchies, authorities and responsibilities. Working in projects is part of the daily business, so that determining the project organization is an easy task right from the start. The context of our book

project had it that we were not integrated into an organization, company or corporate entity, however, we handled our project ‹on the very informal sidelines›, so to speak. Being experienced project managers, for us it was important to actively and stringently live project management, so naturally the issue of which project organization to choose came up. Due to missing power respectively hierarchy and based on the fact that we did not have the means to command or influence our Haufe stakeholders, our project was chosen to have an influence organization. For us this meant getting very practical insights into the world of ***lateral leadership****, meaning leadership without having any official authority. This particular aspect of leadership includes some very exciting and inspiring perspectives, so for us it was perfect to begin here with a nice deep-dive within the framework of our book project. Concerning our contacts at Haufe, of course, we first had to build up trust and find out, which ‹language› they spoke and which communication form suited best to successfully meet our objectives. As the project manager I was the main contact person for the publishing house and built a very good and solid relationship with the product manager as well as later on with our proofreader and editor, which greatly benefited the implementation of our book project and made the cooperation with the various players pleasant.*

3.3 Quintessence

The definition phase is mostly about setting the sails for the successful project execution. We are defining the general

course of action, the composition of our team, integration into the organizational structure, communication and goals. We also identify our project supporters and opponents and we determine how to deal with them. Examining risks and chances is also on the agenda and we elaborate adequate measures so that we do not have to face nasty surprises during the execute phase of our project later on.

3.4 Tools and Tips

Often customers have a hard time prioritizing their objectives adequately because they think that all three key performance indicators such as time, cost and scope are equally important. In this case our magic triangle helps. We draw an equilateral triangle on a piece of paper and label the corners with the terms time, cost and scope. In the center of the triangle we draw a circle that almost reaches up to the edges. This indicates a restricted area in which nothing can be drawn. Now we have our customer mark the part (by drawing a dot) which he considers the most important. Since he is not allowed to place the dot in the center, because this is a restricted area, he will automatically be forced to make a decision and set his priorities.

Very often we have the case that the definition of the objectives does not really say much about the boundaries of a project (what is still within scope and what is out of scope) and where the project ends. In such a case defining **non-objectives** might be helpful. For instance, when you have been assigned the task of adapting a standard

software for a certain customer, the non-objective «training the employees is not part of the project's scope« might be wise to define, in order to avoid that at the end of the project the customer has the idea that his employees get free of charge training on how to use the adapted software. Clear-cut definitions like that ensure that everyone knows exactly what is part of the deal and where to draw the line. This opens the field to adapt the content of the project, for an additional charge, of course, or to be assigned for a follow-up project.

Many customers, especially where internal projects are concerned, have a problem when they have to name a budget, so they try to fob us off by saying «we'll see later« or «money doesn't matter«. Yet they are very much aware of what the project is worth, but they do not want to give a figure, because hey, maybe there is a chance they can get it even cheaper. Sometimes they are simply afraid that their budget is used up too quickly even if there was no real necessity. In such a case it might be helpful to write an entirely exaggerated figure into the project description or into the objective definition. So, if you think the project may cost approximately 150 000 Euro, then feel free to write 2 million Euro. You will find out immediately that your customer has indeed thought about a budget. And if against all odds he agrees to your exorbitant budget request, even better. At the end you can draw from an abundance of resources.

When defining the formal roles you need to keep in mind the following three aspects known as the TCR matrix:

- **T**asks
  What does the person who has this role have to do?
- **C**ompetencies
  What is he allowed to do (= authorization) and what

does he need to be able to do (= skills)?

- **R**esponsibilities
  What will he be held responsible for?

We need to implicitly verify if tasks, competencies and responsibilities correspond. This is called the principle of congruence. In practice it is very often the case that we know exactly which tasks someone has to fulfill, which skills are needed and what he will be held responsible for, however, we do not talk much about the necessary authority or we talk about it but do not confer these powers. Therefore persons assuming these roles always need to verify if the point of ‹what am I allowed to do› is really settled and agreed upon, otherwise he needs to fight for his authority to fulfill his role! In project management there are formal roles such as the customer, supplier, steering committee, project manager, sub-project manager, work package responsible and project team member.

Very often the stakeholders are visualized in a stakeholder portfolio (instead of by means of a **stakeholder analysis**) with the labels power + degree of impact or power + conflict potential. This is all right and has the advantage that we do not have to define individual measures for each stakeholder, but can define a bundle of measures for each field in the portfolio. When having a multitude of stakeholders this saves a lot of time!

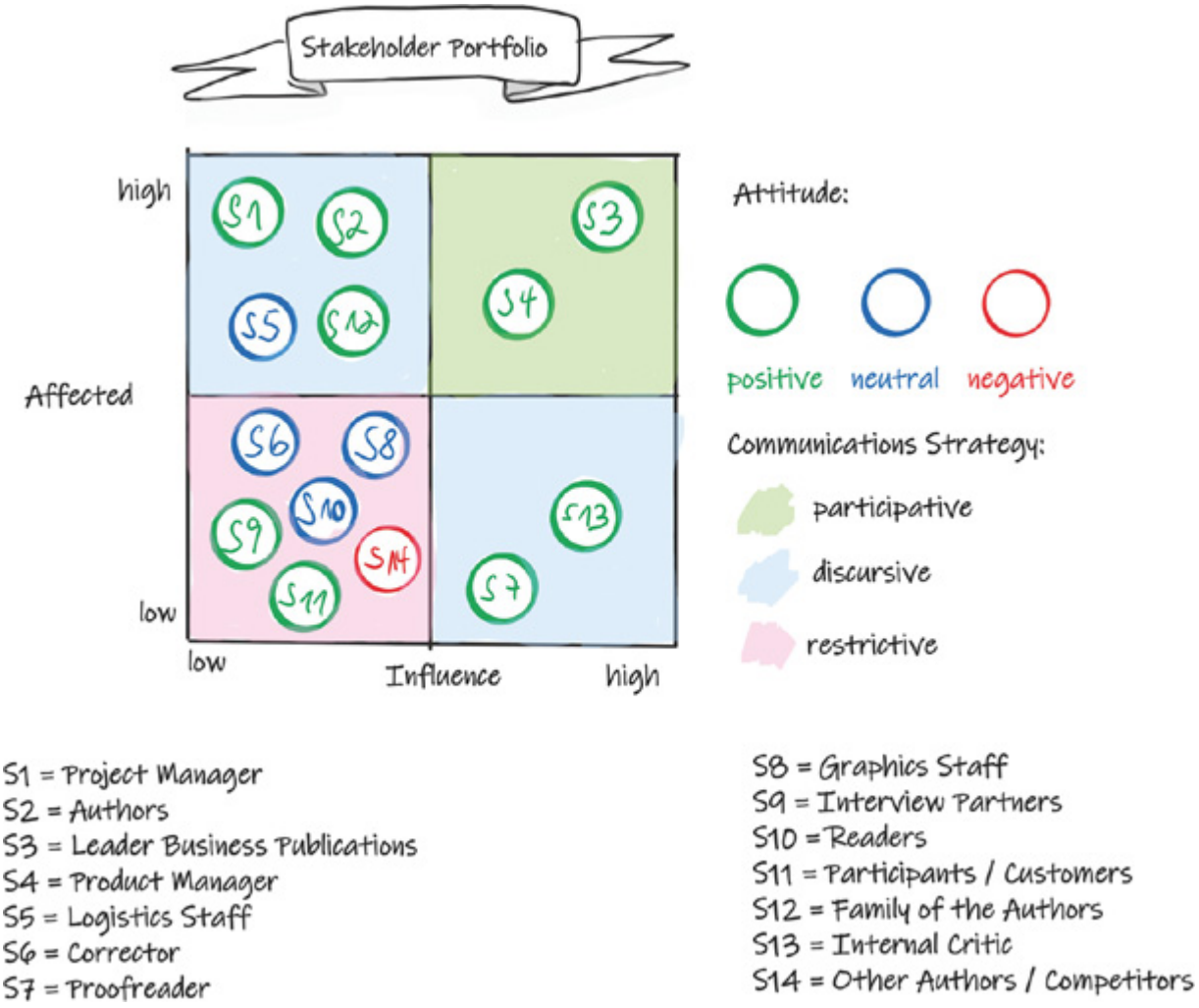

Illustration 5: Stakeholder portfolio of the practical example

A very practical and helpful tool for risk assessment is establishing an ABC **risk analysis**. When we have rated all risks and have thought about preventive as well as corrective measures in order to deal with every risk, we can establish together with our customer the measures we are going to take. Preventive measures either minimize the probability of occurrence or the damage extent (impact). It makes sense to carry out a reassessment of the risks and to display the changes visually. The following graph contains the original project risks as well as the planned effect of the planned preventive measures and visualizes everything by

means of arrows within a coordinate system. For A-risks we need to take preventive measures in order to at least move them to sector B. For B-risks we should aim at moving them into sector C by defining adequate preventive measures as well. C-risks we can ignore without having to think about preventive measures.

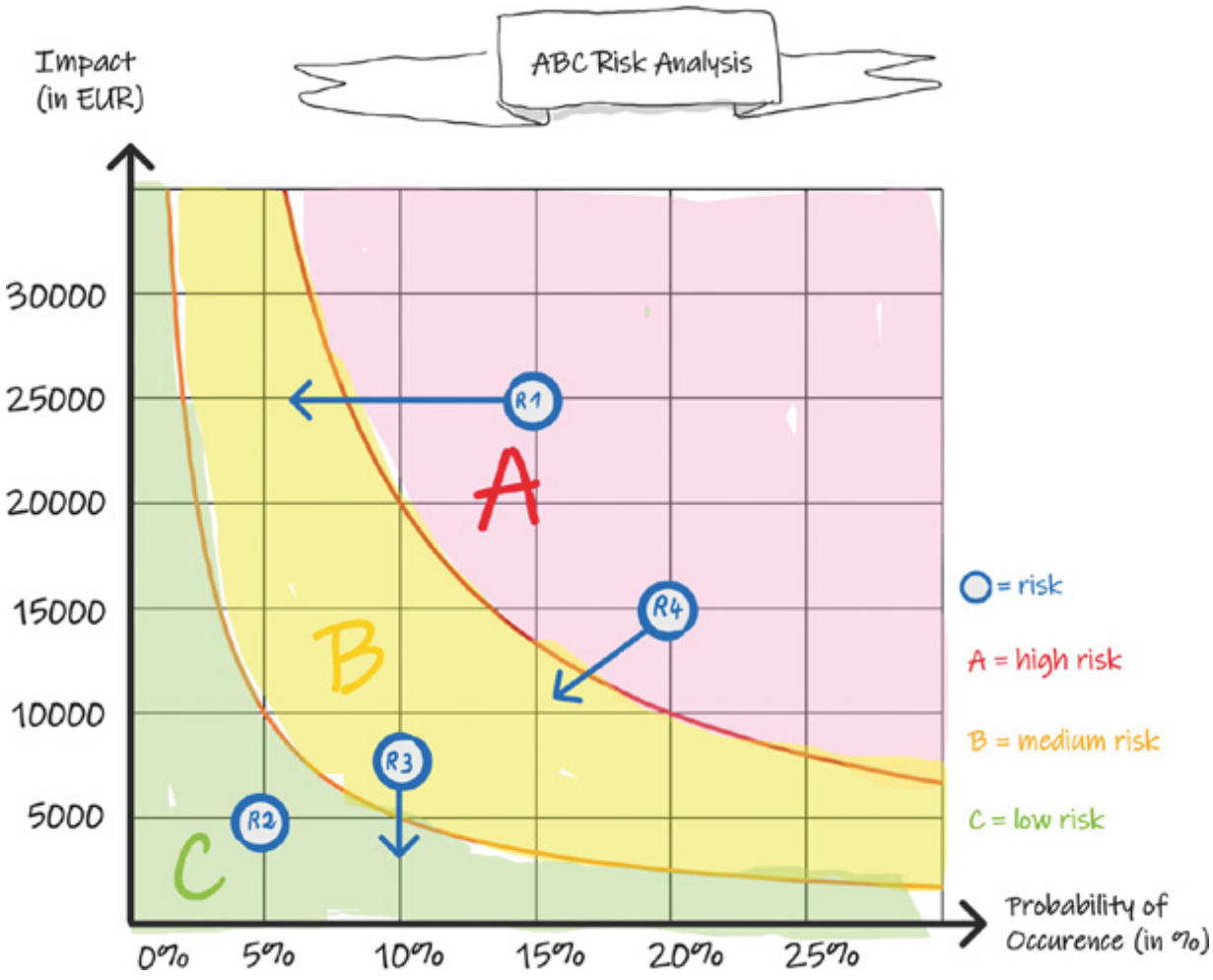

Illustration 6: Graphic display of risks

It is recommended that the project team asks itself at the beginning of the definition phase if it makes sense to buy-out certain parts or to produce them in-house and to develop everything from scratch. This typical make-or-buy decision should not be taken lightly, therefore it is a

valuable tip to critically scrutinize whether or not the task of producing certain parts really is part of the core competence of the team or if maybe there is some other team, another department or even another company that can do the job better, more professionally and maybe even at lower costs.

! Engaging Questions for the Definition Phase

- Which factors have an impact on our project?
- How well is our project team composed?
- What about the project organization?
- Which project management approach is suited best for our project?
- Which interests and needs of which stakeholder need to be taken into consideration?
- What could go wrong?
- Which additional chances or possibilities could deal us some very good cards in our project?
- What economical risks do we have to count in and deal with – can there be, for instance, payment defaults or currency risks?
- How about possible legal provisions?
- Are there any particular intercultural mentalities to take into consideration?
- Are we expecting a disaster or acts of sabotage?
- What could prevent us from being successful with our project?
- How do our stakeholders see or interpret project success?
- Where does our project journey lead to?
- What should happen when we have successfully completed our project and are done with our tasks –

what’s next?

3.5 Interviews with Project Managers

Ben Ziskoven

MF: What tips do you have for successful stakeholder management?

BZ: Start with establishing a stakeholder register, ask questions and find out what works for whom and also ask other people for their advice. Very important – get together on a regular basis. Online or offline, doesn’t matter how. Of course there are advantages in meeting offline – having a great time together helps collaborating. But when meetings etc. are carried out online it is great to be able to have people from all over the world together at one table. Even on short notice. And it makes much more sense from an economic point of view, too, to do a lot of things online. That doesn’t work for everybody, though, but all of us should have the expectation that collaborating online has positive effects. It is important to know the stakeholders well. And that is only possible by asking questions, asking questions, asking questions.

Carsten Mende

MF: What tips do you have for successful stakeholder management?

CM: **GENBA**. Don’t be afraid, nobody will eat you alive… well, okay, you do need to be able to take it when being a project manager. But GENBA helps, as much as you might detest it. Go to your stakeholder, to the critical ones as much as to your supporters. Both might change their position during the course of the project. You can anticipate best when you are close enough and understand them. A very helpful tool here is, for instance, an **‹empathy map›.**

Astrid Beger

MF: What does an opening event or kick-off look like in your projects and which participants do you generally invite? (online/offline…)

AB: Good question! To start: the opening event for me indicates the beginning of the second phase of a project. I start with a project start workshop of an agreed upon duration: an internal basis or cornerstone, so to speak. Since we all know that the project does not exist on greenfield, I explicitly plan an opening event. Online, offline or face-to-face: I prefer using these three together as ‹three-in-one›. On one project we had a live event in the auditorium, with a grand opening by the board of directors, broadcasted live per video to everyone participating remotely. Then we filmed an offline opening sequence with a film crew and it was streamed over and over again on the internal corporate displays for quite some time for everyone to watch.

I recommend other projects: make the beginning visible and preserve it one way or the other. Even when there is a feeling of stress, pressure etc. in the beginning. Create a project kick-off that is tangible. An opening event is like ceremoniously cutting the red ribbon! You should definitely do it RIGHT. There are many ways to manage this.

One project where I was Head of PMO, for instance, had a remote team all across the globe. The budget was too tight for team travels and it was clear: we will cooperate closely without ever seeing each other in person. Therefore the project leadership team bought so-called project rubber duckies. One duck for everyone and one very special rubber duck. The special one got an own name printed on its belly. This special duck was sent across the globe by postal services. A roundtrip to everyone on the team and then back to the headquarters. Whoever had the duck visiting shot a photo holding the duck – inspired by the travelling garden gnome from the movie «Amélie«. In the end there was one online and face-to-face event with all photos of the rubber ducky – and other than that a classical, final project start workshop.

Sebastian Wächter

MF: How do you manage to bring all expectations of the individual stakeholders together in change projects so that it works out?

SW: Change comes in all shapes and forms and is different for everyone. We can take many people with us onto our journey of change, but not everyone. We need to be aware of that. But we don’t have to take everyone along! It is important to be integrated into the process at a very

early stage in order to know about the expectations and fears of all participants. There are always reasons for resistance, sometimes they are professional matters, other times (most of the times, really) emotional issues. Finding that out is elementary. And then it is important to find multipliers and to direct the focus of the executives and management on working more closely with precisely those stakeholders who have a positive attitude to the change process and thus to the project. And through these multipliers, the spark is then often passed on to the others, doubts and concerns can be dispelled. The sooner we exchange thoughts with participants and know what moves them, the more successful we will be in the end.

Michael Künnell

MF: What tips do you have for successful stakeholder management?

MK: On the one hand, continuous, purposeful communication and, if necessary, then having individual discussions. In general, it is very important to give team members a chance to interact and connect, because this facilitates and improves their collaboration. I always recommend to celebrate any successes, big or small, that motivates. As a leader I incorporate leadership, meaning, not only delegating, but getting my own hands dirty as well!

Daniel Laufs

MF: What does an opening event or kick-off look like in your projects (online/offline) and which project start do you still remember quite vividly?

DL: Under the umbrella of the CAPTN Initiative (short for **C**lean **A**utonomous **P**ublic **T**ransport **N**etwork) we have a vast number of projects. For example, the project I was involved in as project coordinator, is the – partially – autonomous emission-free ferry shipping on Kiel Fjord, has the maxim «design creates attention«. We needed to gain the attention of various commitees in order to find supporters. We then relied heavily on visualisation and had two design concepts created of what a ferry on the Kiel Fjord could look like in the future. Then came the response and different stakeholder groups came forth, in a positive as well as a negative way, because our presentation motion pictures attracted even the most skeptical people and we managed to start a dialogue. The partners then

came as well. It was important, however, that the impulse came first. The two design concepts, lock, stock and barrel, were really spectacular and convincing! The presentations and film screenings went well and brought us the attention our initiative needed for the entire project, right from the start.

MF: How do you manage to align and reconcile the individual and different project expectations of the various stakeholders?

DL: In the beginning we had a lot of partners united under the umbrella of the CAPTN Initiative. It was important from day one on, though, that we created a sense of togetherness and commitment by delegating responsibility. That meant that we tried not to predefine too much, but enabled the project participants to get involved and to find their niche, so we got them on board right from the start. It is so important to also involve all those skeptics and opponents, giving them the opportunity to express their skepticism and then, in an ideal case, dispel fears by giving them explanations. Good communication and a solid information management is also crucial. CAPTN involves so many different groups of stakeholders, so many different partners from all industrial sectors, science and society. You only win when everyone is able to get relevant the information at any given time, otherwise you lose.

Thor Möller

MF: What does an opening event or kick-off look like in your projects and which participants do you generally invite? (online/offline…)

TM: First only the active team members are invited. For the further course of the project it is incredibly important to start with a few surprises, that we do something exciting and eventful as a team. Usually nothing too costly, but something that everyone relates to in a positive way, something good to remember. In my other projects we usually organize a little boat trip on the river Alster with rowboats or we visit the climate house at Bremerhaven. It is all about creating memories so that we ensure that we keep motivation over the entire course of the project because we love our rowboat memories so much. It is also important that the activity works for all team members and nobody is afraid or feels uncomfortable. For example a trip to an adventure park is not something everybody appreciates. It is also not the best idea to just go into the next hotel and hold a seminar instead. That lacks a special and unique touch. It does not have to be spectacular. Even a picnic is great to get into dialogue and to create another atmosphere and easing of tension. There are many things that work offline, of course, but there are also some interesting and memorable activities that you can also do online with your team.

MF: How can you make sure that the project manager has access to the relevant resources whenever necessary?

TM: The project manager needs to ask for clear provisions and rules upon assignment. An experienced project manager asks the critical questions right at the beginning so that if the endeavor is realistic, he can ask for the necessary resources up front. It is not about me feeling honored because I was offered the role of project manager, but it is about me leading the project to a realistic success. Therefore it is also important not to say ‹yes› to every project management role, but to leave the ego behind and to critically scrutinize the issue of resources. That also includes making it clear to the customer how important resources are. A professional project manager facilitates clarity and negotiates with the customer. When these negotiations work out, negotiations with other stakeholders will work out too. This implies that the project manager causes some discomfort.

Tobias Rohrbach

MF: How can you make sure that the project manager has access to the relevant resources whenever necessary?

TR: Good planning and commitment! Right from the start. All relevant project issues have to be crystal clear to everyone involved. That’s why it’s important to screen the entire project in advance and to define the thematic areas. Everything needs to be properly planned out and for that a realistic assessment is necessary. This means I need to know the hard facts and know which resources I need at which time during the project and what for. It needs to be clear who is responsible for what. When this framework is solid, then everyone has to stick with it and follow the rules. Therefore, it is crucial to work with professionals who have a lot of expert knowledge and practical experience and who are competent in all soft skills. Unfortunately, this is often underestimated.

René Windus

MF: How do you make sure all project participants have access to relevant information?

RW: First, I need to understand what the project participants need and what is important to them. Then I organize everything by establishing a solid

communication planning. Very often people get too much information they do not really need. They are almost drowning in e-mails and in the end stop reading them, so the information that really matters is not even noticed! Communication should never be a coincidence or happen by chance, and even presumably simple tasks such as a good filing system should be taken into consideration and thought about. It is also dangerous to put everyone into the «CC« of your e-mails. Very often people do this because they want backup. The only thing that can help here is a good filter to sort out the e-mails where I appear in «CC«. And rules on this matter need to be communicated beforehand – «CC« means that I only receive an information without having something to do about it. In practical business life there are so many misunderstandings about this, unfortunately.

Stefanie Gries

MF: How can you make sure that the project manager has access to the relevant resources whenever necessary?

SG: According to my experience this is one of the biggest challenges in project management. I think, a resource planning à la «I need colleague XY on Monday in three weeks for 2.25 hours, Thursday for one hour and in three months for another 3 days« only works to a small extent. This is why it is important to keep the type and scope of the requirements as transparent as possible and especially, that all employees have the freedom to organize themselves within a certain framework. It is about early integration of resources so that everyone knows that «something is coming up next week« and that they are able to react accordingly.

MF: What tips do you have for successful stakeholder management?

SG: Communication. Then communication. And then again… communication. The formats may be entirely different here, but you should never forget (to quote my colleague Markus): «Thought out does not mean said, said does not mean heard, heard does not mean understood, understood does not mean internalized and internalized does not mean implemented yet.«

4 Planning Phase

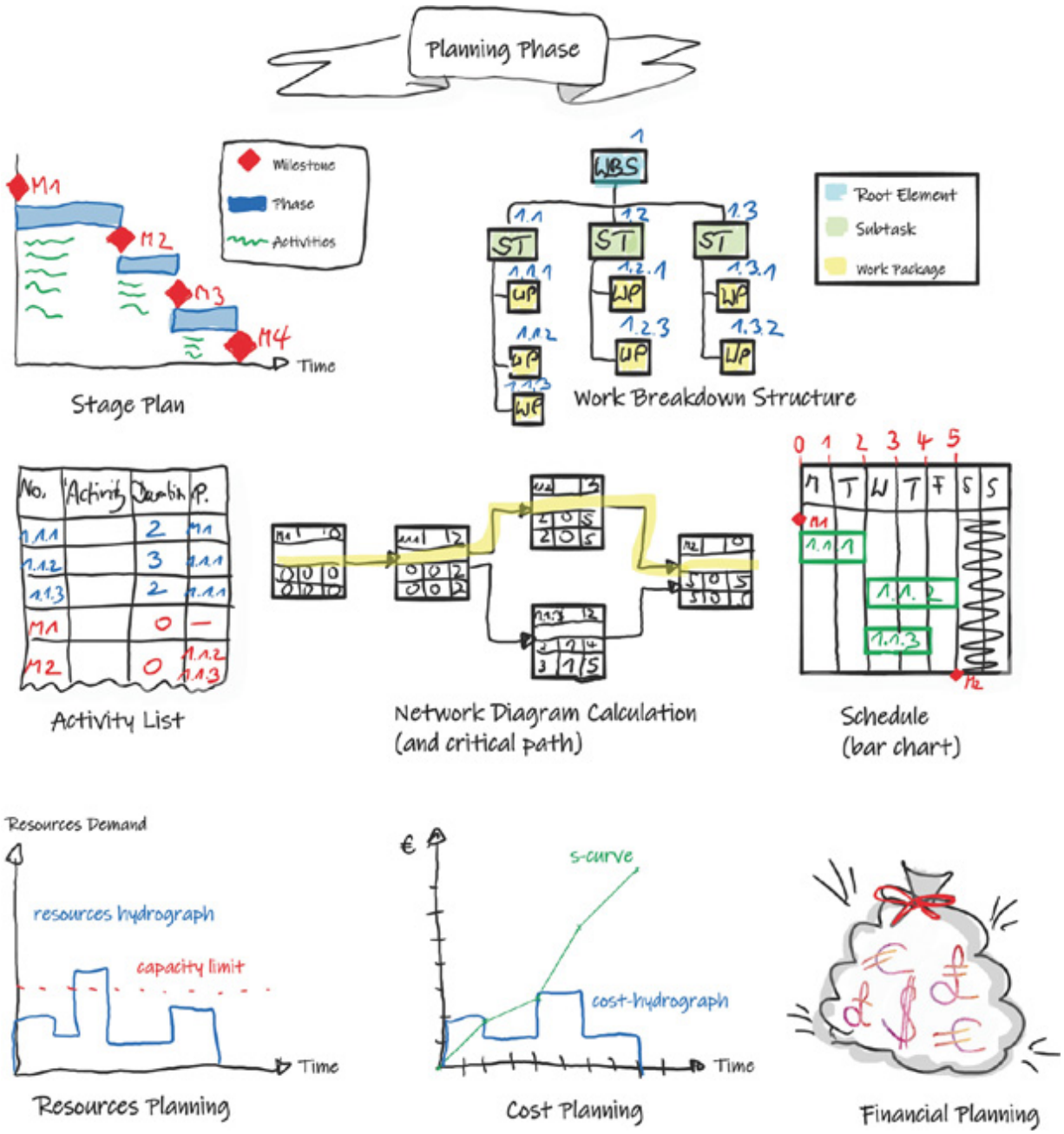

Illustration 7: Overview Planning Phase

4.1 Fundamentals

After previously defining all specifications necessary for successfully carrying out our project, it is now time to do the planning. Here we have to establish all plans necessary for creating our project or product. Therefore, we need to determine what to do and in which order. It is about scheduling deadlines and assigning resources. We need to have an eye on scarce resources, resources that we do not have at any given time in the quantity needed. Such resources are called **bottleneck resources**. We also have to plan things that are not directly related to creating the product. This includes rising costs and **cash-flow**, that means the amount of money available to cover the costs at a given time. By way of solid planning we want to avoid mistakes (e.g. choosing wrong paths, doubling on work, forgetting specific elements or overlooking risks). The totality of all plans is called the **project plan**.

4.1.1 Phase Planning

A **project phase chart** (also called a **stage plan**) is a rough process plan or schedule in which a manageable project is divided into small chunks. Thus the project is divided into controllable, factually/objectively demarcated time segments. These segments are called phases. Therefore each phase is a particular period of time available for their respective tasks to be completed. At the beginning and at the end of each of these phases there is a milestone. This is a moment in time during the course of the project which does not have a duration, but reaching this milestone

has an effect on all sorts of following actions. For example, we can verify if the desired results of one phase have been reached, if there is reworking to be done or if we can start the next phase. Therefore, a milestone is a quality checkpoint where an entity superior to the project manager (e.g. the customer) can bring their interests to the table. Milestones are often related to partial deliveries or payment obligations. If these are defaulted on, the project stops until everything has been fulfilled or until the parties have reached an agreement in one way or the other.

When working with a strictly sequential project phase chart all phases are processed one after the other. There are no overlapping phases or phases that are parallel. A project phase plan like that begins with a project start milestone which is followed by the first phase. Then, between the first and the second phase, there is a milestone parting the phases. On this milestone date we examine if all the results of the first phase have been reached properly. If so, the second phase can be started. After the second phase there is another milestone, followed by the third phase. This continues until we reach the last phase and the following project end milestone. Ideally such a project phase chart has at least three but at the most nine phases. As every phase starts with a milestone and needs to end with a milestone, we have between four and ten milestones. A sequential project phase chart requires that we process our project one phase after the other. The project implementation is solid due to its simple and comprehensive logic, but it also takes quite some time.

A project phase chart is a great instrument for communicating with our customer and it gives a first overview on the course of the project as well. In addition to that it can be used for a rough cost estimate. A project

phase chart can be established entirely from scratch by consulting the phases and milestones we (hopefully) have determined during the definition phase together with our customer, or we choose a project-specific, adequate process model and adapt it accordingly.

A typical example for a standard process model in the building and construction industry is the work phases according to HOAI (fee structure for architects and engineers) as illustrated in illustration 8 in a very condensed form.

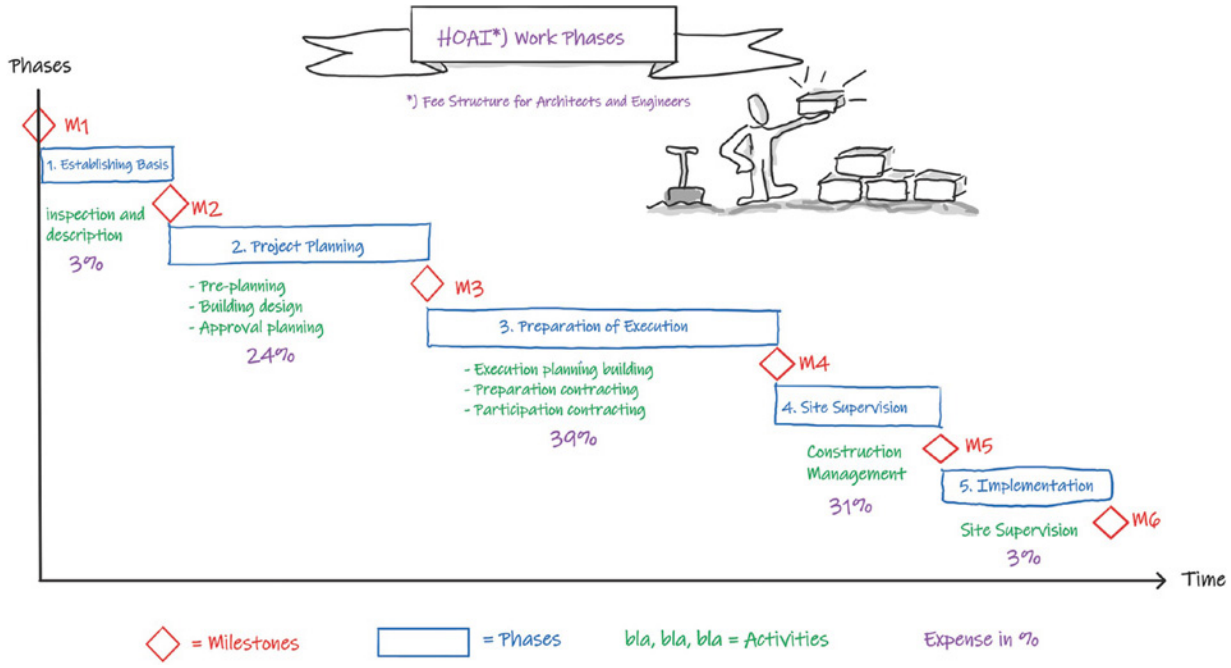

Illustration 8: Condensed work phases according to HOAI

The five phases establishing basis, project planning, preparation of execution, site supervision and implementation are shown in blue. The most important activities within the phases are (exemplifying) illustrated in green and the six milestones separating the phases come in red. The percentages within the phases represent the expense benchmarks. The advantage of using standardized

process models is that we do not forget anything important and we already know the approximate amount of resources arising in each phase. In this model the individual phases look like stairway steps. If we were to pour water on them, we would see how the water flows down step by step, just like at a waterfall. This is where the colloquial term **waterfall model** comes from.

4.1.2 Project Structure

A work breakdown structure (WBS) contains everything we need to do in a project, all tasks and to dos, in a very structured form. It is the basis for all following plans. When we forget to put something into the WBS, then it is also missing from our schedule, resource and cost plan. It is not without reason that the WBS is called ‹the plan of all plans›. A work breakdown structure contains a root element, some **sub-tasks** and a lot of **work packages**. The root element stands at the top of the work breakdown structure (= first level) – it represents the entire project. A sub-task is a part of the project which will be divided further within the WBS and represents a group of related elements (= sub-tasks or work packages). A work package is a self-contained task within the project that can be achieved in a given time with a defined result and effort. A work package is the smallest element in the WBS and cannot be divided any further. Every element of the WBS contains a unique, clear identification – the WBS code. This identification (e.g. a numbering) needs to be unique, that means within one work breakdown structure no number shall appear twice, otherwise there will be chaos. The WBS code can be compared to an article number. If two articles

would have an identical article number, then the wrong article would be delivered in every second order.

When establishing a work breakdown structure we can proceed differently. In a brainstorming session we could collect all tasks coming up in a project and then cluster related work packages into sub-tasks. This bottom-up procedure is particularly suited for very new and innovative projects. When we already know the final product, e.g. when we want to build a car, then a top-down procedure is recommendable. We then think about which main components our car contains (car body, chassis, interior, motor, wheels) and we take these as our sub-tasks. We then divide them further. The sub-task interior, for example, could be divided into vehicle headliner, trim, seating, dashboard etc. As we only described objects in our example (things, nouns), in that case we talk about an object-oriented structure. When we only talk about functions (activities, verbs) such as cooking, cleaning, decorating, washing etc., then we refer to a function-oriented WBS. There is also a phase-oriented work breakdown structure. This puts all phases as sub-tasks into the second level (the level below the root element). In additional levels these sub-tasks are further divided into other elements. A phase-oriented WBS has the advantage that we can use the results of our preparatory work during phase planning. The phases already have been established in the subtasks; the activities of the project phase chart now can be divided into work packages or additional sub-tasks.

Let us take another look at the illustrated project phase chart «condensed work phases«. Here we have described the activities inspection and description in the phase establishing basis. From them we can cluster three work

packages such as inventory, site analysis and environmental compatibility. In the second phase of project planning we have the activities pre-planning, building design and planning of approval, which we can take as sub-tasks and divide into further work packages.

- The sub-task preparatory planning could be divided into the four work packages of financial planning, cost-benefit analysis, construction request and model creation.
- From the sub-task building design we could derive the three work packages object description, cost calculation and building optimization.
- From the sub-task planning of approval we could create the three work packages neighbourly approval, documents for screening procedure and documents for approval.

The third phase, the phase of preparation of execution, could be divided as follows:

- Sub-task: execution planning for building
  Work packages: performance specification/construction plans/execution plans
- Sub-task: preparation of assignment
  Work packages: request for proposal/cost overviews
- Sub-task: contribution to assignment
  Work packages: evaluation of the offers/preparation of contracts/contribution to assignment

This possible way of proceeding is illustrated in ‹Variant A›. This way we could also tackle the fourth phase, site supervision, and the fifth phase, implementation.

Note: The division of the second phase (project planning) into the sub-tasks preparatory planning/building

design/planning of approval and of the third phase (preparation of execution) into the sub-tasks execution planning for building/preparation of assignment/contribution to assignment is optional. We could also put the ten associated work packages under the sub-task project planning and allocate the associated eight work packages to the sub-task preparatory planning (Variant B). It would even be possible to only define the three work packages preparatory planning, building design and planning of approval (Variant C). To what extent the WBS is sub-tasked and how extensive individual work packages may be remains, after all, the decision of the project manager together with his team. As a golden rule, the WBS should be as rough as possible but as extensive as necessary. This means, in a nutshell, it should not contain more than five levels and no more than 100 work packages.

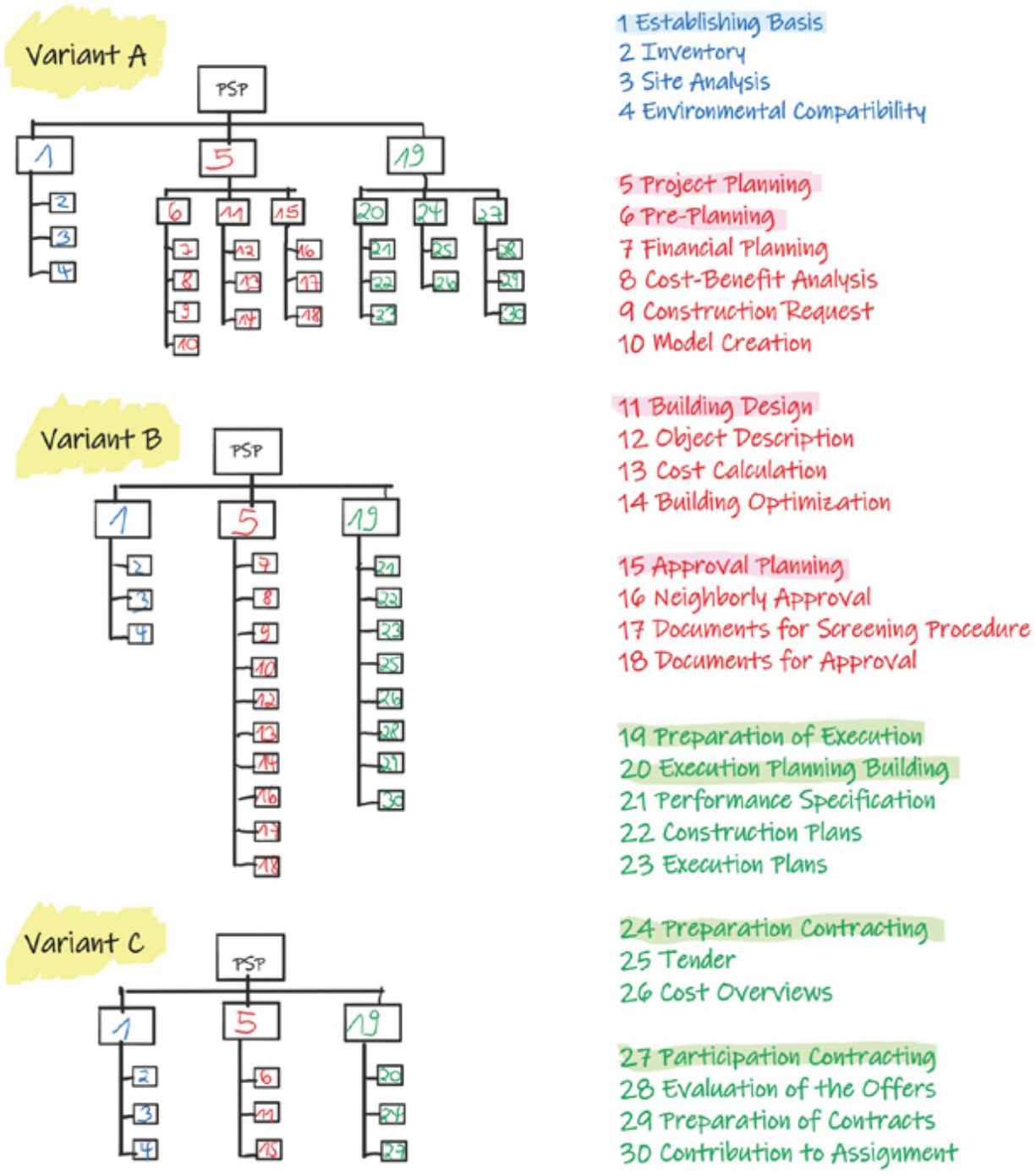

Illustration 9: HOAI WBS Variants

After the work breakdown structure has been created, the individual work packages need to be described a little bit more in detail. A work package description can be seen like a work instruction. This work instruction has to be outlined

in a way that sufficiently qualified employees can carry out the task without further enquiries. A solid work package description also contains information concerning identification (project name and number, work package number and WBS code, name of the responsible person) as well as regarding content (performance description, result expectation, activities, duration, effort, costs).

4.1.3 Process Planning

The process planning and scheduling transfers all work packages from the work breakdown structure into **activities**, brings them into an objective/logical process order and then adds the relevant timeline. When smaller projects are concerned we can take the individual work packages 1:1 and transfer them into activities. When we have bigger projects where we need to deal with more than 100 activities, we divide a work package into multiple activities, which is called a 1:n relation or ratio. Let us assume we are building a house and we have a work package roof with the following allocated activities:

- Tiling the roof
- Laying bricks for the knee wall
- Constructing the roof truss (beams)
- Insulating the rafters with glass wool
- Erect gable
- Mounting battens on beams
- Covering the roof with plasterboards

We need different contractors (roofers, bricklayers, carpenters, plasterers) for each part of the roof

construction and we want to do some tasks by ourselves. So we need to come up with a logical process order, add the timeline and assign the contractors accordingly.

Laying bricks for the gable and for the knee wall can be done at the same time. For this we need bricklayers. We will then have our roof truss constructed. This is done by carpenters. Now the battens need to be nailed onto the beams in the correct spacing (depending on the type of roof tiles we are going to use). This could be done either by the carpenters or the roofers. Then the roof (roof tiles and molded parts) needs to be tiled. The roofers are taking care of that. When everything is installed correctly, the rafters can be insulated with glass wool. This is something we want to do ourselves. Since the attic is going to be used as a bedroom for the kids, we need to cover everything with plasterboard. To do this, we hire a plasterer. Thus we have transferred the work package roof in a 1:7 relation as activities, this means, out of one work package we have organized seven easily manageable activities and have also defined the correct process order.

We can determine the process order either graphically or by means of a chart. The graphic version is then called a process plan, the chart is called a list of activities. For inexperienced planners or when we have to deal with bigger teams, the graphic version has proven best. Every activity is written on a small card and the cards then are moved around on a big planning table until we manage to have a logical process. That way, everyone is involved and discussions emerge that lead to clarifying the right procedure. Subsequently we draw in arrows to indicate the correct process order. The tail of the arrow points to the predecessor activity, the arrowhead points to the logical successor activity. In project management these arrows are

called logical relationship. We have four different types of logical relationships:

- End-to-start relationship (ES)
  The successive activity starts as soon as the preceding activity finishes.
- Start-to-start relationship (SS)
  The successive activity starts as soon as the preceding activity begins.
- End-to-end relationship (EE)
  The successive activity ends as soon as the preceding activity finishes.
- Start-to-end relationship (SE)
  The successive activity ends as soon as the preceding activity begins.

Note: Between the predecessor and the successor there is no temporal dependency, but an objective/logical dependency, as we can see clearly when we look at a start-to-end relationship.

Other than the four logical relationships we also have to deal with time intervals that might occur and need to be indicated. We differentiate between:

- Minimum time interval (mti)
  If the minimum time interval is a positive number, it expresses waiting time. If the ‹mti› is negative, then it expresses a lead time or respectively a setup time. When, for example, the predecessor ‹concreting› is connected with the successor ‹tiling roof› by means of an end-to-start relationship with a minimum time interval of two days, it means, that we can only start tiling two days after we poured in the concrete (because the concrete needs to dry first).

- Maximum time interval (maxti)
  The maximum time interval describes the maximum time that can elapse between two activities. For example, when you go to the supermarket to buy frozen chicken and outside it is very hot so you know, you have at most one hour left for taking the chicken out of the refrigerated counter at the supermarket, bring it home and put it in your home freezer (otherwise the cold chain is interrupted and salmonella can start to grow), then this is a typical end-to-start relationship with a ‹maxti› of one hour.

Note: If a successor has only one predecessor and there is no minimum time interval, it means for a start-to-start relationship that both activities start at the same time and for a end-to-end relationship it means, that both activities end at the same time.

4.1.4 Scheduling

In a next step the individual activities need to be scheduled. In the case of small projects you can just take a calendar and transfer the activities from the process plan (considering weekends, Sundays and holidays) into the calendar (which is called ‹**calendaring**›). When dealing with more extensive projects you can identify the relative fixed dates (= work days since the project start) for the activities my means of network diagram calculation and transfer these dates into a calendar. Of course, it is much easier to use a specific project planning software like MS-Project or ProjectLibre (freeware). The tools calculate the network automatically based on the defined logic (meaning

the defined logical relationships from the process plan) and directly transfer everything into a calendar, taking into consideration weekends, non-working days and holidays.

Note: If you have already worked with project network diagrams and just need some sort of brushing-up booster session or if you would like to deep-dive into network diagram calculation, then you will find everything necessary in our advanced knowledge part.

4.1.5 Resource Planning

The activities that have been planned by means of the process planning and scheduling with regard to their dependencies and timeline now need to be implemented. People need to carry out the activities and for doing so they need adequate materials. Materials are divided into durable and nondurable consumer goods. While durables such as a car or laser printer are still available after using them, nondurable consumer goods such as paper, gas or toner change their quality after using them. They transform into something else or become less because we are using them up. In economics we differentiate between equipment (machines, vehicles, etc.), materials (raw materials, operating supplies) and other supplies (such as services of third parties). All these are called resources.

When talking about operating supplies we need to put particular emphasis on availability, because when a machine is used by someone else, we cannot use the same machine at the same time. This is the reason why households in Germany have several cars: When the wife drives to work, the husband cannot drive the kids to

kindergarten even if the car remains untouched during the day on the company's parking lot.

While paying particular attention to qualifications and availability when talking about personal resources, materials are all about specifications and logistics. It is the task of logistics to make sure the required materials are available:

- at the right time
- at the right place
- in the correct quantity and
- in the quality required

If only one of the four requirements is not fulfilled, we are having a big problem!

Let us assume you want to celebrate your 40th birthday on August 17th at Neuschwanstein Castle and you have assigned a catering service to deliver the food for your 200 guests and to take care of the service. All details (date, location, number of guests, menu) have been agreed upon already with the caterer at the beginning of June.

- **Situation 1: Caterer has written down the wrong date**
  Imagine that the caterer misses the date by exactly one week and the food is already delivered on August 10th to Neuschwanstein Castle. Then there is no one having a birthday party and all the wonderful food needs to be disposed of. That would certainly be very unfortunate, but at least you would still have the chance of getting a new menu delivered on August 17th. If the caterer wrote down August 24th (precisely one week later), then you will stand there with egg on your face on August 17th and your guests will have to party on an

empty stomach! A small consolation price would be that at least no food would need to be disposed of and yes, you would be saving a lot of money, too. Maybe one year later you could have a good laugh about it all, because an event like this will surely be remembered forever.

- **Situation 2**: **Caterer delivers to the wrong location**
  If the caterer made a mistake with regard to the location and delivered the menu to the neighboring castle, then you are also in trouble: On August 17th your guests are at Neuschwanstein Castle, but the menu is waiting for you at Hohenschwangau Castle instead. Here again, your guests will leave the party starving.
- **Situation 3: Caterer delivers wrong quantities**
  No cheering can be expected if the caterer has written down the wrong number of guests and thus created a menu for 20 instead of 200 people. Your guests get something to eat, all right, but they would still remain hungry. And since your guests have no idea that something went wrong with the order, they might consider you stingy.
- **Situation 4**: **The quality is not right**
  Let us assume, the menu for 200 guests would be delivered on August 17th to Neuschwanstein Castle. Unfortunately the caterer has not carried out a sufficient quality control of the delivery of the meat and so he got delivered spoiled meat. That literally ‹stinks›. And therefore the meat dishes do not taste as good as they should. That, too, does not really increase the satisfaction of the guests.

As you can see here, well-functioning logistics is extremely important for the successful course of a project. Therefore

the delivery of the right resources at the right time to the correct location and the right quantity and the quality required is the job of project management.

If you want to create a high-quality product you need to make sure you meet all specifications with regard to materials. And as far as personnel is concerned, it is all about qualifications. If you want to develop a rocket engine and need five engineers, for example, but you only get five accountants, then your endeavor will fail. The reverse is also true: The five engineers cannot take care of accounting and establish the necessary balance sheets. For that you do need specialized accountants. If you want to develop a new device and you need two engineers (to draft the circuit) and four technicians (for prototyping), it would not help you any further if you have ten technicians and no engineers at all. Because the technicians would probably not be able to construct the circuits. And vice versa – you have ten engineers but no technician – it could work out but it is not really optimal. The engineers certainly would be able to build the prototype, but due to the fact that they do not do such things often they would probably need a lot more time. From an economic point of view it would also not be very wise because engineers probably cost a lot more than technicians. It would not be too motivating for the engineers to take care of the ‹dirty work› (talking in stereotypes here, of course!).

Another important point when planning personnel resources is to differentiate between basic capacity and free (respectively available) capacity. Basic capacity is the capacity of one person that is available for all projects to be carried out and other tasks. The free capacity of a person is the capacity that is still available for further work, taking into account the sum of all existing loads. This fact plays a

particular role in line or project matrix organizations, because in these organization forms people have a multitude of tasks and assignments to deal with. But even in an autonomous organization with people working solely for one project, they will never be available for 100 % of the project. They are sometimes on leave, sick or participating in training programs. But even if they are present all day, they cannot always perform at 100 % – just as you cannot drive a car at full throttle all the time. As a good project manager you should therefore only use employees to a capacity of 80 % at the maximum.

Note: When you belong to those project managers who, for reasons to simplify planning, do not record all activities such as meetings, traveling time, documentation, project and quality management, telephone support etc. and do not identify these as work packages, then you need to take that into consideration with your resource planning. In this case you can only firmly schedule human resources for between 50 and 60 %!

When doing resource planning you need to take the following three dimensions into consideration:

1. WHAT needs to be done?
   The project dimension takes into account both projects and daily business. This includes all work packages that need to be carried out deriving from our work breakdown structure as well as all tasks arising from our operative business.
2. WHEN does it need to be done?
   The temporal dimension for the resource planning usually concerns relevant units such as days, weeks, months, quarters or years. The dates can be taken from the schedules (e.g. Gantt chart).

3. WHO does it?
   The resource dimension contains persons and/or organizational units (e.g. specialized departments) according to effort (number) and the required qualifications.

Note: When planning resources it has proven useful to really think about the qualifications of the required employee. Some mere keywords such as «communicative, organizational talent, leadership competencies« are not enough! Otherwise instead of the requested event manager you will get a vendor at the fruit stand bringing along her little boy. In order to be able to sell fruit you sure need to be communicative. To set up the fruit stand at the weekly market definitely requires some organizational talent and to be able, at the same time, to babysit the little son, that certainly shows leadership competency at its best.

If the results of resource planning need to be visualized, the resource requirements per unit of time can be displayed as a resource graph. For example a Gantt chart can be used in which all required employees (WHO) are listed. Each bar represents an activity (WHAT). The position of the bar on the x-axis represents the time (WHEN). The resource demand (therefore the human resources with a certain qualification necessary for a particular time unit) results from the sum of the assigned employees per day, week, or month. The number of available employees (of a certain qualification) can also be drawn into this graph as a so-called capacity limit. Thus you can see at first glance if and when you have to face overloads or if the number of employees is not sufficient. If the resource graph ranges fully below the capacity limit, then everything is all right!

For optimal resource planning a project manager needs to critically tackle the following questions:

- Which qualifications do I need for my project?
- In which quantity and at what point in time do I need these qualifications?
- Which departments or external companies most likely offer these qualifications or capacities?
- How do I manage that (especially when bottleneck resources are concerned) my project has priority over other projects or tasks?
- How do I make sure over the course of the project that the given resources really remain available and that I can react quickly and flexibly to changes?

4.1.6 Cost Planning

You often want to know at an early stage what approximate costs will arise for the project. If you already have some tasks collected or if you have established a first rough work breakdown structure (very often you create one during the project start workshop in the definition phase of the project) then it is relatively easy. The work breakdown structure contains everything that needs to be done in the project broken down into approximately 20 to 100 work packages. As costs only arise in work packages where something is being worked on, we can carry out a rough cost planning according to the bottom-up principle. While it would be difficult to estimate the total costs of a project at once, the situation for work packages is different. A work package describes a precisely defined performance. This means, we deal with compact, small units, for which costs can be determined or estimated quite easily. The individual work package costs are now added up to all work

breakdown structure levels, resulting in the cost values for the sub-tasks and a total value for the project.

Let us assume you want to have a birthday party with 50 guests in the party area of your apartment. The party starts with a barbeque, later on there will be coffee and cake and then snacks and cheese platters. If you now had to estimate spontaneously how much all this would cost, you probably would not have an answer. But if you can break everything down into small units, the entire thing becomes a lot easier. Let us take the work package barbeque: You calculate that every guest would eat one steak and one sausage – that should work out nicely since some of the guests are vegetarians or vegans. Therefore you will need 50 steaks and 50 sausages. Then you would also like to offer ten different types of salads. You estimate that every guest eats approximately 300 g salad and one bread roll – the vegetarians/vegans eat a bit more here. So in total you would need approximately 15 kg salad. From experience you know that potato and pasta salads are your guests' favorites. Thus you buy three kilograms of each. The remaining nine kilograms will be divided for eight other types of salad. Since you are not planning on standing at the grill yourself, you ask your neighbor whether he would like to do it with his new high-tech grill for an remuneration of 100 Euros. You can now calculate your costs quite easily. Proceed the same way with the other work packages such as soft drinks, alcoholic beverages, cakes, snacks, cheese platters, decoration material and of course the person you hire for the cleaning, because you want to enjoy your party instead of taking care of doing the dishes or cleaning the house afterwards. Finally, you just have to add up the costs of all work packages and voilà, you have your approximate project costs.

In practice, in addition to human resources and material costs, there are also machine costs, shared costs and costs for third-party services. To get a rough estimate it is enough to calculate with an average hourly rate for personnel (respectively with an internal cost rate) notwithstanding the qualifications. You usually get this cost rate from your accounting department. You will also receive information on hourly rates related to qualifications, for example, for engineers, technicians, office clerks etc. from your accounting department, because they use values of past accounting periods like prior financial years. Machinery and allocation costs can be obtained from the heads of the relevant departments. Material prices can be found in price lists or by asking for price quotations. For third-party services you can ask for cost estimates or price quotations.

While a first rough cost estimate is sufficient for an early stage of the project, for example for the calculation of an offer for the client, you need more precise and detailed costs in the later course of the project. At this time we not only have our complete work breakdown structure telling us what we need to do, but we also know when all this needs to be done (schedule or Gantt chart) and by whom (resource plan). So we are not only able to determine the exact costs, but we also know at what time which costs will arise. For our cost planning we do not take the average hourly rate, but we rely on qualification-based hourly rates that are broken down into rates for engineers, technicians or commercial clerks. Where larger amounts of materials are involved, we do not accept mere price lists, but negotiate all prices and discounts directly with our suppliers. The costs for one work package or one activity can thus be calculated as follows:

- Human resources: number of hours × hourly rate

- Machines: number of hours × machine hourly rate
- Materials: quantity × price
- Third-party services: cost estimate or price quotation

It is our aim to create a **cost hydrograph** as well as an **s-curve**. From the cost hydrograph we can see in which period and in which amount costs will arise. Knowing when and how much money we need is important in order to meet our payment obligations at any given time. The s-curve shows us the sum of all costs arising since start of the project for any time given. In project controlling the s-curve is also called a planning curve (PC). Comparing it with our earned value (EV) and the actual costs (AC), allows statements to be made about the state of our project.

Note: You can find more details on all of this in the advanced knowledge part under controlling.

The s-curve is also important for the finance department, because it is necessary for calculating the cash flow. The cash flow is calculated from the sum of all revenue subtracted by the sum of all expenditures. The s-curve represents the sum of all expenditures at the respective time.

The following illustration explains how to draw a cost hydrograph and an s-curve just like in the good old days. In practice it is of course recommended to use a special project planning software, since we have to deal with a lot more activities (our biggest project had, for instance, approximately 3000 activities). The project planning software then issues the data in the form of a table or graph.

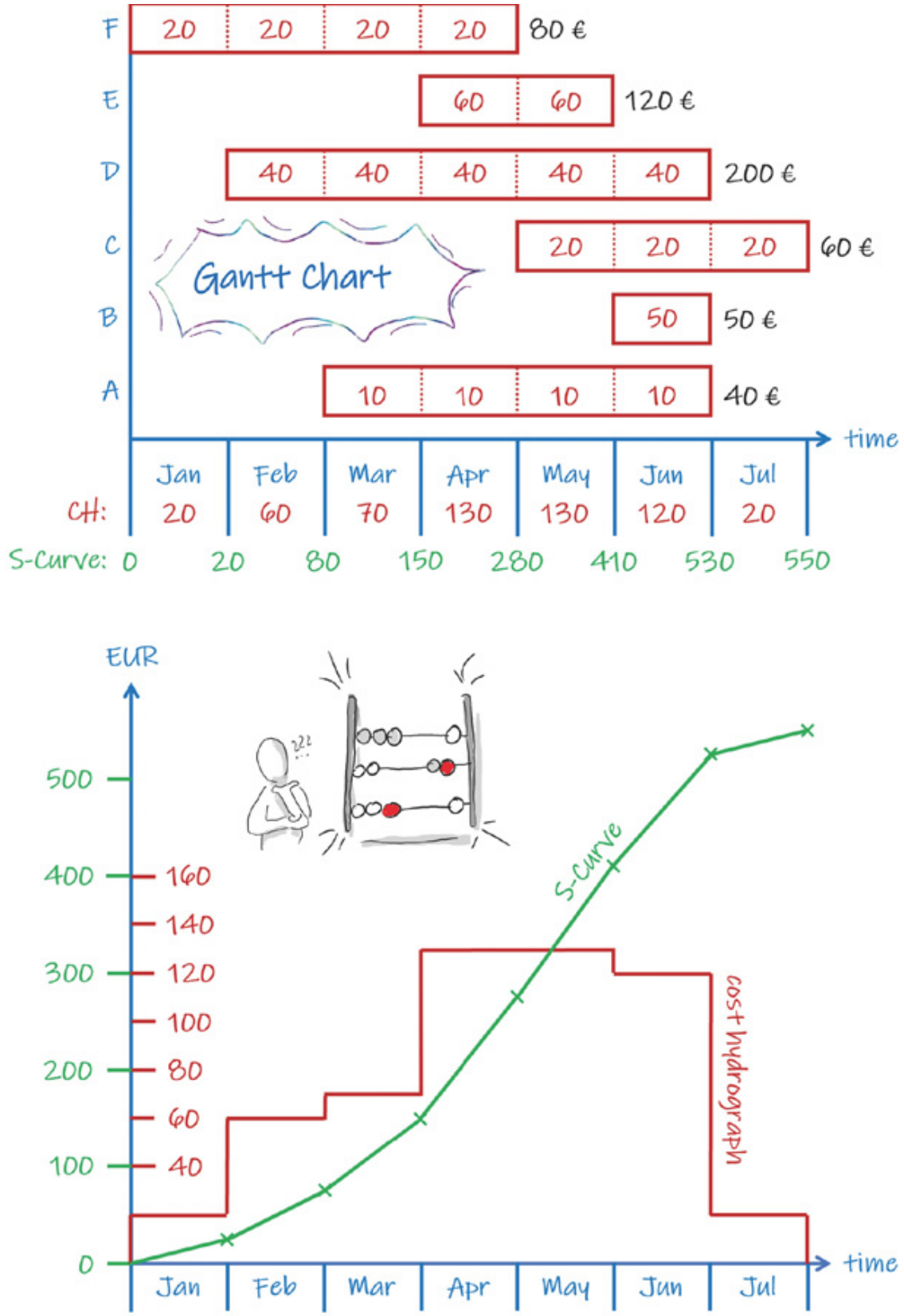

Illustration 10: Cost hydrograph and s-curve

To be able to establish a cost hydrograph or an s-curve we need a Gantt chart. The estimated costs per activity are divided over the desired time unit and graphed into the activity bars. We then add the costs per time unit (vertically) and draw a cost hydrograph.

To be able to generate an s-curve we need the (vertically) added costs per time unit in the Gantt chart respectively the cost hydrograph. These costs need to be cumulated and entered as an s-curve into the time axis.

The example illustrated consists of a Gantt chart with six activities A, B, C, D, E and F. The activities are worked on in the period from January until July. The total costs of an activity are indicated in black on the right side of the relevant red activity bar. Activity A costs 40 Euros, activity B costs 50 Euros, C costs 60 Euros, D costs 200 Euros, E costs 120 Euros and F adds up to a total of 80 Euros. Now we divide the costs into the individual time units and enter them in red into the activity bars. Activity A has total costs of 40 Euros for a duration of four months (it includes the time from March until June). Therefore 10 Euros of costs will arise each month. Activity B causes total costs of 50 Euros. Activity B will be worked on and completed in June, so the total cost of 50 Euros will arise that month. Activity C shows total costs of 60 Euros, divided into three months (May until July), so that we have 20 Euros costs per month. It continues like this until we reach activity F. As soon as all activity costs have been spread across the individual bars, we can calculate the specifics of the cost hydrograph (CH). We simply add up the costs vertically. In March, for instance, we add up 20 Euros from activity F, 40 Euros from activity D and 10 Euros from activity A, which equals a total of 70 Euros. This value is added into the x-axis (where we find the labeling ‹CH›) into the section ‹March›. When we

have calculated all values for all seven months, we continue with the s-curve – displayed in green. At the beginning of January, no costs had arisen yet, therefore we indicate the value 0. In January 20 Euros of costs will arise, therefore we indicate the value 20 at the end of January. In February we add 60 Euros, thus we fill in the value 80 at the end of February. In March we add 70 Euros, so at the end of March we have the value 150. This continues until all values have been added. Now we are able to draw the cost hydrograph from the values of the line ‹CH› and generate the s-curve from the values of the line ‹s-curve› into a new coordinates system.

4.1.7 Financial Planning

We previously determined at what time which costs will arise during the project. Therefore we have also determined when our project needs which financial resources. In most cases this is absolutely sufficient. Departments outside of our project thus ensure that the costs are covered.

If we consider our project to be some sort of **profit center**, however, we can determine our cash flow by comparing our revenues and expenditures in order to find out the financial requirements of our project. By comparing our expenditures (s-curve) with the revenues (cost hydrograph) we know at any given time if there is surplus covering or a shortage of liquid assets. Only when we can guarantee that we have enough financial resources at any given time of the project to cover all expenses, may the next project phase be started. If we have a capital deficit, we need to raise money. In the short term a credit can be taken out for this purpose. For the long term a loan makes more sense

because we need to pay less interests on it. Of course, we can also think about negotiating contracts with our suppliers that contain longer payment terms. We can also carry out **sponsoring** or take partners or shareholders on board with us.

4.2 Practical Example

As we had already elaborated our project phase chart during the definition phase and thought about which activities might need to be tackled during which phase, it was now time to deal with our work breakdown structure – the ‹mother of all plans› and the most important planning tool in PM. The work we did beforehand with regard to all the activities turned out to be quite helpful in creating our WBS top-down, starting right from the top, the root element, and then all the way down to the individual work packages. The phases have been transferred into sub-tasks in the second level, because they already have been very project-specific, relating to the most important activities, so it was easy for us to break them down further. Due to the fact that Mathias and I were not enrolled in any other mutual projects at that time, it was a relatively easy step for us to choose a plain numeric code for our WBS. So our root element got a simple 1 – and because we had another five sub-tasks next to our sub-task of project management (all resulting from our project phase chart), we were able to easily number through the level of sub-tasks from 1.1 to 1.6. Our WBS in average had five to seven work packages assigned per sub-task, so that in the end we had a nice total of 37 work packages.

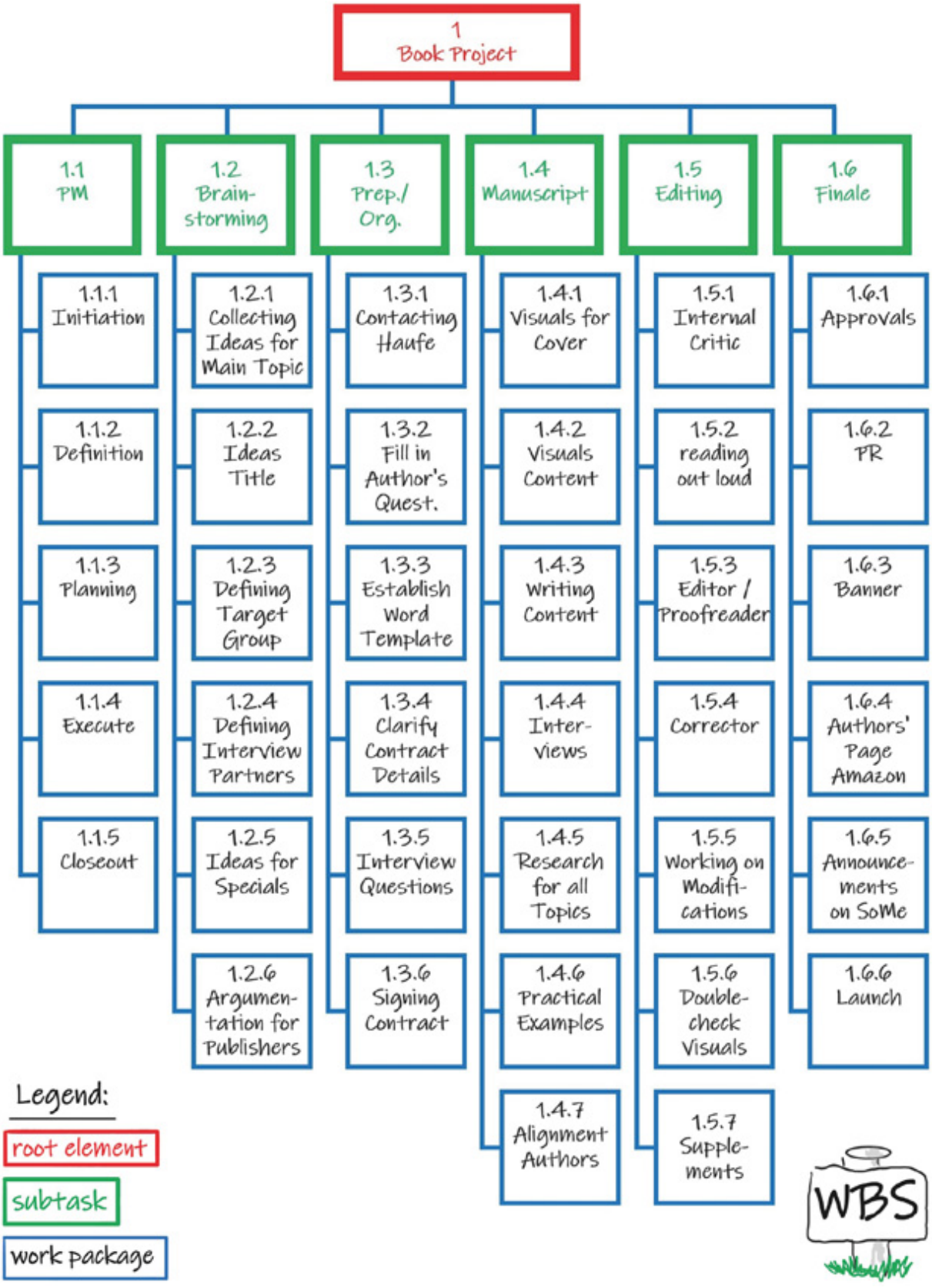
1
Book Project
1.1
PM
1.2
Brain-
storming
1.3
Prep./
Org.
1.4
Manuscript
1.5
Editing
1.6
Finale
1.1.1
Initiation
1.1.2
Definition
1.1.3
Planning
1.1.4
Execute
1.1.5
Closeout
1.2.1
Collecting
Ideas for
Main Topic
1.2.2
Ideas
Title
1.2.3
Defining
Target
Group
1.2.4
Defining
Interview
Partners
1.2.5
Ideas for
Specials
1.2.6
Argumen-
tation for
Publishers
1.3.1
Contacting
Haufe
1.3.2
Fill in
Author's
Quest.
1.3.3
Establish
Word
Template
1.3.4
Clarify
Contract
Details
1.3.5
Interview
Questions
1.3.6
Signing
Contract
1.4.1
Visuals for
Cover
1.4.2
Visuals
Content
1.4.3
Writing
Content
1.4.4
Inter-
views
1.4.5
Research
for all
Topics
1.4.6
Practical
Examples
1.4.7
Alignment
Authors
1.5.1
Internal
Critic
1.5.2
reading
out loud
1.5.3
Editor /
Proofreader
1.5.4
Corrector
1.5.5
Working on
Modifi-
cations
1.5.6
Double-
check
Visuals
1.5.7
Supple-
ments
1.6.1
Approvals
1.6.2
PR
1.6.3
Banner
1.6.4
Authors'
Page
Amazon
1.6.5
Announce-
ments
on SoMe
1.6.6
Launch
Legend:
root element
subtask
work package
WBS

Illustration 11: Work Breakdown Structure of the practical examples

For a better overview we used a multitude of colorful cards, the standard repertoire for us trainers and people working in projects which we always have ready at hand in different colors, sizes and shapes. Since both of us are very visual types it was helpful for us to take differently colored cards for the different elements of our WBS, to note the relevant activities and then pin the cards unto a big meta board for visualization. «A picture says more than a thousand words!«, this is what a befriended actor of our regional theater always loves saying. So we wrote the project title «book project« as our root element on a red card, we chose green cards for the sub-tasks project management, preparation/organization, manuscript, editing and finale; and we noted the different work packages on blue cards. On the back of each blue work package card we took preliminary notes on estimated durations, costs and what results to expect so that we could get a first overview on what work needed to be done.

Our next important step was to establish a work package description for each work package. As we already had very good, functioning template forms from our numerous project experiences, we were able to use an adequate Word document for our work package descriptions and luckily did not have to ‹reinvent the wheel›. We defined a suitable method for defining the degree of completion for each work package, which made it easier for the project manager to get a valid status over time on where we stood with our project. When selecting the relevant method to measure the degree of completion you can make quite a lot of mistakes, but of course, you can also do a number of things correctly. The more precise the method to measure the degree of completion of the work package is, the more exactly we

know how far we have come and what still needs to be done. Start and end date of the following work package were on the same day and it included a number of different activities and endeavors. We agreed upon using the ‹steps› method for all work packages because in practical project management this method is very meaningful and informative. Since we were able to describe five different activities in this work package it was clear that our step length was 20 %. That means, by finishing the first activity, we would have completed 20 %. Finishing the second activity we would have already completed 40 % of the total progress and so on. We also thought about possible risks and the effort it would take. Due to the fact that the effort amounted to one working day and since we were calculating with a hypothetical hourly rate of 50.00 Euros, for this work package we calculated costs of 800.00 Euros.

Note: For additional information on calculating the progress and the degree of completion please see the controlling chapter in our advanced knowledge part.

Work Sheet Description	Date:
WS Title: Clarifying contract details	PSP No.: 1.3.4
Project Name: Book Project	Project No.: 1
Description: Personal getting-to-know each other and meeting with product manager at Frankfurt/M. bookfair to clarify a few details with respect to contract (such as, e.g., cover details and scheduling).	Responsible: Mathias Flick Customer: Project Manager Start / End: 20.10.2022
Expectations of Result: • Finalizing contract draft between Haufe and authors • Open issues clarified and approved by all parties	
Activities: 1.) Driving to Frankfurt/M. 2.) Meeting at Haufe stand at Frankfurt bookfair 3.) Bringing forth issues to be clarified 4.) Clarifying contract details 5.) Determining further steps and driving back home	Percentage of Completion: (Status Step Method) 20% 40% 60% 80% 100%
Possible Risks: • Chemistry not 'clicking' between parties • No agreement between parties involved	Duration: 1 Day Effort (Man Hours): 16
Attachments: Sample contract with supplements	Costs: 800,- €

Illustration 12: Work Package No. 1.3.4 of the practical example

After breaking down our WBS in work packages and visualizing them, it was now time to ponder on a logical order and to come up with the process planning. Even though our project was a relatively small and manageable one with only 37 work packages, we could transfer them 1:1 into activities to keep it simple. That means we wrote every activity on a blue card and put them on a big table, moving the blue cards back and forth to decide which activity should come first, where there was a possibility that activities could take place at the same time and which predecessors and successors we had for our activities. On most issues we authors agreed immediately, on others we had one or two discussions and went back and forth on what the best order of the individual activities would be. It was the first book project we did together, but fortunately I was able to rely on experiences I gained during the process of writing my first book and therefore we had somewhat of an idea about the individual process orders or logical relationships of our project's activities. But the more familiar we became with the topic, the more we knew how the process of our book project would look like. It was obvious, for example, that the activities «collecting ideas for main topic (1.2.1)« and «defining target group (1.2.3)« could very well be carried out at the same time while the activity «ideas title (1.2.2)« or «argumentation for publishers (1.2.6)« needed to be tackled subsequently. Due to the timeline stipulated by our publishers it was clear that first the approvals needed to be given – activity 1.6.1. – before Haufe could initiate the production of a retractable banner – activity 1.6.3. Process logic had it that the publishers as well as we authors would wait with big shout-outs and marketing campaigns until our book was on the verge of being launched, because all this would only make sense when our readers could also immediately buy our book after reading

our blurbs. Since the launch of our debut work was scheduled for 15.05.2023 (activity 1.6.6), our social media announcements on platforms such as LinkedIn were timed in a way that they perfectly fit the process order.

After elaborating the process plan and doing the network diagram calculation we needed to take care of scheduling, meaning that we transferred everything into a calendar and got an overview on what the specific timeline of our book project looked like. The starting date as well as the end of the project and important milestones had been stipulated by Haufe right from the beginning, however, due to the fact that writing our book went extremely smoothly, our product manager established an entirely new schedule for us. It was very helpful to transfer our project onto a calendar at that point and to visualize everything. That way everything became a lot more tangible and clear.

The next step of planning was dealing with resource planning. As authors we were the main staff. On behalf of Haufe we worked very closely with our wonderful and congenial product manager, so of course we added her to our resource planning in the human resources section – not on the cost side but regarding the role she incorporated in our project. Resource planning is all about determining WHO is available for the project WHEN and HOW and WHAT needs to be done, so it makes sense to ponder on the issue of qualifications and authority. Particularly when seeking authority, clarifying who has the power to decide respectively who is responsible for what is very important for every aspect that has to do with project management competencies, Mathias and I very quickly reached consent on the fact that for our book project we wanted to work with the so-called ***TARS matrix*** *to determine for each*

relevant stakeholder its role, tasks, authority, responsibilities and skills.

For example, I, as the project manager had the tasks to define, plan and control the project. I was also in charge of organizing the project as well as for the coordination and communication with the different contacts on behalf of the publishers. My authority included making decisions within the framework of conducting the project and to advise in all PM areas in the matter. It was also my job to be the main contact with Haufe. Thus my responsibilities of being the project manager included paying attention to the deadlines, cost and performance objectives, to ensure the required quality, transparency in the project, to report to the product manager on a regular basis and, of course, to coordinate with my husband. The necessary skills for this role included competence in project management in theory as well as in practice, to prove myself a good communicator and to have quite a lot of organizational talent.

The authors had the task of delivering interesting, profound and inspiring content, conduct interviews with leading managers and to carry out extensive research in their relevant fields of expertise. Their fields of authority included the determination of all content and design as well as acting as authors of Haufe to the outside world. They were responsible for delivering profound content for the individual project management topic and of course, were also obliged to name all relevant sources of information in their book by indicating links and dates on the relevant subjects. The skills of the authors included having long-term experience in project management, being experts in their specific disciplines and of course to have the ability to write in a thrilling and captivating way.

Our product manager's role included collaborating well with us, to coordinate with me as project manager and to facilitate and coordinate the launch of our book. Her fields of authority included setting relevant timelines, regularly receiving project status reports from us and carrying out all product-relevant coordination activities withing Haufe. The responsibility of the product manager included answering questions of the project manager or the authors and of course, ensuring that our book project was implemented correctly. To be able to do all that, she needed skills such as organizational talent, she had to present herself as a reliable and congenial contact person and needed a knack for always having an overview of all project stages.

Materials as well as resources need to be planned carefully for the project. In our case the number of materials was quite limited, because we neither had to schedule production machines nor did we need specific raw materials or anything of that kind. What counted, however, were things such as our technical equipment such as laptops, tablets, mobile phones or scanners respectively printers including toner or color cartridges and paper. We also had to take into consideration the kilometers we had to travel, because within the framework of our project we had in-situ meetings with the product manager and other coordination meetings, we carried out in-situ get-togethers with our interview partners that required one of us travelling the miles. Since we wrote our book alongside our jobs as Lead PM, project consultants, trainers and coaches it was of utmost importance to us to coordinate our schedules so that everything matched perfectly and still left time for family and friends.

Because our book project was an internal project that served us as a marketing instrument in the first place and

profitability was not our number one priority, we did not really focus much on cost planning. Of course, we thought about which costs may arise at what point during our project, but we did not set a fixed budget beforehand or defined clearcut financial boundaries. Nonetheless it was important for us to «play by the project management book« from A to Z and to really walk our talk in PM, so of course, we tackled the issue of cost planning to some extent. As we had already taken rough notes on which material or service-related costs would arise per work package, we were able to conduct a bottom-up cost planning by way of our work breakdown structure. That meant that we added the costs of the work packages to sub-task level until we finally had somewhat of an idea which costs might arise in our project.

As we wanted to know which costs our own workforce manifested in the individual work packages, we estimated an hourly rate of 50 Euros, and we were able to apply the formula number of hours × hourly rate as our investment for human resources costs. Calculated costs are so-called opportunity costs which are, of course, not paid and which do not have any fiscal effects due to the fact that there are no actual payments. However, recording calculated costs is indeed interesting and useful in terms of costs in order to determine the total value of our project, because had we assigned a ghostwriter for our book project he would have generated these costs for us.

4.3 Quintessence

The project phase chart contains all the important events, thus all milestones as pre-defined by the customer as well as milestones planned by us with deadlines and results. It gives us a first, rough overview on our project's timeline.

The work breakdown structure lists everything that needs to be done in the project. It contains all tasks necessary to reach our performance objectives and results, however, the WBS does not show any process order yet. It is the basis for our process, resource, and cost planning and lays the foundation for documentation and controlling.

In process planning and scheduling all work packages are converted 1:1 or 1:n into activities. They then are put into a logical process order and receive start and end dates. Therefore we know precisely when and what takes place with optimal conditions.

Resource planning is all about allocating appropriate resources to our activities and what people or machines are concerned we need to make sure that neither is overloaded at any given time during the project.

In cost planning we convert the effort per work package or activity and thus the quantity of all required resources according to the formula quantity × price into costs. Subsequently we add up all work package or activity costs and determine the total costs of our project. The Gantt chart is an indicator for the cost accruement per time unit, while the s-curve is important for financial planning and controlling. Here the s-curve is called a planned costs curve and serves as reference value for the target/actual comparison.

By means of our financial planning we examine if the available money is sufficient at any given time during the

project to cover the costs. Only when this is the case can we release the execute phase.

4.4 Tools and Tips

Which are the typical milestones in project phase charts?

- Performance specifications established by the customer
- Completed tender documents
- Statement of work authorized and passed by the supplier
- Order
- Construction plan approved by the authorities
- Unobjected material test report
- Test facility report on testing a prototype
- Advance payment within the framework of partial performance
- Error-free completed integration test

What should be considered upon establishing a WBS?

- Make sure the WBS code is unique and clear. When a company carries out too many projects it makes sense to integrate the project number into the WBS code.

- Never forget important work packages (project management; preventive measures with regard to risk analysis such as taking out insurance), because everything that does not show up in the WBS will not be dealt with later on.
- Get an estimate for effort, duration and costs from the specialist departments that later on will be assigned to the job. But get comparative offers too.
- A work package can only have one person responsible for it. When there are two responsible people involved and something goes wrong, one will usually blame the other.
- When you notice that one work package is worked on by several organizational units it makes sense to divide it into several work packages so that there is only one responsible person per work package.

How do you establish a list of activities?

1. Create a table containing the columns ‹number/name of activity/duration/predecessor/logical relationship›.
2. Fill this table with the number, the name and the duration of each individual activity.
3. Now add the predecessor(s) for each activity into the column ‹predecessor› as well as the appropriate logical relationship into the column ‹logical relationship›.

How to proceed with regard to resource planning?

1. Estimate the processing time for each work package or activity (in man-hours or man-days), e.g. by comparing them with similar work packages/activities from previous projects.
2. Find out who is apt for carrying out the individual tasks and how much free capacity this person has.
3. Now allocate the determined hours or days to the employees in such a way that their maximum workload does not exceed 80 %.
4. Finally, verify if individual resources are overloaded by parallel activities. If this is the case, carry out a load balancing, e.g. by using additional resources or by adjusting schedules.

How do I draw a Gantt chart and an s-curve?

- Determine or estimate the costs for each activity.
- Divide the costs by the desired time unit (days, weeks, months).
- Transfer the costs per time unit into the activity bars in the Gantt chart.
- Add up the costs per time unit (vertically) and draw the Gantt chart.
- Cumulate the costs of the individual time units of the Gantt chart and transfer them into the s-curve.

! Engaging Questions for the Planning Phase

- What needs to be done with regard to project structure and work planning?
- Which effort/costs do we need to count in?

- Who takes over which task and role and what do we need for each task?
- How do we integrate our customer into the planning of the project?
- What happens at which time during the project?
- How long does working on a work package or activity take?
- Which costs arise and what for exactly?
- Where do we get our resources from and are there any shortages?
- Do we have enough money for our project and how do we tackle financing?

4.5 Interviews with Project Managers

Ben Ziskoven

MF: What is your favorite planning tool (online, offline, digital, «hands-on«…) and why?

BZ: JIRA works pretty nicely for most projects that are a little more complex; for smaller projects Trello or Microsoft Excel are okay, too. Scrum, Kanban and ScrumBan are generally very successful tools when working in projects because there are always short moments from the beginning to reflection on how the teams get their ideas. Working in an iterative way means that we can try something out but it does not have to be permanent; just as long as it leads to better results.

MF: When have you entered the storming phase big time in one of your projects (or in several, for that matter) – with lots of (interpersonal) conflicts? What advice do you have for our readers regarding this?

BZ: Conflicts belong to project management. That's absolutely okay. Always

remain true to yourself and ask yourself how you would act according to your own ideal self-image. Think about how you would solve the conflict and put your assumptions to the test. We need to create more awareness and clarity; this is particularly important when there are conflicts between people.

Carsten Mende

MF: What is your favorite planning tool (online, offline, digital, hands-on…) and why?

CM: I love project network diagrams. Easy to adapt, for instance, by using sticky notes for a first draft. Clear and flexible – it quickly indicates the critical path as well as weaknesses in the process itself.

MF: When have you entered the storming phase big time in one of your projects (or in several, for that matter) – with lots of (interpersonal) conflicts? What advice do you have for our readers regarding this?

CM: Oh, difficult topic. Often projects have to do with changes… and when changes occur nobody is at the same level regarding the change trajectory, so to speak. There is always some sort of conflict somewhere; conflicts about the target, conflicts of interest, someone who wants to keep with the old style and stick with what they have always done, etc. It is important that we do not get involved and pulled into these conflicts. As project managers we have the power and should learn to deal with it. That includes accepting that every one of us has his or her own truth and (normally) is not really against something out of malice. I think that realising this is extremely important in order to be respected and taken seriously as a mediator and to be able to transform conflicts into important impulses on our way to project success.

MF: How can you make sure that the project manager has access to the relevant resources whenever necessary?

CM: I think that proper resource planning including a resources graph is indispensable. However, with that you only depict the theoretical availability of resources. Unforeseen sickness of employees, delivery problems, dependencies on third parties… there are all sorts of risks that can ruin the best of my plans. As a project manager it is of utmost importance to consider risks into my planning, to be able to react flexibly to changes by keeping in mind which tasks I need to prioritize and which alternative resources I might use instead. Not keeping someone busy just for the heck of it, but with an absolute focus on the critical path of the project.

Peter B. Taylor

MF: Buzzword: Storming phase. When have you entered the storming phase in one of your projects (or in several, for that matter) with lots of (interpersonal) conflict? What advice do you have for our readers on this matter?

PBT: I think that the place to start is to understand that each project team is just different.

A project team will, most likely, incorporate team members who are not 100 % dedicated to the project and the project team members. They will, instead, be part-time contributors (and not always voluntary ones at that) who, in parallel to the project work, must maintain their own ‹business as usual›, and keep on supporting their full-time/permanent team colleagues.

Difference number two is that project teams are never gathered together on day one and you rarely get to keep them for the entire duration of the project. At least, that has never happened in my experience – it probably does on some exceptional basis, but it is not the norm. The reason is simply economics – businesses cannot afford to dedicate valuable resources this way, nor can they afford to backfill ‹lost› team members whilst they are working on a project. Instead, team members come and go, appearing when they are specifically needed – or their skills are – and then disappearing as soon as that piece of work is completed.

As such, whilst perhaps the core team has cracked on with the whole forming, storming, norming process – maybe even heading towards the performing level – these part-timers appear as and when needed and never reach the same level as the core team. Even if the core team is actually already in the ‹norming› phase – if someone new joins – bang – they all go back to the storming phase. Not intentionally, not maliciously, not to sabotage the project but simply because they have freshly arrived and now need to find their place in the team.

Difference number three brings us into the world of internal and external teams trying to find a way to work together fast. Again, cost is typically the reason here. Start using a resource (especially an expensive external resource) and the budget starts getting used up. Use up too much on just ‹getting to know each other› and bang, your project is overrunning on expenditure, as a project manager you already have a problem on your hand, and the project has barely even started.

And if you think about it, internal teams do have one thing in common – the culture of the organisation that they work for. External resources will bring their own culture, expectations, biases and so on into the mix. And that really adds fuel to the fire in the ‹storming› phase.

And finally, difference number four. Objectives, or rather different goals that might not align with your project goals and expected outcomes.

Consequently, we urgently need project managers who constantly look after their teams, have their expectations and fears on their radar and know their needs. We need project managers who get involved when

conflicts or when stress arises. That said, the storming phase is just that – a phase that team members have to move through so that everyone can grow together into a fully functioning team.

Astrid Beger

MF: What is your favorite planning tool (online, offline, digital, hands-on…) and why?

AB: For my own work: Please very hands-on! My scribble pad. My memory after I have carefully listened to you, dear customer. For the entire team: That depends on various things, but please, as easy and adaptive as possible. Central solutions should only fulfill the top level reporting tasks without reaching far into controlling the project. The old chestnut with projects is the fact that reports or plannings are already outdated by the time they are handed over. For me most of the project management software solutions are tools for top level reporting or for a budget request. Excel and PowerPoint are often laughed at but if it helps you to control and manage your project, let them laugh. In the end, your project is successful and everyone can laugh together.

Felix Mühlschlegel

MF: When have you entered the storming phase in one of your projects (or in several, for that matter) with lots of (interpersonal) conflict? What advice do you have for our readers on this matter?

FM: When interpersonal conflict arises it can sometimes be easily solved if you look back at roles and responsibilities or hierarchy. Who made which decision? It becomes far more difficult if it is between different departments where each one has enough power or authority to block or slow progress and make the project less of a success. When this happens there is no secret sauce or quick fix and you need to try and fix it on a personal level. Often, though, it might be too late and we can unfortunately see this as the result of not taking the initiation phase of the project seriously enough.

Thor Möller

MF: What is your favorite planning tool (online, offline, digital, hands-on…) and why?

TM: I am a fan of Excel – it does not necessarily look great, but it can manage everything, at least up to a certain project size and it works for a certain project environment. When the size of the project is moderate, however, I love using Excel, tracking the objectives as much as tracking contracts or the entire claim management. One file per project, with different sheets, of course. Then a weekly tracking and versioning. In the follow-up I visualize one thing or the other with something else, because Excel just doesn't know how to do that. But it works. For larger projects, however, I need a professional PM software like MS Project. An interesting intermediate solution is MS Teams, definitely an underrated software. It is a great team platform that depicts everything we need in the project by means of SharePoint. A very solid, collaborative solution I love using in my projects – also across geographical distances online. Teams can work together on a whiteboard, use virtual sticky notes, actively use breakout rooms and MS Planner to work on their various tasks. That is extremely helpful and works without much ado. We don't need extra Miro or Mural boards; in MS Teams we have everything we need. Unfortunately a lot of people are blissfully unaware of this multitude of possibilities and put MS Teams into the same corner as a simple video conference tool, even though it offers so much more. This is why it is so important to explain to everyone on the team which tools you have at hand and how to use them properly. Only when I know how something works will I really use it for my project and appreciate it.

MF: In what form do you integrate the customer into the planning?

TM: Right from the start and in very close cooperation! Never again do I want to develop a product taking the wrong path to market. I failed once with one of my own products and I really never ever want to experience something like that again. This is why I am a big fan of ‹agile›, because here I integrate the customer very closely right from the start and I also take all other stakeholders into due consideration. This mindset from the Agile Manifesto should also be applied to a much greater extent in traditional project management. It is actually not just about making the best product, because it is not the best product that convinces, but the product with the best marketing! The best example here are the video recording systems. VHS prevailed and not Philip's Video2000, even though that was a lot better from a technical point of view. Speaking of streak-free fast-forward and freeze image by means of dynamic track controlling. Down the road it is all about making the customer happy, so this means we definitely need to conduct excellent internal and external project marketing. We really could take a leaf out of the Americans' book here!

René Windus

MF: In what form do you integrate the customer into the planning?

RW: The most important question is, whether the customer is really interested in being integrated into the planning. It does happen frequently that a customer only wants to see results so I don't bother him with all that, because too much information can harm as well. The customer should rightly trust the project team and rely on us doing our job as best as possible to get the results he expects from us! But when my customer is interested in being integrated into the planning (and assuming he doesn't take over), then he gets all information in exactly the way he needs them. Other than that, of course, there are adequate status reports on a regular basis. The first step is best done live over lunch where we can enter into a dialogue and exchange thoughts. And then, of course, there is the written report.

Stefanie Gries

MF: When have you entered the storming phase in one of your projects (or in several, for that matter) with lots of (interpersonal) conflict? What advice do you have for our readers on this matter?

SG: So far I have only led projects with well-coordinated teams, so that power struggles were fortunately limited. Just the degree of involvement in the activities of the project manager on the sponsors' part was a problem every now and then, requiring clarification. But here again, the key was to speak up clearly and delimit each other's «territory«.

Olaf Piper

MF: What is your favorite planning tool (online, offline, digital, hands-on…) and why?

OP: There is no such thing. This is a big problem indeed. At the moment we use SAP-PPM. I have never seen a more out-of-place and incomprehensible tool before. MS Project is a lot better, but only when using the server version with central resource management. At the end of the day a good tool does not guarantee good PM, therefore it is important that the employees have

solid knowledge on project management and are trained sufficiently in the relevant software. If the tools are not mastered well, if they are out of proportions or clumsy like a big tanker, then that doesn’t get me anywhere. I might get along well with Excel charts, for that matter, if my project allows that and if it works for me. Before using whichever tool it is important that I know what I need to plan and take into consideration. Without the necessary expertise in project management the best tool is useless.

5 Execute Phase

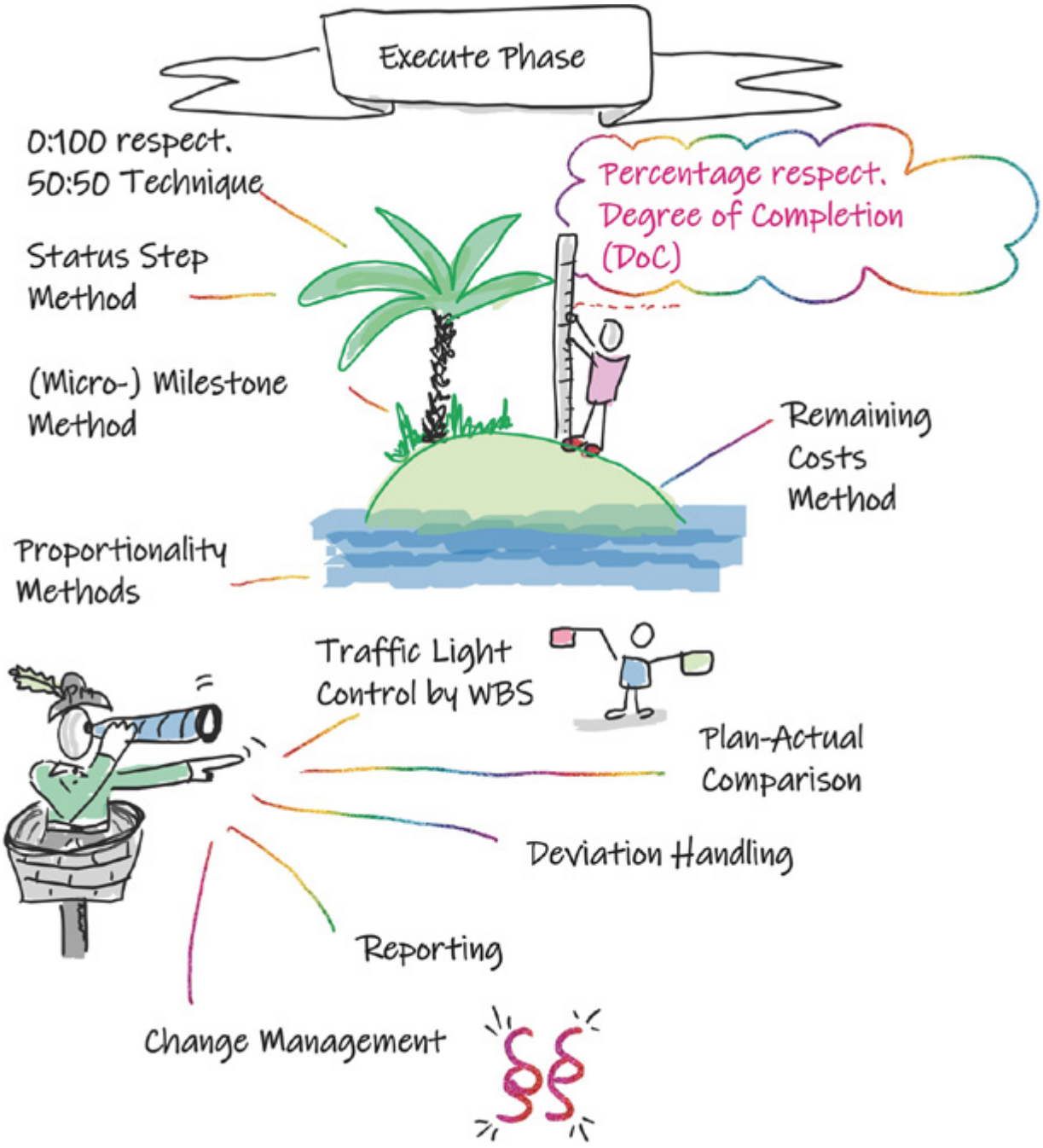

Illustration 13: Overview Execute Phase

5.1 Fundamentals

After all relevant plans have been drawn up during the planning phase, the project plan, meaning the totality of all individual plans, needs to be officially approved by the customer or a higher-level body, because the lion’s share of all costs arise during the execute phase, as the product respectively the project object is realised in this phase. If the customer or the higher-level body does not like something about the project plan, adaptations and modifications need to be made. If, meanwhile, changes have occurred regarding our result or performance objectives, we need to adapt the work breakdown structure and all other plans that follow. If the project needs to be completed sooner, then we need to adapt the schedule and the timeline. If we do not have enough resources or if the project becomes too expensive, it is necessary to modify the resource and cost planning. Only when the plans are just as the customer expects them to be, we can receive the ‹go› for the execute phase which means, that all plans become binding and in the event of deviations we need to take countermeasures immediately. This is why this phase is also called the control phase.

The procedure seems simple: We take the actual state and compare it to the planned state. If there are any deviations, we need to look for the cause so that we can initiate appropriate countermeasures to get back to the planned state. In theory, this sounds very simple, but in practical project work it is rather difficult. How else could one explain, that a large number of projects exceed the budget, end with delays or that agreed upon results are not reached properly? Controlling instruments and tools are common. A simple network diagram calculation is enough for deadline

monitoring. When using a project planning software, a bar chart brings forth a lot of valuable information displaying graphically the planned state as well as the actual state. And then, of course, there are more refined methods, such as the **earned value analysis** for evaluating the degree of completion, the **cost trend analysis** for evaluating the costs and the **milestone trend analysis** for monitoring the deadlines. The problem here is, that most of the methods and tools are either very complicated or very time-consuming and so they are not used at all or not to the extent necessary for the project.

Note: For additional information on the methods mentioned above (EVA, CTA, MTA) please go to our advanced knowledge part and look at the part on controlling.

5.1.1 Easy Traffic Light Control by means of Work Breakdown Structure

Controlling can be so easy. You hardly need any controlling knowledge at all but rather a reliable project team and a work breakdown structure. Because the work breakdown structure contains all tasks that need to be done within the framework of the project, it is perfectly suited for project controlling. Yes, you also need a tray for your reports and some round adhesive stickers colored green, yellow, and red. Similar to the colors of a traffic light the adhesive stickers represent the status of the work package. Green indicates that everything is okay and within specs. A yellow adhesive sticker indicates that there are indeed difficulties, but that the work package would probably still be completed properly, probably with limitations regarding deadlines,

costs or quality. The red adhesive sticker shows an entirely different situation. The person responsible for the work package indicates that without external help he will definitely not be able to complete the work package properly. The colored status stickers then are glued on the relevant positions of the work breakdown structure. Indicating the status properly by means of the colored adhesive stickers needs to be taken care of by the person responsible for the relevant work package.

- When we start to work on a work package, it receives a green adhesive sticker.
- If difficulties occur, the responsible person replaces the green sticker by a yellow or red sticker. This creates an automatic obligation to produce a problem report and to put it into the tray for deviations. Note: A problem report may also be written by hand outlining the work package concerned and briefly describing the problem.
- The deviation tray is consulted by the project manager on a regular basis. He reads all the problem reports and supports finding a solution for the problem. As soon as a problem has been solved successfully, the red or yellow adhesive stickers are replaced by a green sticker and the problem report is removed from the deviation tray.
- When one work package has been completed, we either place a big, fat green, yellow or red checkmark on its position in the WBS or we cross it out with a big black marker.

This information needs to be consequently monitored and updated to make sure it all works out properly. That means that all the people involved in this process must be able to honestly report the actual status without having to fear

negative consequences, because employees that are punished for each mistake or for every piece of bad news are certainly not motivated to set any other status than green (deceptively) hoping for a miracle and that the work package will indeed be completed in time and the employee gets away unpunished.

Due to this easy traffic light control method – and provided that you have a solid project culture –, you have a strong controlling instrument at hand that makes it easy for everyone to get a transparent status on the project. When everything is ‹on green› you can assume that everything is going according to plan. With yellow or red there are deviations indeed, but there are also relevant problem reports that enable their correct handling.

5.1.2 Control Measures

What is the correct handling of deviations? As soon as a deviation has been detected you need to find out what caused that deviation. You do not want to fight the symptoms, but tackle the root cause of it all. When you have found the cause, you need to plan and initiate adequate measures. Here you can adjust the following key levers, so to speak:

- Changing Resources
  - More or better qualified personnel
  - Outsourcing
- Reducing Effort or Expenses
  - By means of technical alternatives
  - Buy-out of know-how
  - Process adaptation

- Increasing Productivity
  - Change of technologies and/or methods
  - Increasing motivation of the project team
- Changing Performance
  - By building variants
  - Quality limitations
  - Reducing change requests

Keep in mind, that the customer does not need to be consulted when resources change, efforts are decreased or productivity is increased, because nothing changes about the product specifications, after all. However, when there are changes in performance, the customer needs to be consulted, because he will no longer receive exactly the same project object he originally ordered. In addition to that we need to be aware of the side effects each measure bears. When, for instance, we assign more manpower in order to be faster, then most naturally, we also have to face higher costs.

5.1.3 Reporting

To be able to make the right decisions, decision-makers need reports on the status of the project or on a subsection of the project (e.g. sub-project, sub-task or work package) at specific times (key dates) during the project. A status report contains the following:

- Deliveries and performances in the reporting period (actual data)
- Progress value analysis with deviations and prognosis regarding performance, deadlines and costs

- Possible arising problems as well as planned or initiated controlling measures
- Forecast on pending deliveries and performances in the next reporting period

To be able to elaborate a project status report and to present it to the CEO, for instance, the project manager also needs information from his team or from the people responsible for the work packages by means of work package progress reports or work package status reports. By condensing and evaluating the information on the individual work packages the project managers establish the project status report thereof.

5.1.4 Change Management

Even during the execute phase it can become necessary to implement changes in the product. Changes always have a causing event or necessity, for example changes in the law or an additional request from the customer. Changes have the effect that the currently valid description of the deliverable (**configuration**) needs to be treated differently and changes within the course of the project. As we have already worked on the project object and since probably parts thereof have already been completed, any change needs to be described thoroughly including all effects on other components, deadlines and costs.

Change Process Procedure:

For one reason or another there comes a change request. The trigger for such a change as well as a detailed description of the change itself is stipulated in an official change request form which is then presented to the relevant department. The department examines the request. If everything is okay, it will be handed over to the relevant department to get a statement and then it will be presented to a decision-maker committee. If the request is declined, the applicant will be informed and the declined request needs to be archived. If the request is approved, it is returned to the relevant department where now an official change order is drafted that will be sent to all relevant parties concerned. These parties concerned then carry out the changes, adapt all relevant documents and ensure that everything is being archived.

5.2 Practical Example

Even though we did not need to apply some sort of real or classical cost controlling in our book project, we did have enough touch points with controlling as the ‹ultimate discipline›. For us probably the simplest variant of cost controlling applied – the ***estimated cost to completion (ETC)****!*

It was obvious from the beginning of our project that the costs for possible materials such as moderation cards, markers, paper etc. were limited. However, it was nonetheless important to have an overview on all these costs arising for one or the other, we authors (in our official role as project people, not in our private role as being

married partners without separation of goods) had agreed to split all costs arising. The easiest way for us was to get ourselves a petty cash box in which we put identical amounts of money. We used this petty cash to pay for expenses arising from working on our project. Roughly once a month, we reviewed our petty cash and examined the receipts and summed up the costs that arose. Then we summed up which costs (according to our planning) would arise until the end of our project, thus the estimated cost to completion. That way we got an overview and knew precisely, where we were with our costs in the course of the project. When the remaining costs were higher than what was in our petty cash box, each of us either needed to add extra funds or we had to think about where we could save money. When the remaining costs were lower, then everything was just fine.

Mathias is, as much as I am, a big fan of pragmatic approaches, especially, when these include visualizing quite complicated matters in a very easy and comprehensive way. This is why we love it to tackle performance controlling by means of our work breakdown structure. As I have already mentioned, we had visualized our WBS with colorful cards on a meta board and therefore we were able to apply easy traffic light control on a work package level to see the precise status per work package. For this we have used adhesive stickers in the colors green, yellow, and red to visualize the status of each relevant work package at a specific controlling date. Green, of course, meant that everything was running smoothly and our performance was great, while a yellow sticker indicated that we needed to watch out and take a closer look at matters here because something needed to be corrected or levelled out before we were fully satisfied. A red sticker would have meant our work package got out of hand and we were in trouble.

Fortunately we did not have to deal with ‹red traffic lights› and there was no situation in working on our work packages that quickened the pulse. Good for us and good for our project. Since during the work on our project we were not always together in our home office (due to the fact that both of us were out of town for business every now and then) and we did not both have access at any given time to our meta board containing our WBS for that matter, I created a copy of our WBS by means of virtual adhesive notes on our MS Surface whiteboard, so that my husband and I were able to work remotely with our work breakdown structure, using the electronic pen to mark the adhesive notes with virtual stickers. Of course, that meant extra work load for the both of us, because we worked physically with the cardboard cards on our meta board and we needed to keep our virtual WBS constantly up to date. It was definitely worthwhile. We always made sure to align both WBS variants.

Part of performance controlling was, of course, carrying out quality tests of our work on a regular basis. In the manuscript phase there were dates when we sat at home at our dinner table and coordinated with each other on the written texts and exchanged thoughts regarding research results, ideas and details for the individual PM topic (activity 1.4.7). Since it was part of my job to take care of a large number of illustrations and graphs contained in our book, I presented my ideas to Mathias regularly and I showed him my drafts because four eyes sure see more than just two eyes, as we say in Germany! During the editing phase our quality control test was that we always got together when we had completed a larger passage respectively an entire chapter to put everything to the test. We looked at content as well at speech flow, collocation (the neighboring words) or semantics (the individual meanings of words), to make

sure, that our texts were in harmony with each other and fit in terms of content and language. These quality tests usually started as follows: Each of us read the new passages alone and proofread for first obvious mistakes or points of criticism. In a second step it was my job to read the relevant passage out loud to my husband (activity 1.5.2). When I read something out loud to myself or to others I can immediately see if the written passage really works out or if it still needs to be worked on. It also helped us to realize if the quality of the work was okay or not. Further into the course of the editing phase first our niece, then our proofreader had the task to check our texts, to give us feedback and thorough debriefing, including putting her finger on one or two weak spots (activity 1.5.3). Our niece therefore had the honor of being the first ‹outside reader and critic› to put our book to the test. She already had classes in project management at university, was very good with linguistics in general and, as a consequence, was able to objectively (yet critically) look at what her uncle and aunt had written in their manuscript.

We controlled our deadlines by means of our network diagram calculation. As project manager it was my job to verify all activities in the network diagram calculation and to check which were already fully completed. If durations or deadlines had changed, then I crossed out the original values and wrote the current figures by hand in a different color right next to them so that they could catch my eye right away. By taking into consideration the free float as well as the total float I knew how we were doing timewise. Since I had printed out the network diagram calculation in a DIN A3 format and hung it up on a magnetic board in our office, it was easy for me to mark the activities in progress in a very quick and dirty way with little motive magnets. This way I knew immediately where we were during the

course of our book project. I truly love those methods, because why make things more complicated than they really are? For a lot of readers it might come as a surprise, but controlling also offers a lot of possibilities to approach a topic in a very easy, hands-on way.

5.3 Quintessence

Project controlling helps us to lead our project to success, because it supervises the processes and intervenes when deviations occur. It does not matter which methods you use, but that you do the controlling one way or the other on a regular basis over the entire course of the project on specific reporting dates. Controlling needs to be simple and manageable without much ado. What is the use of the most sophisticated method if nobody uses it because it is way too complicated and time-consuming or nobody really understands the method well enough? This is why we should determine, as early as during the definition phase, just how much controlling is necessary, how and when and what we want to control over the course of our project, who is able to do the controlling and last but not least, who has the time to take care of it. Other than that, it is important to determine when project information needs to flow and what our reporting should look like. In order to decide appropriately, project information needs to be easily accessible. If you only receive relevant information weeks later you can then choose the right controlling measures weeks later. Then it might already be too late. Just imagine that you want to go to a specific place in a foreign city and your navigation system tells you «Here you should have

turned left« at the point when you already passed the spot and it is too late for a left turn. What sense would that make?

In practical project work we fail not because project controlling led to the wrong measures, but because important information was enabled way too late or because the project has not been sufficiently controlled. If you only start controlling when the project is almost done or in real trouble, then you should not be surprised if there is no way to conclude the project correctly. If you start early with controlling, however, and immediately react to even the smallest deviation – and of course, when you verify the efficiency of the measures chosen right afterwards – then chances are, that you can keep your project on a steady course leading it towards success.

5.4 Tools and Tips

An important tip for the execute phase is as easy as it is effective: Never downplay any of your projects and take them seriously! Avoid typical traps such as working on topics ‹on the rush› or approaching matters in a very sloppy way. Even, and especially, small projects need to be taken seriously by all participants. Every project is important and a serious analysis of all project areas is of utmost importance regardless of how long the project takes. We should always be aware that the project is important for our customer and it is a matter of respect that we adopt the same attitude towards all projects, big or small.

The following four rules are important:

1. The most important tip for a successful controlling is just doing it.
2. The second most important tip is to make sure that we get all the relevant project information in due time.
3. Controlling should demand as little effort as possible.
4. Back to tip number one.

! Engaging Questions for the Execute Phase

- Which regular meetings and communication instruments do we need for the teams and committees?
- How do we determine the actual state for deadlines, costs, performance and quality?
- How do we control the fulfillment of our objectives?
- How do we handle changes and how do we tackle change management?
- What effects do possible deviations on deadlines, costs, performance and quality have on the completion of the project?
- What information do we need to communicate to whom and how do we have to record it?

5.5 Interviews with Project Managers

Carsten Mende

MF: How do you manage the «ultimate discipline controlling«?

CM: My projects are also about implementing new software, about new processes. Of course, I do make a lot of measurements and draw conclusions. But the most important point in organizational projects is individual change of behaviors. We love to use the term ‹in the open countryside› when something new needs to be introduced. But the term trivializes the fact that change always means that there is already something which we now need to re-build or tear down in order to make place for something new. What does that mean for controlling? By measuring figures, data, facts we never gain affection. But being a project manager you should do exactly that: win other people over for the project so that they implement the changes that come along with the project. As important as many changes within the framework of projects are… one must bear in mind the radical nature of the measure for the person who needs to give something up in ordr to implement the changes. Learn to master both roles perfectly: Define OKR and stick to what helps you stay on track with your project and learn to understand the perspectives of all participants, taking their needs seriously.

Peter B. Taylor

MF: How do you prevent time pressure and hectic towards the end of the execute phase? (Work-Life Balance for all participants in the project? Or rather Work-Life Blending? Any recommendations?)

PBT: In ‹The Lazy Project Manager› I argue for a ‹work smarter and not harder› approach, or productive laziness, as I call it. I believe that smart lazy people have a real edge over others and are most suited to leadership roles in organisations. The book is all about applying these principles in the management of projects. Especially towards the end of a project there can often be a lot to do and the basis for success is the building of a high-performance team, that is unbeatable as a team, works well together in a trustful manner and in which everyone helps each other because together we simply achieve more (according to the TEAM formula – together everyone achieves more). And it is precisely such close teamwork that ensures that it can deal with project ‹hotspots› of pressure.

Astrid Beger

MF: Buzzword: Conflict management. How do you deal with conflicts arising during the execute phase?

AB: Important question, «openly« is the generally valid answer. Openly, sometimes with a bit of drama. For me it is important to avoid creating heroes. What I mean is this: The success of a project is the success of an entire team. To crown one single hero with all the success does not make sense, but it is done way too often unfortunately. Particularly in the case of organizational projects I consider it important to always point out: Every major change is the result of a social movement. Very seldomly is it the result brought by a single person. Being ‹hero-free› facilitates focusing on the topic and reducing stress curves. Often conflicts arise when the project team has already stretched out its framework. Then I love to equip conflicts with props. The props materialize, but it is not easy to choose adequate props.
In a life-threatening project crisis I once created a pictorial requisite. Instead of elaborating a crisis report I colored one DIN A4 page completely red with a crayon. With this sheet of paper I went to the head of marketing and asked: «Please draw a blue fish onto the sheet of paper.«. In front of the steering committee I approached with the paper a leading manager who was an opinion leader. I silently put the sheet of paper on the table, and after a while I said: «This is a small fish in a big sea«. The opinion leader thought for a while and then asked why the sea is red. I shrugged my shoulders and tried to endure the silence. He said: «It is not good, if the water is red, so what are we talking about here?« I agreed and named the risk we were facing. It worked out pretty nicely. We on the team suddenly got a displacement within the steering committee and then there came a solution, almost ‹from above out of nowhere›.

MF: How do you manage the «ultimate discipline controlling«?

AB: I am a generalist, I love to lead and I am able to take over big tasks. I can cope well with uncertainties. What I am not good at is detailed controlling for all internal project issues and to perfect the external project reporting. This means: I can only master the ultimate discipline together with my team. I lead according to the trust-based principle ‹primus inter pares› (meaning ‹the first amongst equals›). Controlling needs to find acceptance within the entire team and it needs to be monitored all the way through by one or two people. The dual control principle is mandatory according to my view, at the end of the day I am just a merchant from Hamburg, after all. When leading the project, I need at least another pair of eyes that keeps an overview. Controlling can only work when everyone does it together. Daily hack: The three-point calibration and the fishbone diagram are some tools I use often. Team hack: Together with the team I operate according to the **Riemann-Thomann-Model** (distance, proximity, duration, change), in order to anchor roles and project controlling well.

Felix Mühlschlegel

MF: How do you prevent time pressure and hectic towards the end of the execute phase? (Work-Life Balance for all participants in the project? Or rather Work-Life Blending? Any recommendations?)

FM: It's a mix of needing to ‹do the right thing› and showing this but also not really taking this into consideration when it comes to targets like net sales. What I mean is we get flexible time, we are even encouraged to not work on hot summer Friday afternoons but we are still overloaded with work. We have frequent and long hiring freezes, we almost never achieve an overlap between somebody leaving and getting a new person hired, and this constant stretching of employees makes the verbal commitment to work-life balance a farce.
The pandemic only made this worse since the narrative of ‹we're all in this together› and to ‹go the extra mile› for the company during the pandemic was not ever rewarded. We reverted to a 3-days-in-the-office rule which means on those 3 days we again will sit in traffic while during the pandemic this was all work time (not sure if that is good or bad for WLB). However, many people quit (the great resignation) due to this because during the pandemic they had moved to other places which better fit their lifestyle. Being forced to be in the vicinity of your work is already an infringement for many peoples work-life balance and they will look for more remote opportunities.
All in all, the office environment is very welcoming with gyms and juice bars/cafes, and bicycle rooms. Going from 4-days-in-the-office to only 3 also increase your WLB.

Sebastian Wächter

MF: Change management always has to do with resistance and often leads to conflicts during the course of a project's execute phase. How do you tackle this?

SW: Well, first we need to find out what the real reason for resistance is. Is it because of some factual topics? Or is it about emotions? Maybe there is a severe insecurity and people feel irritated? People have five basic emotional needs. When at least one is unsatisfied, this automatically creates resistance. Now it depends on reacting in the right way, taking the resistance seriously. One-on-one discussions are extremely helpful, because very often it is about the fear of loss of face or it is about very personal topics. We need to find out what the individual needs. In the best case scenario we do not start with conflict management when the damage

is already done, but preferably beforehand, when the change project has not even started yet. It is good to get a professional on board at that early stage. Because if we contact the consultant when resistance is already there and conflicts are brought in the open, then it is too late. The sooner we start to explore conflict potential and to find out possible reasons for resistance, the better we will be able to implement the change and the greater the acceptance of the entire crew will be. In my consultancy projects I put utmost stress on being involved in the process right from the very beginning. Then I have the chance to ensure that the right communication channels are used and I can help ensure that the basic emotional needs are addressed as well.

Michael Künnell

MF: How do you prevent time pressure and hectic towards the end of the execute phase? (Work-Life Balance for all participants in the project? Or rather Work-Life Blending? Any recommendations?)

MK: To ensure work-life balance means you need to have a proactive, visionary controlling. The project manager is at the helm here! He is literally responsible for the ship's command and navigation.

MF: How do you manage the «ultimate discipline controlling«?

MK: By means of an independent project controller who challenges even the project manager every now and then, if necessary. A controller needs to master two things, otherwise he fails. For one, he needs to take people along on his journey. He then needs a minimum of knowledge and understanding of business, because as a controller I not only juggle data, figures and numbers, but I also need a feel for business and for the story behind the numbers. Numbers are just a system to which we have agreed upon globally in order to tell stories. Behind every number or figure there is a product, a customer, a story. As a controller I need to take the people along into this story. The objectives need to be clear and they need to be well-founded and understood. On the one hand, it is an issue of empathy and on the other hand it is all about moving people to effect changes of behavior. I need to know my way around in these areas to take people by the hand so that together we reach our destination, step by step.

Daniel Laufs

MF: Buzzword: Conflict management. How do you deal with conflicts arising during the execute phase?

DL: At CAPTN we always need to make sure that the outside world understands that we are an innovative and ecological system. We have collaborations with the industry, economy and society – so it is indeed helpful when everyone has a positive attitude and a sense of togetherness right from the start. But we are also seeking a discussion with all of the participants and stakeholders, especially with the public. And yes, there is some potential for conflict. But this is good and healthy, actually! Different creativity techniques prove to be helpful, especially when people are allowed to participate and contribute. This motivates and helps to keep conflicts low. Of course, there are also bigger conflicts, when, for instance, a photo was published too soon or something like that. Then the steering committee must come into play and intervene. Especially in the case of flat hierarchies conflicts arise more often because people think they are free to decide whatever they want to and do everything without prior coordination. Of course, this is not how it works. Then you need to have relevant discussions and sometimes you also need damage control. But all in all we are very privileged at CAPTN – everyone thinks our topics are very exciting and inspiring, therefore we do not have to face that many conflicts… so far.

Thor Möller

MF: How do you manage the «ultimate discipline controlling«?

TM: I am a big fan of the earned value analysis in combination with the 50:50 technique in determining the percentage of completion. Unfortunately, here in Europe the EVA is not used that often, even though it perfectly illustrates the parameters of our triple constraint. It is important to not only carry out an earned value analysis, but also an earned value prognosis. I always determine the percentage of completion by using the 50:50 technique and then calculate the earned value and here I am, back with the EVA. It works well when I am dealing with five or six tasks at the same time. This can also be visualized quite well. In Germany we often use the cost trend analysis, but the formulas for such a CTA, according to my opinion, are not too pragmatic or practice-oriented. Optimal controlling looks into the future and controls it! Yes, looking back to the past is important, too, but the focus needs to be on looking ahead, into the future. The triple constraint is therefore essential in controlling – meaning, to clarify how much money we still have left for our project. How much time do we still have left? In addition to that, I am also a big fan of Kanban boards, especially when using them to their full potential. A Kanban board is much more than just the famous three columns ‹to do/in progress/done›, – when Kanban is applied

correctly it helps us to get a really good overview on the entire project. So to really master the ultimate discipline controlling, we need to use the quintessence of a multitude of methods, then we are all set and ready to go!

Tobias Rohrbach

MF: How do you manage the «ultimate discipline controlling«?

TR: The same way that I also set up my general business controlling – in a very simple and clean way! Excel proves helpful here. I need to structure everything neatly. Three aspects are very important: 1.) planning 2.) actual figures (monthly!) and 3.) forecast (much more detailed than the planning). I also need access to ALL figures at any given time. Everything needs to be precise and binding and I need to know who the relevant responsible people are. Controlling is due diligence work! I always say: ‹Controlling and figures are the only truth – in the company as much as in the projects.› If there is no transparency here, I cannot control anything.

René Windus

MF: How do you prevent time pressure and rushing towards the end of the execute phase?

RW: Time pressure and rushing towards the go-live of the project are very likely to happen. The better my planning beforehand, the less nasty surprises I have to face. A lot of chaos can be minimized when we plan the go-live ahead of time and when we are prepared. If something still goes wrong then we need to deal with it as a project team and face it. As a project manager I need a lot of empathy and a good relationship with my team. If chaos remains the exception, then it is okay. Chaos can happen and we need to deal with it together. But it should never be the rule. Of course, the project manager must take the lead and be in all that, too. He also needs to motivate, that means ordering a pizza or buying a truckload of burgers when it is going to be a long night. Motivation can only work, when time pressure and hectic are limited. Everything needs to be started properly and this is only possible when the assignment is clear and the objectives are defined. We need to question a lot of things, we need to communicate a lot and be in a constant dialogue.

Stefanie Gries

MF: How do you manage the «ultimate discipline controlling«?

SG: I presume the formula is ‹Jira + Excel + trust›. We have trust-based working hours in my company and this is how I do it in the projects, for example, when times need to be booked. The right documentation and tools support me and make sure that the times are allocated to the correct areas so that everything works out.

Olaf Piper

MF: How do you prevent time pressure and rushing towards the end of the execute phase? (Work-Life Balance for all participants in the project? Or rather Work-Life Blending? Any recommendations?)

OP: I am not sure if this pressure at the end is not also a bit positive, actually. When you are always too relaxed, you might lose focus and maybe also your commitment. In my experience some pressure facilitates and increases the focus on the imminent goal. The art here is, of course, that the pressure does not get so high that it even ends in resignation. I think, the way out of this problem is a team approach. With a team everything is a lot easier to handle, to stand and to cope. Plus, you can help each other. I, personally, am a fan of work-life blending, because it gives me the freedom to interrupt an overload phase or lack of productivity and to look for a solution at a later time, when I am more relaxed (in my case this is mostly in the evenings) and to start all over again, when I’m fresh.

6 Closeout Phase

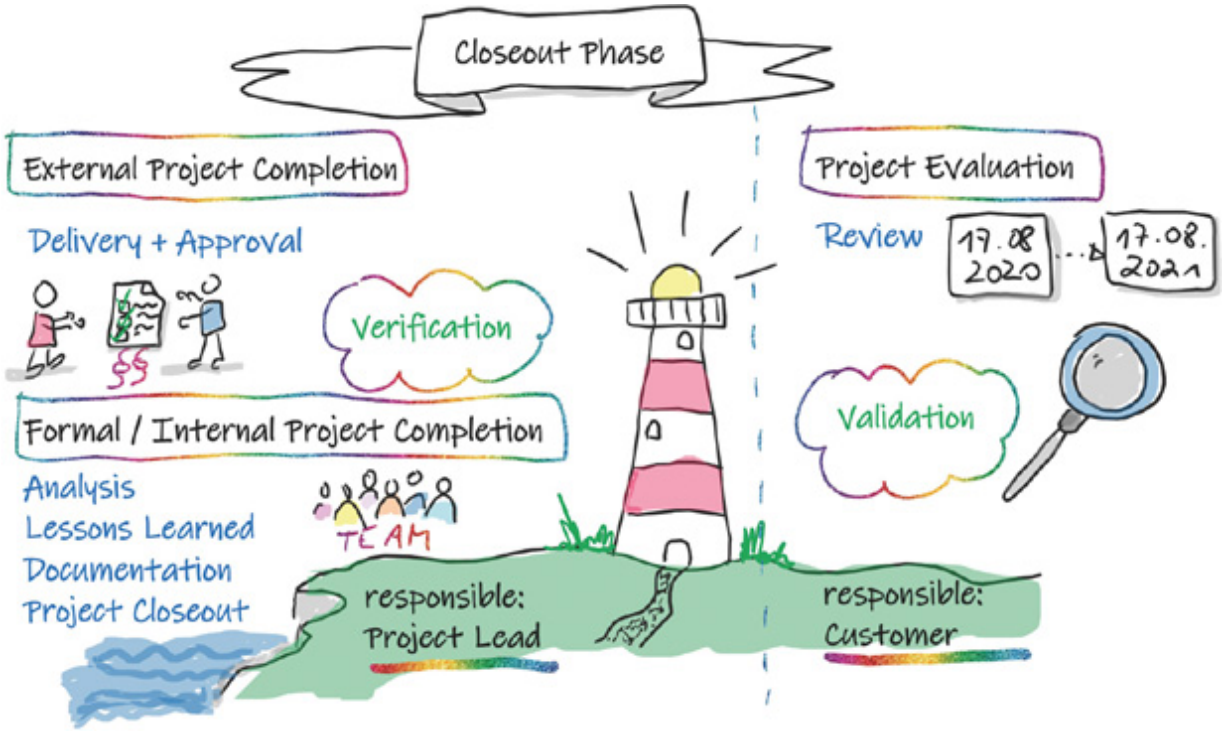

Illustration 14: Overview Closeout Phase

6.1 Fundamentals

The goal of every project journey is to eventually reach safe harbor with the project sailing boat and, after a successful voyage across sometimes stormy seas, to literally have solid ground under their feet again and be able to disembark. The closeout phase of a project is yet another thrilling and demanding phase, because for one we

need to deal with different forms of completing our project where we are confronted with a multitude of legal frameworks and **legal consequences**, and for another, on an interpersonal level we enter the Adjourning phase according to Tuckman and therefore have to expect a few difficulties. The **project closeout** represents the final phase in project management and contains three different ways of completing a project, all of which are important and therefore worth looking at in more detail.

Note: More explanations on Tuckman's team phases and other topics can be found in our advanced knowledge part in ‹soft skills in project management›.

6.1.1 External Project Completion

The first important project closeout is the **external project completion**, where we deliver the project object and our **deliverables** to the customer who examines it thoroughly and hopefully approves of everything we did. During the delivery different parties (representatives of the customer as well as of the supplier) get together to carry out an official acceptance test. The parties verify by means of defined **acceptance criteria** what has been contractually agreed upon when the project was commissioned and also a review of the results of all agreed objectives (deadlines, costs, performance and quality) is carried out. The question arises regarding **verification** respectively the completion success, meaning that we verify whether we have done everything correctly in our project or product, whether all specifications have been taken into account and whether all acceptance criteria are met as agreed upon. The client's representative and the contractor's representative use

checklists, pre-defined test methods or test protocols to examine the quality of the project object and file a report. The successful acceptance and approval is dated and signed by the responsible representatives so it becomes legally binding.

The project completion has different legal consequences:

1. **Transfer of risk** back to the customer
2. **Transfer of ownership** to the customer
3. Beginning of **warranty** (after six months: **Reversal of the burden of proof**)
4. Payment obligation on behalf of the customer

If any **penalties** have been agreed upon in the project contract in the event of non-performances of, for instance, delayed deadlines, then the delays detected during project delivery may have financial consequences obligating the customer to pay the amount of money agreed upon in the contract.

6.1.2 Internal Project Completion

The second important project completion step is the **internal (formal) project completion**. After the project object respectively the product has been successfully accepted by the customer, it is now important to complete the project in a correct and structured way. First, the project team gets together for a **final project analysis** to review the entire course of the project with all good things and bad things that happened. Then it is all about the lessons learned, and the project team ponders on the question of what went really well in the project and why

and what went wrong? At this point it makes sense to learn as much as we can from the project we have just completed and to, for instance, note and document the lessons learned into a knowledge database and make it available for other people within the organization or company so that it can be used for future projects. It is possible that we have established new template forms for the prevailing project or we came up with new and pragmatic checklists that might be of service for following projects. It is possible that we have developed new ideas within the course of our project on which methods should be tried out next or we have simply completed our collection of internal project life hacks and added some cool and innovative ideas.

The internal project completion in some cases also includes post calculations or profitability calculations, deviation analysis or the creation of new KPI (Key Performance Indicators). It is possible that this second type of project closure will also include a customer survey or a formal written feedback session from key stakeholders.

It is important and useful to establish a final documentation for every project to keep record of the course of the project. This includes the final report and possibly also a final presentation of the project results. The remaining tasks are allocated to team members, everyone makes sure the project file is complete, that all documents are properly archived and that someone takes care of activities such as tidying up the project rooms, refilling all materials for subsequent project teams (who are applying, for instance, design thinking techniques or other creativity techniques while working on their project and therefore need a multitude of materials). After the final documentation has been collated, the project cost center and open booking accounts or payers have to be officially closed to avoid any

further bookings on the project. In a closing session the project manager and the project team are formally released, which needs to be officially documented meaning that the released persons are then officially free of responsibility and ready for new endeavors.

On an interpersonal level the internal project completion is again a quite turbulent time, because it might be that not everyone on the project team is still on board but pulled into new projects. Then it might also feel strange to realize that the mutual journey is over now, so we have to deal with all sorts of emotions. It is therefore all the more important to carry out our internal project completion properly not only from a legal point of view but it is important to cultivate some sort of closing rituals, for instance, celebrating the project success and spending quality time with the team one last time.

Responsible for both project completion types is the project manager.

6.1.3 Project Review

There is also a third project completion, which is called project review or project evaluation. It takes place quite some time after the project has been completed, maybe a few months later or up to one year later. The group of participants is different than it has been for the two other project completion types, though, because the project evaluation is done by the customer who wants to see whether the project really has brought benefit and was suitable. If there is a steering committee, such as a **PMO (project management office)**, then it is this committee

that now tackles a few issues with regard to the project benefit. The project review generally asks for the implementation benefit, thus the **validation**. Very often this third project completion is all about strategic questions where the answers should clarify if it makes sense to invest in similar future projects or if we possibly need to change something regarding our project portfolio.

The implementation benefit within the framework of the project review puts the detectable benefit to the test and clarifies whether or not we have managed to reach sustainable user satisfaction. We ask the question if and how effort and benefit relate. Or, in other words: «Have we chosen the right product or project?«

6.2 Practical Example

At this stage in our practical example we anticipate the subsequent steps and activities, because from here on everything will take place in the future. However, we want to give our readers as many realistic practical insights as possible, so we consider it important to go all the way with our practical example from start to finish so that our readers have the full overview on matters. The ***external project completion*** *of our book project was to hand over the final versions of «Understanding Practical Project Management. A guide for Project Work« in both English and German as e-book via e-mail and that we later on will get our printed books delivered.*

We agree upon a time for the shipment of our books and arrange all details concerning the delivery to our home

address. When everything proceeds as planned – and of course this is what we all expect – Mathias and I will be proud as punch admiring the palettes of our wonderful debut work a few days before the official publication date.

From a legal point of view we do not have an official acceptance protocol, but of course, we will have to examine and sign the bill of lading (B/L) after we convinced ourselves that all the details were correct.

*Our **internal (formal) project completion** has it that we are going to meet at our dinner table at home over some delicious cappuccini speaking about our experiences during the project, which lessons on how to write a book we would take with us (with respect to both our private as well as our professional lives) and to celebrate our success as proud newly published authors. Of course, we are also going to meet with our product management team and have a drink or two, taking our time to appreciate all the work everyone has done and to celebrate our mutual success.*

Being the project manager I record all notes and thoughts in my little black DIN A5 notebook over the entire course of the project (which I nicknamed «the book of all books«). I regularly collect thoughts and ideas with regard to the book, on the individual project phases, about our experiences etc. The notebook is priceless when we get to the point where our final documentation is due.

Since we do not really have a project team that we need to take care of upon completion of the project, we also do not have to worry much about release or project closeout and besides, we have our main businesses to take care of. Our product management team is going to start specific marketing activities prior to launching our book (activity 1.6.6) which include placing ads for our project management book in renowned journals and to drum up a

lot of support online and offline for our work. It is obvious that the activities «PR« (1.6.2) and «Announcements on Social Media« (1.6.5) still requires us to do one or two things.

In our role as project initiators and customers, let's talk about project benefit – meaning the reason, why we literally go the extra mile to publish this book.

We define success for us as becoming more well known, increasing our visibility, in order to become better known as trainers, project consultants and coaches and to expand recognition as experts in the field of project management. A lot of readers should buy our book out of a desire to know more about our topics and to get in contact with us for trainings, workshops and coaching. At the end of a project we can merely verify whether or not we met all requirements and led our project to success (just like we have already described in our formal/external project closeout). Of course, it is also important to talk about the implementation benefit. How could our success story be continued after our book has been published? Neither Mathias nor myself have a crystal ball or could predict the future. Let us therefore talk about «meanwhile, back at the ranch…« in a hypothetical way.

- *On at least one future PM Forum of the GPM (registered German association for Project Management) we are going to be invited as speakers on one of our project management related topics within the course of a lecture or workshop.*
- *We are going to be invited to several interesting podcasts giving our interested audience thrilling insights into practical project work.*
- *We will publish several specialized articles in project management related magazines or journals.*

- • *Our book is going to become known and appreciated by the ATP of the GPM (the officially authorized training partners listed) and therefore it will be added to the list of valuable training materials to be distributed to the participants.*
- *Our book will serve Lutz & Grub AG as a supplementary teaching material with respect to project management trainings and will be used within the framework of their LMS system (a learning platform to carry out trainings and coachings according to the **Adaptive Growing®** methodology).*

As authors we are convinced that in one or two years from now we will come to the following personal conclusion: yes, it sure was the strategically perfect decision

a. *to write a book,*
b. *to publish with Haufe, and*
c. *to keep on track as authors and publish additional specialized articles and books in our favorite topics of expertise.*

6.3 Quintessence

Good and especially professional project management is about respecting and paying attention to the closeout phase; both in terms of content and emotionally on an interpersonal level and to deal with all three project closure types. In this phase we go full circle when we look at the famous project management quote: «Tell me how your project starts and I'll tell you how it ends!«, because when

we incorporate real and true project management in our projects, then we will lead them to success. A good and valid project completion is more than mere filling in forms and documentations, which are unfortunately still being seen as annoying activities by many people in project management. It is more than just a final report written reluctantly and more than just retrospectives imposed upon the team.

Good project completion is about bringing the team and oneself continuously forward so that we can grow together and draw our personal conclusions from every single project we were involved in. When Bruce Wayne Tuckman gained his insights in the 60s and 70s and established his famous five stages of team development, he did not even pay attention to the fifth phase, the project closeout, in a first attempt, instead, the US psychologist and scientist initially concentrated on only four team phases. The more he became aware that a team fights on different fronts emotionally and operatively towards the end of a project, the more important it was for Tuckman to add a fifth phase into his scheme – the adjourning phase.

A project per se is temporary, the start and the end is well-defined. Only upon completion are we are able to evaluate this project and state whether the project has been successful with regard to both the execution benefit as well as the implementation benefit detected at a later time. A professional project completion is important so that we avoid everyone just going in all directions or having no real closeout phase at all. A solid, professionally choreographed project closeout phase can be crucial for winning follow-up project assignments. Reflecting on the project itself, on one’s own team role, on positive as much as negative

experiences while working on the project plays an important role in dealing with future projects.

6.4 Tools and Tips

To elaborate an informative, solid final project report we can use the following content guideline:

- Information on the stipulated project objectives and the contractually agreed upon project content
- Information on expenses and costs in the project
- A meaningful as-is/to-be analysis with respect to resources used, performance respectively quality and the relevant timeframe and schedule
- Lessons learned for future projects including template forms, entries in the organizations' knowledge databases, practical checklists to facilitate the work for future project teams
- A global evaluation of the project with all project results
- Dealing in a factual-constructive (but honest!) way with internal as well as external impediments including **feedback** on how the project core team and the extended project team cooperated
- It would be desirable to obtain meaningful feedback from the customer on how how satisfied he is with the work itself and the entire process
- In some cases it is recommended to position the project in relation to its competitors by means of a **SWOT analysis**

It is also advisable to hold an official project closeout presentation before a number of selected stakeholders. If the presentation is a good one and not just a case of (what I call) ‹assisted reading along› and a dull clicking through trillions of boring slides. A well-elaborated, catchy final presentation can turn into a valuable marketing instrument that paves the way for new projects and thus should never be underestimated.

It is also very important to complete a project on a social level with appreciation and consideration. Therefore, investing in a closeout event for the entire project team and relevant stakeholders really makes sense. In practical project work a tried and tested approach would be to be a little creative here to make sure the project remains well-remembered. «Little gifts keep friendships warm«, the vernacular in Germany says – and this piece of wisdom holds more than just one grain of truth. Some project teams create cool t-shirts for the whole team, they order custom-made trophies or think of a very individual, small symbol awarded to every team member during the closeout event and handed over solemnly by the project managers, just to mention a few ideas here. Such presumed trifles increase motivation and pave the path for follow-up projects.

Set-up knowledge databases in your organization or your corporate entity and design them in a way that your employees and teams love working with them. Such a solid knowledge database is worth a fortune and really serves you well for both pending and following projects. Unfortunately such wonderful tools are often neglected in practice and people underestimate their worth for the project success. The reason for that is mostly, that it has not been thought of thoroughly beforehand which

information, documents, templates, best practice tips etc. the team needs in which form. It is quite helpful to work with visuals, pictures and examples to facilitate working with knowledge databases. Set up different virtual rooms for different topics. Use ways to integrate knowledge databases into your daily business by creating a virtual map or a virtual city with, for instance, a library, a video library, a museum or technology center. Create a virtual meeting place with chat functions or something of that kind where your teams can exchange thoughts and expertise in a very uncomplicated way and where they are motivated to deep dive into certain fields, to learn and to grow. When working with knowledge databases it is very important to ‹clean up› every now and then to avoid hoarding relics so that all data are up to date at any given time. That ensures that working with the database is easy and it finds immediate acceptance from the employees.

! Engaging Questions for the Closeout Phase

- How do we lead our project to a successful completion?
- What is the situation with project acceptance and approvals?
- How do I ensure regular business?
- How do I organize the closeout phase with the help of evaluations, possible follow-up trainings etc.?
- Which cross-selling possibilities are there for our project?
- Can I win our customer over for follow-up projects?
- How can we rate our project from an economic point of view?

- How do we gather our lessons learned from our project?
- What happens with the team after our project is completed?

6.5 Interviews with Project Managers

Ben Ziskoven

MF: Which «project fuck-ups« did you have? What went really wrong? And how did you proceed afterwards?

BZ: I was always part of very interesting projects that have been important for ongoing operations. Very often in the field of mobile communications – with a great technical benefit attached to it. The biggest difficulties did not occur in the project itself, but with the legal framework conditions in Holland. When the copyright was not regulated correctly and we had a tremendous problem with the issue of intellectual property. Very often there were negative influences and problems arising from the outside which really threatened the project. One project ended with the supplier buying the entire company and everything changed. So it was not about us not applying solid PM methods but the entire commotion brought a lot of trouble. Then it was obvious that we needed to look for entirely new approaches on a corporate level to solve the IP problem. So to our surprise everything happed one hierarchy level higher. In the end we won and were successful but in a very different way than we have initially thought.

Carsten Mende

MF: How do you think project management will presumably change over time? What should we project people be prepared for?

CM: I think that in an increasingly complex world, projects will require us to understand that it matters a lot more that we truly understand how to lead people, manage expectations and accompany changes. Against the background of bad planning and predictability this becomes more and more difficult. It requires an entirely different risk management and shorter cycles in which we have to adapt to and adjust. So, in a nutshell: Project management is going to be a lot more exciting. Especially because the human factor has an immense influence here. This makes planning and implementation more difficult, sure, but this is exactly what makes it interesting! This is where the magic happens!

Peter B. Taylor

MF: How do you make sure the experiences and lessons gained in one project are being kept for future endeavors and projects?

PBT: The question that is often asked amongst many of us in project management is ‹why didn't we learn from that experience?› Albert Einstein said ‹Insanity is doing the same thing repeatedly and expecting different results.› So why do we accept ‹insanity› as the path for project management? Next time you are in a meeting just try this out. Whether you are presenting or someone else it doesn't matter but what happens when the inevitable happens? You go to write something on the flipchart, or the whiteboard and the pen is dry. How many of you (and I freely admit I am just as guilty) put the pen down on the rack again, pick up another one and carry on with the important point you were making? The same dry pen is left for the next person – or worse, for yourself to do the same thing again a little later in the meeting. Did you expect the pen to magically refill itself? Of course not, that would be madness!

Did you put the pen in the bin and ensure that a new one was put in its place, or at least made a note for someone that new pens were required? Of course not, keyword: madness! A simple lesson in lessons learned, or the process of not learning, to be more precise.

So, are we programmed to not learn lessons? Clearly not, if that were the case, then we would have wiped ourselves out as a race a long time ago. The challenge comes from sharing the knowledge of those lessons amongst others, and in learning from others' experience in return. It is a matter of scale and capability all mixed in with time and priorities.

It is not the process of binning the empty pen and replacing the pen but in letting others know what you did and why you did that and how it can benefit them in the future and why they should also pass on this piece of knowledge. So, the next time you go to write something on the flipchart,

or the white-board and the pen is dry, stop – turn to face your audience and say ‹Right, this pen is going in the bin and let me tell you why …›

Felix Mühlschlegel

MF: How do you tackle the issue of lessons learned? What has proven to be a good approach in your company or team – and have there already been true «Project fuck-ups«?

FM: There are two parts to this answer. First is the goal-setting and analysis part. After a season/project we need to set our target for the next season and to do this we of course need to analyze how things went. How much did we sell, what were the margins, in what regions? This can be a bit of a downer for the whole development process, depending on the issues that come up, but at adidas this process always takes place in this or a similar way, so it is done by a separate operations team.
Beyond this for each business unit the lessons learned are not centrally managed, so it is up to that individual BU. In my case I do a seasonal ‹tear-down› or ‹post-mortem› analysis with my team. Shortly after the hand off of a project/season we get together and look back at the past four months. I usually do a very simple ‹Keep; Start; Stop› exercise. This intense process with the team crystalizes the big ideas and removes ideas that will have little or no impact. In the end, we are left with about five great ideas for which we then set up individual, cross-divisional working groups, determine a timeline and go into planning before the new season starts.
Some projects go well and really change things. Others don’t go anywhere for many different reasons. An example of the latter: This year we had a team sponsored by adidas which won the NCAA basketball tournament as a big surprise. We had not been planning on this and were not ready with products or communication. It was a big missed opportunity resulting in loss in sales.

Tobias Rohrbach

MF: How do you think project management will presumably change over time? What should we project people be prepared for?

TR: Project management will get a much higher level of importance because the world keeps turning faster and faster and everything is changing

tremendously. There is a continuous development – we need to have continuous advancement in order to make it work out. That is why the project management methodology has such a high level of relevance, because this is exactly what projects are made of and deal with: uniqueness and individuality at its best. Full of complexity. Full of changes and new territories to conquer. Therefore we need a lot more PM knowledge and a lot more project people out there.

René Windus

MF: How does the «typical (internal) project completion« take place in your projects?

RW: I, personally, am not a big fan of final project reports, to be honest… Very often you only generate texts and nobody reads them. For me, however, it is important to be able to learn something from our projects and to hand over information to other people in the organization or company for new projects. So, I like it when, for example, companies set up intranet pages and fill them with extensive information on projects for everyone to read. This way we can contact the relevant persons that have been involved in a project and we can get into a dialogue, exchanging expertise. Personal conversations and lessons learned workshops with the entire team are very important in my opinion. Not just at the end of the project, but on a regular basis during the project, similar to the SCRUM retrospective after every sprint. This has proven to be successful! It is cool to establish an internal project community while the project is pending. Even creating a WhatsApp group or a closed group on LinkedIn is possible. In this way every team member can post tips and report on what is going on at any point in the project. It is also important to have a little closeout party at the end of the project along with the entire team! This shows appreciation and definitely is a must-have! It is by no means an issue of budget. We once had a closeout party with two boxes of beer and some crackers while sitting on benches in the park out in nature. It is all about the social aspect and to say thank you. People in projects want to do purposeful work and not just being assigned with some mindless tasks. This is why appreciation and acknowledgement of the individual performance is so important, of course, and not only when the project ends.

Olaf Piper

MF: How do you make sure the experiences and lessons gained in one project are being kept for future endeavors and projects?

OP: First of all, I am a big fan of debriefings. To see how it all went and to talk about it. What was good and what could we do better next time? To implement that permanently within an organization requires structures far beyond project management. At the moment we are working on an initiative at Festo under my leadership, which aims at a better coordination of IT communication. With the help of a network of colleagues we want to facilitate, among other things, tackling and talking about positive as well as about negative experiences (e.g. product roll-outs or projects). Just talking about it will make the issues more present in the minds of people who are themselves project leaders, project staff or stakeholders in future projects. But this is a change process that will take quite a long time.

MF: How do you think project management will presumably change over time? What should we project people be prepared for?

OP: The trend towards faster and faster and more and more is contradictory to the basic principle of serious project management. I am a big fan of quality and sustainability. I also have to learn that this is not always in demand and maybe it does not always make sense. In view of the current crisis (climate change, war in Ukraine, Covid, supply chains) we learn that sustainability in a sense is «not just looking until we see the next step« and, that «not always choosing the easy way out« very often seems to be a lot more successful and promising. It is my desire that this train of thought manifests more and more often within the companies. Stepping away from profit maximization or maximum cost optimizations and heading towards processes and projects that are no bet on the future but which will endure with a certain reliability in the future (at least for a while).

Petra Berleb

MF: Which «project fuck-ups« did you have? What went really wrong? And how did you proceed afterwards?

PB: In 2000 I founded the *projektmagazin* at my office at home. Very rudimentary, all by myself and without knowing whether the target group really would accept a purely online magazine. For 2009 we had planned the project ‹re-launch of the website with a content management system›. It was a terrible project where lots of things went wrong. The agency from Munich rated the complexity of our website incorrectly and made a very inexpensive offer. Of course, we were astonished, we also asked questions, but then we accepted their explanations. Maybe an open source system

that already contained quite a lot of modules did not require so many adaptations, thus the price was moderate and the duration of the development so short. We did not have much experience with an open source CMS at the time, after all. Even though agreed upon differently, the agency outsourced the entire development to Russia, unfortunately, in order to save costs – and assigned everything to one single software developer. Nothing much ever happened. Our contact from the agency did not tell us, though, and when we asked for the project status, we got put off. Back then we were lacking technical competencies to really get the big picture. In addition to that we also had to exchange our internal project manager and I stepped in. The emergency meeting we scheduled was on very short notice and we demanded to receive facts and figures, finally making our contact speak openly. We threatened with immediate termination of the project. We assigned a second IT agency to carry out an audit of the programming that had been done up to that point. With the help of our lawyers the project was finally completed with the use of significantly more resources. Everyone was anxious to see the go-live we were all longing for and the date was announced with much ado to our target group. We had survived long phases of continuing testing and the last meeting where we worked through our checklists containing topics such as the load tests etc. proved to be satisfying. The go-live we had announced so loudly was a disaster. The website did not withstand the immense rush of our curious readers and we had to take it offline again. Instead of presenting ourselves with the catchy, new layout we needed to use our old version to put it online. What an embarrassing disaster for a project management portal. After that we had more than another year where we were preoccupied with fixing bugs instead of developing additional services for our customers. But… I learned a great deal from this project fuck-up that I could use for the re-launch eight years on. I was the product owner and we were involved, in close communication with the developers. Of course, there was stress involved and it was not perfect, because the IT agency had to file for bankruptcy during the course of the project. Fortunately we were able to find a good substitute and the new agency took over the project. The re-launch in 2019 went professionally and smoothly. Just as it was meant to be. We are still collaborating with this agency today. It is based in Ukraine and despite the adverse circumstances, development works in a very reliable and professional way. In Ukraine there is a great sense of togetherness and cohesion. We grew together strongly and now enjoy an open and cooperative working relationship, based on trust. For instance, we were able to support our project manager from Charkiw who needed to flee to Germany with her entire family. From both of these projects I learned how important open and trust-based cooperation and communication really is. This is a big deal in our entire company. We cherish our community, readers, customers, participants at trainings and events, our speakers and authors and we incorporate a collaboration based on partnership and trust. To me this is very important and I am very proud of that.

Chris Schiebel

MF: In which projects would you like to be involved in next – if you were to choose freely?

CS: Firstly in a project in the area of computer gaming and promotion. I am a passionate gamer with an IT background, however, I do not have enough expertise to write code myself. To be enrolled in such a project would really tempt me! Secondly, in a huge motion picture project à la Lord of the Rings trilogy. To watch the list of all stakeholders in the film credits and then be a part of that myself, that really would be thrilling. How do you manage an enormous project like that? Do they apply PM methods at all, and if so, which ones? Thirdly in projects involving green technology and engaging in protecting the environment and climate. What really excites me is to question how we can scale technologies in a way that we can help save the planet and our society. Number four… I would love to be a fly on the wall at NASA and accompany a space mission with project management, that would really be another dream of mine, being the declared ambassador for project management!

7 Agile Methods and Hybrid Process Models

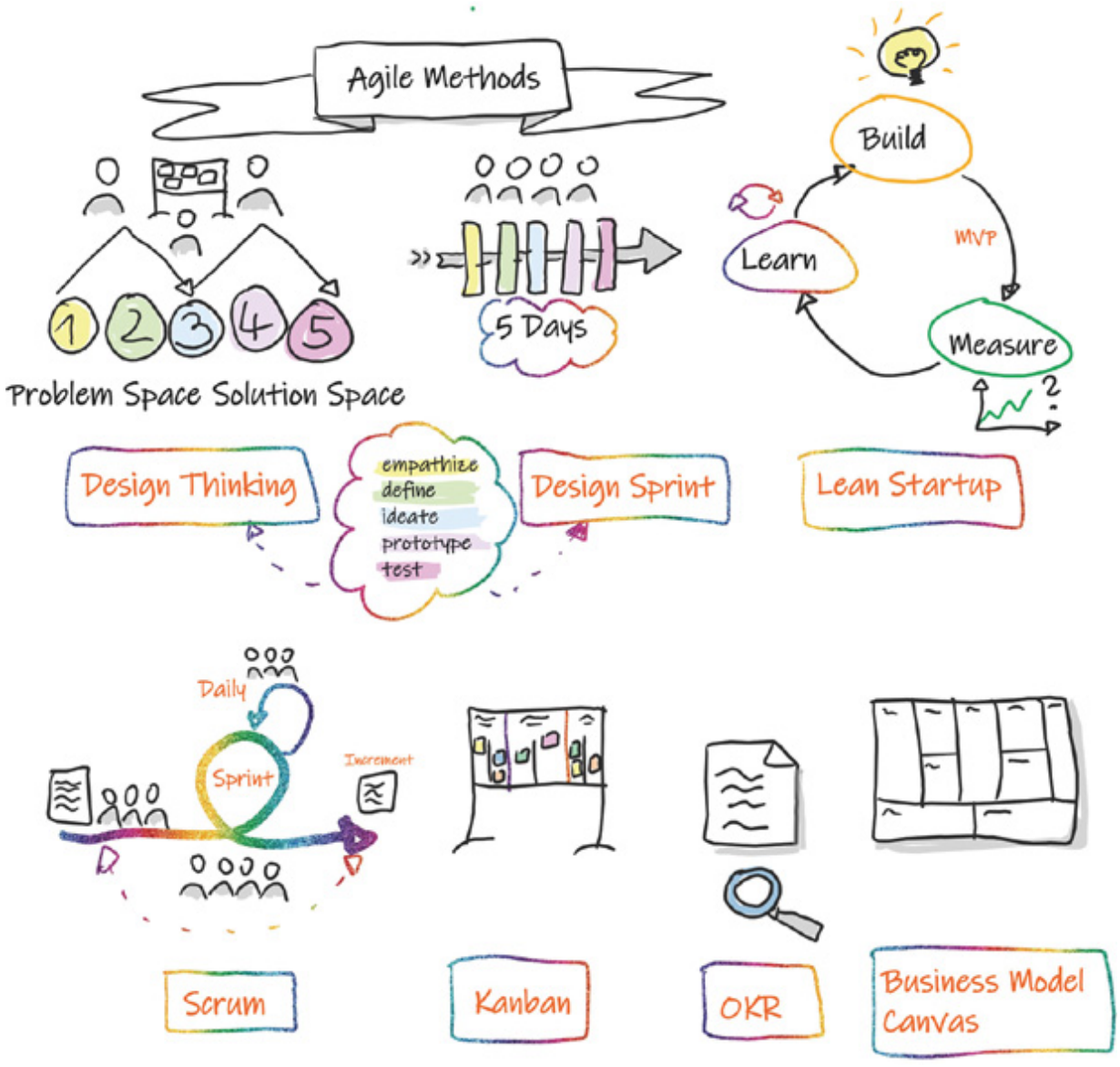

Illustration 15: Overview Agile Methods

7.1 Fundamentals

Everyone is talking about terms such as agility, agile mindset, agile transformation, working agile, agile project management or agile methods at the moment. A lot of organizations want to join the ride and become agile immediately, following the **New Work** hype (a collective term used for forward-looking and purposeful work) and getting involved in self-organized ways of working. Very often agility is then an immediate synonym for methods like Scrum, a process model based on the perception that it is a lot easier to digest a small bite rather than a big one or Kanban (originally developed by Toyota to optimize the material flow). In the peoples' minds lots of buzzwords start to mingle leading to total confusion as to what agility, working agile or agile project management really means. This is reason enough to look behind the scenes of agility in one way or the other.

The term agile derives from the Latin word ‹agilis› and it means something like flexible, moveable or manoeuvrable. In the world of IT project management this term focuses on tools and methods used to develop software. In this context agile stands for acting flexibly and proactively to adapt to constantly changing, new market requirements and to continuously modifying the things that we do with respect to changed framework conditions. Therefore agility is our ability to react to new situations and to focus more on people instead of methods. Agility is an entrepreneurial competency which is far more than just a fad, so to speak. Corporate entities and organizations can only be agile and incorporate true agility if they really live what they preach, if they support permanent growth in which a lot of in-depth knowledge on agility is available and if it is about a lot

more than just self-organization and new work. Working agile, on the other hand, helps organizations to improve their agility so that they can react quickly to changes and acquire an agile mindset with focus on customers and people, on performance and adaptability in order to reach an openness with respect to constant change. In the so-called agile transformation, employees get to know and apply agile methods, they understand them and use them in a purposeful and objective manner.

Agility is neither a new term nor an invention of modern times, because as early as during the 1950s and 1960s there was something called the **AGIL scheme**, where the American sociologist Talcott Parsons formulated theoretical basics. Let us take the principle of LEAN management, which was developed in the 1980s by Japanese carmakers to facilitate a lean production and which revolutionized the automotive world with a new customer centricity and avoidance of any sort of waste. During the 1990s the first agile methods in software development came up, because the IT market in particular was confronted with probably the most drastic requirements. In 2001 the Agile Manifesto was formulated by a group of renowned software developers, amongst them for instance Arie van Bennekum and Ken Beck, along with the two founders of the Scrum framework, Ken Schwaber and Jeff Sutherland. The Agile Manifesto talks about four core values or statements that can be interpreted as follows:

- People and their communication respectively their actions have priority over processes and tools
- Functioning software has priority over comprehensive documentation
- Close cooperation with the customer is more important than endless negotiations

- A quick reaction is better than rigidly sticking to plans when modifications become necessary

These core statements are explained more at length by means of twelve principles, for example, that a face-to-face conversation is much better to get information across, or that the best results come from self-organized teams, just to name two. Due to the fact that (except for the Agile Manifesto) there is no approved reference for the definition of agility in project management, we can find a lot of different interpretations on this matter in literature and in the current language.

Since approximately 2008, with the development of Lean Start-up (a method to develop companies or products which aims to shorten product development cycles) or **OKR** (Objectives and Key Results), agility has reached organizational development and found its way into the broad public – not always with positive results, because good intentions alone are no guarantee for good implementations.

The key features of agile methods are:

- Design Thinking
  Creative technique for the development of new ideas
- Design Sprint
  Process of five days in order to find solutions for complex challenges
- Extreme Programming (XP)
  Programming method which puts programming over a formalistic process
- DevOps
  A model improving the intertwining between development and IT operations in order to be able to

develop something quickly and to then quickly get back to regular operations

- Prince2Agile
  An expansion of PRINCE2 (Projects in Controlled Environments) for the agile area
- Business Model Canvas
  A canvas for the definition and documentation of a business model which consists of nine domains (elements)

Or, as I already mentioned before, the use of Scrum, Kanban or Lean Startup, just to name a few, lies in their simplicity. By using **CS**, our common sense, we can work efficiently, avoid unnecessary waste of resources and we can adapt nicely to changing conditions. Especially in the field of IT we face an extreme situation; what was state of the art just a moment ago is already outdated in the (perceived) next second. There are constantly new laws and regulations regarding data protection and data safety, like the GDPR (General Data Protection Regulation). Agility is all about creating an acceptance for all of these changes which we cannot avoid and which will happen anyway. An important factor here is that people and their needs are not left out. People in the workplace do not suffer from too much and unjustified pressure but, on the contrary, they receive more freedom and suffer from less command and control. Agile methods are a framework for those who undertake projects and they facilitate an appropriate communication between customers and developers or suppliers and enable being on good terms with the stakeholders. This framework stands for a continuous development of deliverable (partial) results which need to be generated within specific temporary limits (time boxes)

and that we thus understand the risks that may be more predictable now.

It is important that we understand one thing clearly here; agile is not suited to every context and even the hyped-up agile transformation has its downside! Before we start implementing any agile transformation in a company or organization, we need to thoroughly examine the prevailing culture. «We're agile and self-organized – starting tomorrow«; that is not going to work in most cases, because agility has been developed by self-organized people for self-motivated developers. So that means, that in order to work in a self-organized way, a person needs to have a) the qualifications and b) needs to be motivated to make this change. Self-organization means to take over responsibility for one's own actions – and in practical life this separates the wheat from the chaff. It is not every person's dream to manage one's time completely, be self-organized, to pull one's own weight and, ultimately, take over responsibility for all results generated. If we have people in our team that are demotivated by self-organization, then these people will be verifiably less productive and they will certainly not cope with managing themselves. The **pull principle** (as a practical cornerstone of agile methods) can only work when employees are highly motivated and when they are not only able to organize and manage themselves methodically, but when they are really willing to. And it is absolutely okay not to be enthusiastic about self-organization and free choices! It is absolutely okay when people prefer to be assigned specific tasks they need to fulfill and when they are given guard rails which gives them orientation.

Self-motivation is the basis of trust. Before we can even start with an agile transformation, we need the company or

organization to focus on trust. What are the factors having an effect on the trust between employees and their superiors? What about the perceived justice or the satisfaction of the employees? This also needs to be seen from the point of view of the employees, not only from the point of view of the leaders. It all strongly depends on the cultural framework a company or an organization has to offer. Without the willingness of all participants of an agile transformation it will not work out. And it will not work out with an adequate culture management either! However, when we are dealing in a professional way with the issue of agility in our company or organization, when we are well prepared when setting the sails for the agile sea, then an agile transformation might be successful. We need to understand that there are no ‹agile teams›, but that teams at best use agile methods, for that matter. There are no ‹agile developers› as such, but developers that develop according to agile values and methods. This does not mean that these teams automatically have an agile mindset, let alone being able to incorporate agility into project management. As much as agile methods might help with implementing the values and principles of the Agile Manifesto, just applying agile process models or methods does not automatically lead to agility. In fact, classical projects whose project managers follow the values of the Agile Manifesto can be a lot more agile than projects, which, for instance, are using Scrum, but whose employees are too stuck in traditional leadership structures.

7.1.1 Scrum

Upon developing the light-weight framework called Scrum, Ken Schwaber and Jeff Sutherland put great emphasis on the fact that it should be easy to learn and easy to adapt with as few rules as possible. It is based on three pillars: Transparency, inspection and adaption. Transparency facilitates inspection and inspection facilitates adaption. When you realize that the way you proceed or the produced results deviate from acceptable boundaries, then adaptions need to be made as quickly as possible in order to minimize further deviations. Scrum can only work when the people involved are able to incorporate the five values: Commitment, focus, openness, respect and courage. If the values cannot be followed, we do not have Scrum, but ‹Murcs› [*Scrum read back to front in German sounds like ‹Murks› which means something botched.*].

In contrast to classical project management in Scrum we do not have a project manager. He is replaced by the product owner, the person representing the customer’s view and therefore the owner of the project or product and by the Scrum master, a Scrum expert who makes sure all Scrum rules are followed and who shields the team with respect to their tasks to the outside. A traditional project manager either can take over the role of the product owner or scrum master but never both. A Scrum team consists of, at most, ten persons (including the product owner and the Scrum master). The team of interdisciplinary experts developing the product therefore adds up to a maximum of eight persons – called developers. A central element of Scrum is working in defined time boxes. A time box has a defined duration. When we cannot handle the content planned for the time box, it will be deleted or postponed. The time boxes are pre-defined and remain identical for every cycle, which means in every iteration. One single Scrum cycle has a duration of one month at the most and is called sprint.

We estimate a sprint of one month for the time boxes indicated below. When sprints have shorter durations, the timeframe needs to be modified accordingly.

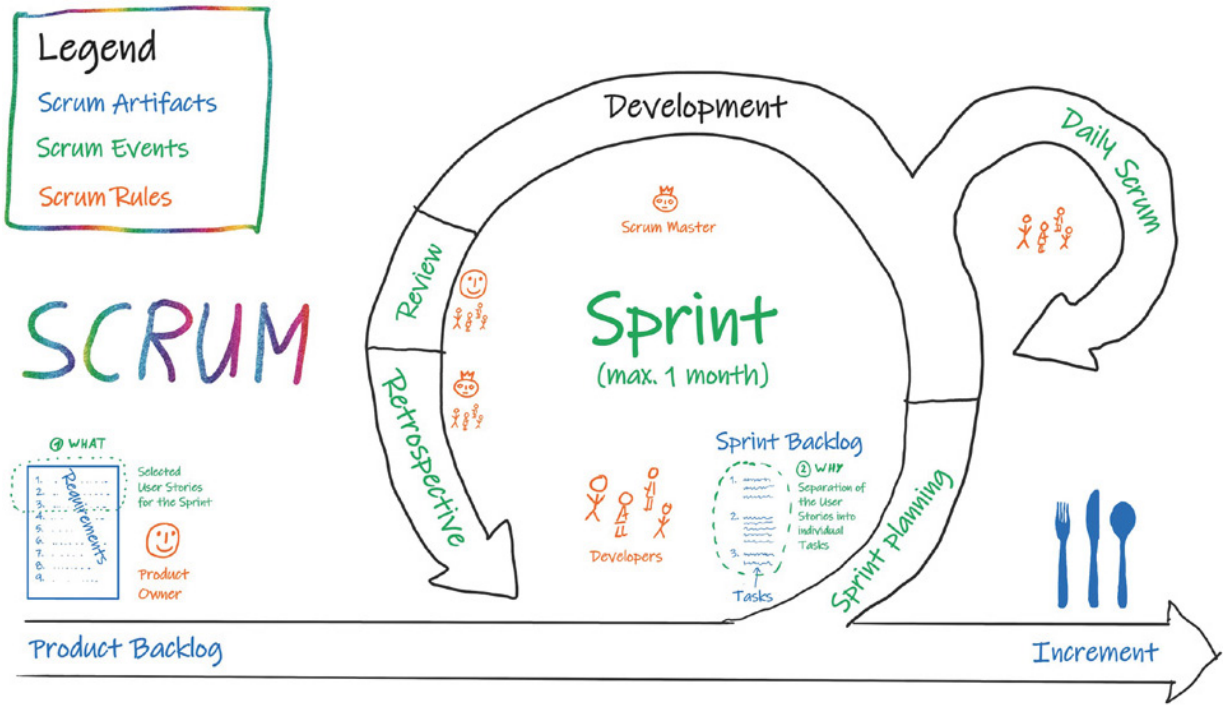

Illustration 16: Visualization of one sprint in Scrum

In Scrum all customer requirements are stored in the so-called product backlog, a type of order backlog. We can compare the product backlog in Scrum with the requirements specification we know from classical project management. All requirements are formulated in so-called user stories. A user story formulates in very plain and simple everyday language what needs to be done and what is expected. It usually does not contain more than two sentences. It should be independent, non-negotiable, useful, estimable and testable. The product backlog is managed by the product owner. He alone is allowed to add, take away or prioritize user stories. The product backlog is always sorted according to priorities.

A sprint always starts with the sprint planning (time box: 8 hrs.), which is carried out in two steps:

1. WHAT are we going to do during this sprint?
   In dialogue with the product owner the developers select those user stories from the product backlog that should be tackled in the current sprint.
   Note: A user story can be compared to a work package in classical project management.
2. HOW are we going to do the work selected?
   The selected user stories are split into individual tasks. A task equals the work load of one day or less. The user stories split in tasks for this specific sprint form the sprint backlog.
   Note: A task in Scrum can be compared to an activity in classical project management, because there we also have work packages that we split into an 1:n relation.

As soon as the sprint planning is completed we start with product development. The developers meet every day for the same time at the same place. This so-called daily Scrum (time box: 15 min.) is necessary to align the upcoming work and every developer reports on the following:

- What did I achieve yesterday?
- What am I going to do today?
- Can I see or expect any impediments?

In the sprint review (time box: 4 hrs.) the developers present the results of their work and hand over the increment (the completed component) to the product owner who examines everything and adapts the product backlog, if necessary. Other important stakeholders may also participate in the sprint review. The purpose of this is to examine the product quality.

In the sprint retrospective (time box: 3 hrs.) we analyze the collaboration within the team as well as the interfaces towards other sectors or departments of the company in order to derive improvement measures and to plan their implementation. The retrospective concludes the sprint with the following results:

- Aspects we want to keep (*keep*)
- Things we do not want to repeat because they did not work or were simply bad (*drop*)
- Ideas that the team wants to try out next (*try*)

As soon as a sprint is terminated the next sprint starts immediately – and begins again with the sprint planning – and this continues until the product backlog is fully cleared.

Note: The product owner can work on the product backlog at any given time and add new user stories even during an ongoing sprint. However, he has no access to the sprint backlog any longer (that is, on the selected user stories which are being worked on during the current sprint).

7.1.2 Critical Chain Project Management

Critical chain project management is based on the Theory of Constraints established by the Israeli physician Dr. Eliyahu Moshe Goldratt. Project management is looked at from an entire corporate point of view, that is, in a multi-project environment in which several projects are conducted at the same time. In practical project management we often follow the paradigm of ‹local order› which states that the optimization of parts (of a system) automatically leads to optimization of the whole system. In

business economics we know by now that this paradigm is wrong. We can explain this by means of three examples in the table below:

Assumption	Negative consequence resulting thereof
The project portfolio is particularly successful, when every single project is particularly successful.	Projects fight for resources instead of supporting each other (in the sense of the overall system).
When we meet every single deadline, the en- tire project also will be completed on time.	We plan buffer times into the individual work packages which will be used up immediately.
When every single supplier does his job in an optimal way, the project as a whole will lead to optimal results.	When difficulties arise, suppliers blame each other instead of cooperating with the customer in order to find solutions for the problems.

By applying the approaches stipulated in the Theory of Constraints, which are for the most part based on the following three paradigms, the reliability of projects is said to be increased by nearly 100 %, the duration of the project is said to be shortened by at least 25 % and capacities are released that can be used for additional projects.

Approach 1: Staggering projects – by means of the bottleneck resource

In many multi-project organizations several resources are used for different projects to obtain the highest occupancy rate so that individual employees do not have to remain idle because there is not enough work to be done. As soon as problems occur in individual projects this means that one single resource cannot be available on one task after the other, but is forced to switch back and forth between the

various tasks. The difficulty here is that manpower always needs a period of adjustment to be back on track or, where materials are concerned such as, for instance, machines, setup times are necessary for alignment. This additional expenditure of time multiplies the more often tasks change and this phenomenon is called ‹harmful multitasking›. The consequence is that projects become more costly than planned and deadlines cannot be met.

Let us take a look at an example: Assuming, that in an IT company projects are always worked on according to a similar scheme like, for example, inventory at the customer/as-is analysis/conception/programming/testing/implementation at the customer. Let us assume further, that one specific resource or group of resources is responsible for each of these tasks. Then, as a consequence, in the event of all projects starting at the same time, at least one resource would always be overloaded, while other resources would not yet be necessary at all. These overloaded resources need to switch back and forth between the projects and this leads to the harmful multitasking mentioned before. If we stagger or bundle the projects and let them start subsequently so that we can avoid overloads, then the problem could be easily solved.

To avoid harmful multitasking and waste of resources, it becomes necessary that the most resources of a company are on standstill every now and then. With the exception of the bottleneck resource, because a decrease of the throughput would automatically lead to a decrease of the overall system (comparable with a water pipe consisting of pipes with a diameter of 42 cm and now we attach just one corner piece with an diameter of 13 mm– the throughput quantity of the overall system now is limited to the amount

of water floating through the 13 mm corner piece!). Such a bottleneck resource (also called DRUM resource in critical chain project management) therefore must never be on standstill and the company should always try to use it at 100 % of its capacity. This can be guaranteed by following these five steps:

- Step 1: Identify the bottleneck
- Step 2: Decide how we could use the bottleneck in an optimum way (e.g. by staggering or bundling projects)
- Step 3: Subordinate everything to the decision to use the bottleneck in the best way
- Step 4: If necessary, expand the bottleneck
- Step 5: When the bottleneck has shifted, restart with step 1

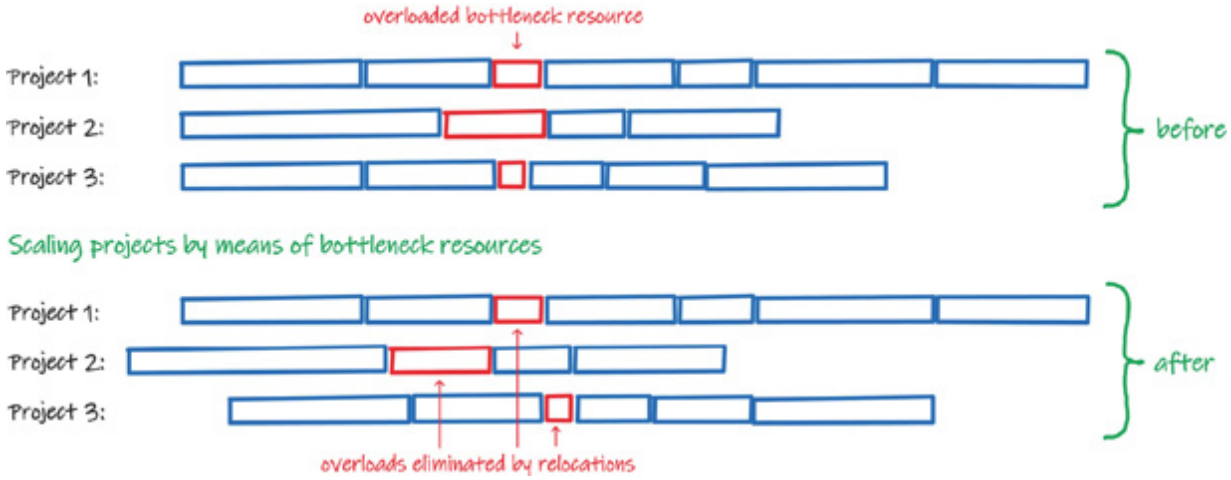

Illustration 17: Handling of bottleneck resources

Initially, therefore, it is all about reducing the parallel load on the employees and to clock projects by means of critical resources, the so-called DRUM resources, so that this resource is used for only one work package or project (as quickly as possible) to make sure the bottleneck resource, except for planned reserves, will never be idle.

Approach 2: Bundle securities – at the end of the project

A problem we face in traditional project management is, that we always need to take time reserves into consideration when budgeting work packages or activities for a project. This time budget determining our schedule is usually always fully used up. In a nutshell, it means that activities will never be completed ahead of time. One reason for that might be that employees are considered reliable when they meet their commitments, therefore buffer times are often integrated into estimations right from the start. But what happens, when employees constantly fall below their indicated and estimated deadlines? Nobody takes them seriously anymore and their estimations will always be shortened. We thus lose security and reduce the chances to meet the deadlines agreed upon. The only chance for these employees to prevent this vicious circle is to never complete a task ahead of time. Why would an employee want to hand in a work package sooner than planned when this will not have any positive effect on the further course of the project anyway, since the employee responsible for the next work package cannot start sooner because he is either still working on another task or he knows he has planned with enough time buffer so that he will be able to complete his task in due time anyway?

Critical chain project management tries to eliminate the buffer times added to individual work packages or activities and to use a defined time reserve at critical points or at the end of the project. This means that individual buffer times are added up and relocated to critical points of the project. At the same time exceeding the target deadlines of

individual tasks is allowed explicitly. The realization takes place as follows:

- Step 1: The estimated duration times of the individual work packages are reduced approximately to 50 %
- Step 2: The durations thus saved will be summed up to a total
- Step 3: Half of the total sum will be shifted to the end of the project plan and serves as global buffer time

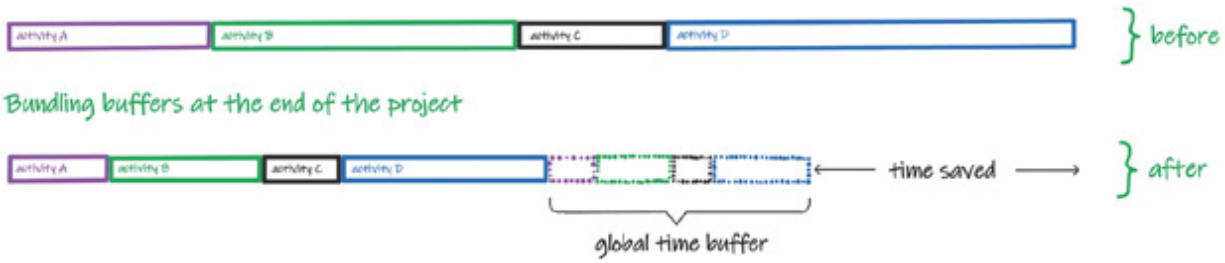

Illustration 18: Handling of buffer times

The second step therefore is all about bundling securities (buffers) at the end of the project which is done by halving the durations of the work package. The saved time then serves as common buffer at the end of the project.

Approach 3: Tasks are assigned to resources rigidly according to priority

Despite solid planning some tasks require a higher work load or take longer than planned. Therefore we need to decide which tasks (deriving from several projects) need to be tackled first and which tasks have to or can wait. To manage the tasks across projects priorities need to be

stipulated in a clear, objective procedure. Here the following rules apply:

- A task that is already be worked on will not be interrupted (= to avoid harmful multitasking)
- When a task is completed, we continue with the task that has the highest priority
- The priority of a task is higher the more buffer time it has used up at the end of the project with respect to the project progress (= buffer index)

From the two values «project progress« and «buffer usage« we now can determine the relation «project status«: The less buffer we used with respect to the project progress, the better the status of our project and the more probably our project will be able to meet the deadlines agreed upon.

So the third step is about assigning tasks to resources rigidly according to priority. This means, to resources that have just completed another task. The priority solely goes by the buffer index, meaning the ratio of the project progress toward the buffer usage. As a consequence, it is not the project manager that «yells the loudest« that gets the resource, but instead the project that objectively needs it most.

Summary

Critical chain project management is a project management method where we need to know at any given time which work package needs to be prioritized with respect to different projects within a company. This also means, that so-called harmful multitasking needs to be avoided. A solid

buffer management is also necessary. Here, it is all about dealing with estimations with respect to the duration of individual work packages or the completion of entire projects. Experiences in traditional project management have it that buffer times are always used up fully, so that means that work packages completed too soon are simply not handed over, or, instead of using buffer times to balance out real problems, people start as late as possible with their tasks and work packages. Problems that might occur therefore directly lead to delays. Critical chain project management is about separating these individual buffer times or floats from the activities, summing them up and putting them as some sort of ‹common buffer› at the end of the project. An advantage is that work packages that are completed ahead of time increase the common buffer and therefore ensure more security for all project participants. An additional advantage is, that the people responsible for the work packages try to complete their tasks in due time in order to avoid using up the common buffer, because this would mean taking away security reserves from the project.

7.1.3 Kanban

Kanban is a method with which a team can control and coordinate its tasks in projects in a way that a regular workflow evolves preferably with a low lead time for each work package. The Kanban system is based on the pull-principle where completed tasks are not handed over to the next person (this would then be the push-principle), but instead every person freely picks (pulls) the next free task from the Kanban board as soon as he is ready for new tasks. The prerequisite for working with Kanban is, that the

work packages can be divided into subsequent but independent work stages or steps. Kanban is based on the principles of visualization, limitation and continuous improvement which we will clarify below.

Let us assume you want to develop a software and every released work package should follow the stages design, development, and test, before it is fully completed. Plus, we want to make sure that the workload is distributed equally on the different work stations so that every developer is allowed to work on a maximum of two tasks at the same time. And of course, the work processes should be permanently optimized.

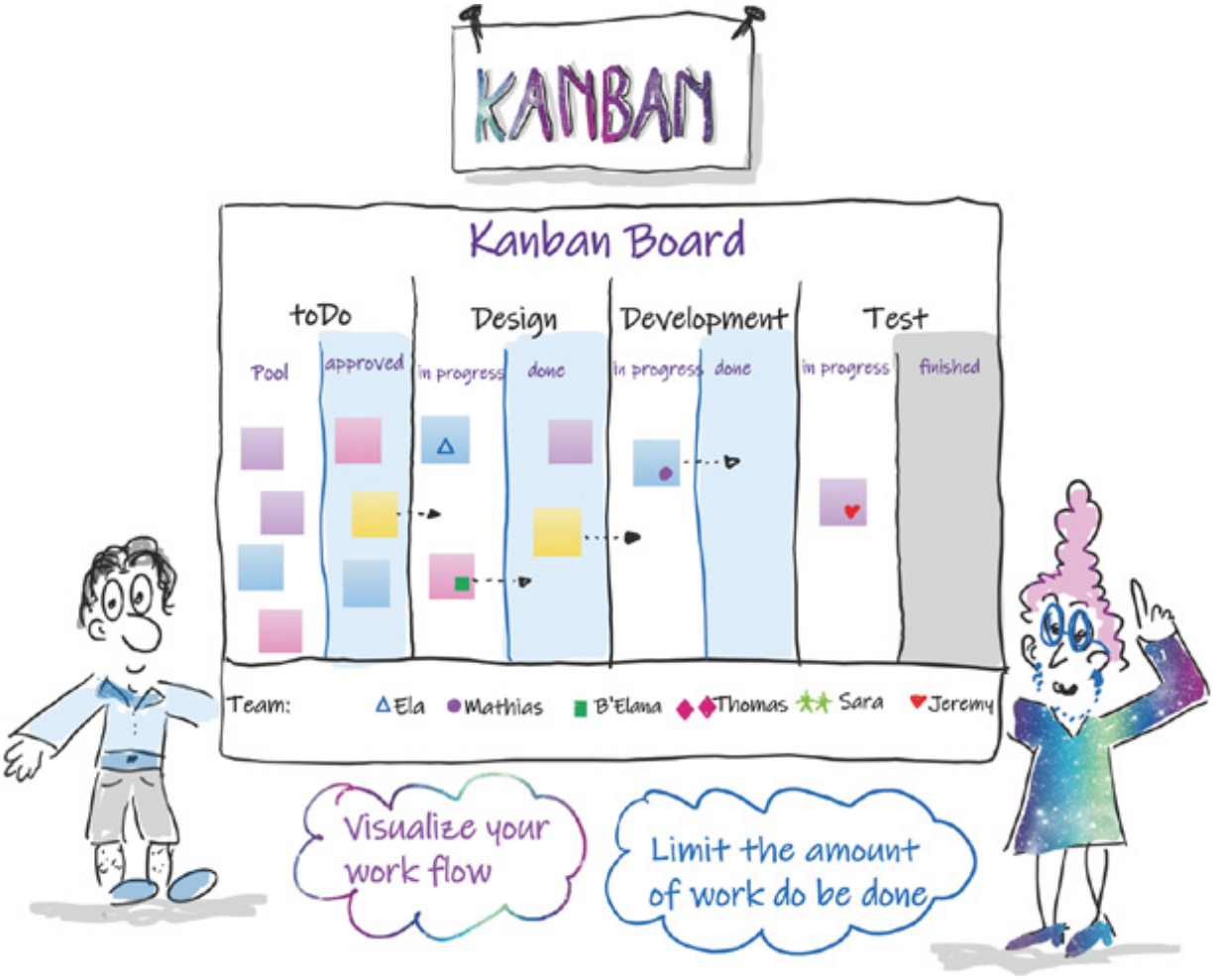

Illustration 19: Example of a Kanban Board

The process takes place in three steps as follows:

1. **Visualization**
   We establish a Kanban board with the sections ‹To Do/Design/Development/Test› on a meta board or whiteboard. Each section is divided into two columns, for example ‹To Do› could be divided into ‹Pool› (for all the tasks that are to be worked on in total) and ‹Released›. The team decides together and finds a consensus on which work packages go from ‹Pool› into the ‹Released› column. Only the released work packages may be worked on. The sections ‹Design› and ‹Development› are both divided into the two columns ‹in progress› and ‹done›. The section «Test« is divided into the columns ‹in progress› and ‹finished›, because a task is considered completed as soon as the test has been finished successfully. The release column as well as the two done columns are colored in light blue whereas the finished column is colored in light grey.
2. **Limitations**
   a. To avoid that someone just picks his favorites from the tasks and to avoid harmful multitasking caused by too many lead times, each person is only allowed to work on or reserve two tasks at the same time. In doing so we ensure that no team member is without work because the tasks of the predecessor are not completed on time. We also facilitate focused, valuable work for all participants involved. We can ensure that the limitation is followed by assigning two markers per person (in our case: geometric symbols of different colors), which he then pins onto the task card of the task he is

currently working on. When he is out of markers, he may only take over another task when he has completed another one and therefore one of his two markers is available again.

b. In order to achieve a work flow and to make sure the process time of the work packages is as small as possible, the tasks need to be distributed equally to the work stations involved. We could facilitate that by limiting the maximum number of tasks in the ‹in progress› column to three.

3. **Continuous Improvement**
   To ensure a continuous improvement, a brief daily meeting in front of the Kanban board might be helpful where everyone speaks about the status of their tasks and work packages, informs on process and lead times and makes suggestions for improvements to optimize one’s own processes.

In the beginning all work packages to be done are placed in the pool in the ‹To Do› section. The tasks that need to be tackled next are then pulled into the ‹released› column. Now a person can take one of the released work packages and put it into the ‹in progress› column of the ‹Design› section and place his personal marker on the card. As soon as the work is done, he pulls the card over into the ‹Design› section and withdraws his marker. Now the work package that has just been worked on can be pulled into the next section or the employee can pull another work package from the ‹released› column, move it into the ‹in progress› column and put his marker on the card. This way every team member can pull a work package from the segments colored in light blue, move it to the next area and so on, if, of course, this ‹in progress› column does not already contain three work packages. Therefore all work

packages swim continuously from the left swim lane to the right. As soon as all work packages find themselves in the ‹Test› section, all tasks are completed.

7.1.4 Hybrid Process Models

When we use different process models within one project, it means we are using hybrid process models. It is a combination of plan-based and agile process models. We may, however, also combine pure plan-based models or pure agile process models into hybrid process models, for that matter.

For example, we could combine the classical waterfall model with the agile process model Scrum. During the project start phase we could take up all requirements and define all framework conditions in a very classical way. During the planning phase we determine (based on all requirements known so far) approximately how many sprints the project might need. Of course, we have previously defined the sprint length and the number of team members. Due to the fact that all sprints have the same duration and that it is always the same team involved, we can also calculate the project costs and how long the project is going to take. This calculation is only valid when the requirements remain unchanged. This means, the customer knows which costs to expect more or less and how long it will probably take until he receives his final product. Of course we need to make sure that the customer is allowed to request modifications to the product whenever he wants to. The consequences may be that the duration of the project as well as the project costs will vary accordingly. During the execute phase Scrum rules are followed strictly, meaning that the

tasks are worked on iteratively and incrementally. In this way the product is developed in individual cycles (sprints) and components where the customer receives a fully functioning individual part he can work with at the end of each cycle. During the execute phase the customer has the possibility to add new requirements and to prioritize the requirements, so he always receives exactly the increment (individual part) he needs the most. A time-consuming and opulent change management, as would be necessary for classical process models, can in this way be spared. As soon as the customer has everything he needs, the execute phase is completed. We now tackle the closeout phase with the project delivery in which the customer documentation (project documentation, installation manual, technical documentation) needs to be completed and handed over to the customer. Finally, we need to carry out an internal project completion, including lessons learned.

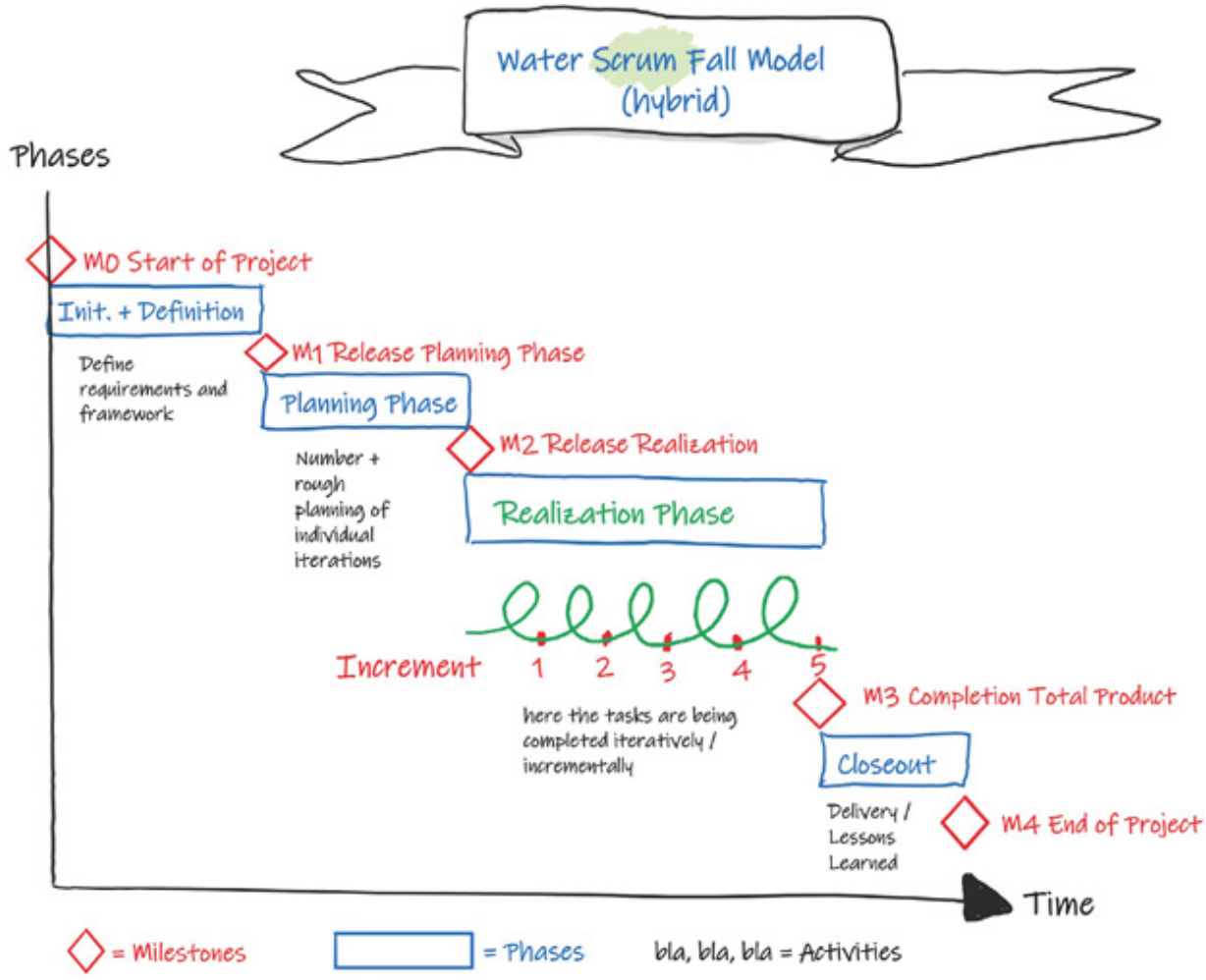

Illustration 20: Water-Scrum-Fall Model

The Water-Scrum-Fall model is a sequential application of process models, because here we work on self-contained project phases by using different process models. Another sequential hybrid model would be, for instance, having an agile order clarification in the first project phase with subsequent stabilization of the requirements and implementation by means of a classical waterfall model.

We are referring to an integrated application of process models, when different process models merge with each other within one phase or within the project, just as it is the case with ScrumBan. Here we use the agile process

model Scrum to create a product, but the distribution and assignment of tasks takes place flow-oriented according to the agile process model Kanban.

The problem we have with hybrid models is that by combining different process models we not only get the advantages of the individual models, but they also come with their disadvantages. During my job as project consultant in various corporate entities I often get told that the company wants to «switch to hybrid project management«. My ears prick up at this, quite literally, and I schedule a meeting with the people in charge to ask them for the reasons for their desire to «switch to hybrid PM«. Mostly I get answers like «Before, we applied classical project management and it did not work out! Then we tried agile and that did not work out either! So now we want to go hybrid instead!«. My answer usually goes something like this: «So you think when you combine two bad things, something good will be the result? Well, that is comparable to you wanting to prepare a meal, but you only have bad ingredients at hand and on top of that, you are a very bad chef. Do you really think you will create something yummy here?«. Usually we then get into a dialogue where I clarify that before we switch to any new process model, we need to find out the reasons why the projects failed in the first place. Only then can we look for improvement measures we then wish to implement. Most of the time the issue of implementing a hybrid model is postponed until later or even completely discarded.

For many projects a classical approach makes sense and the plan-driven procedure has definite advantages. It is often very helpful to apply some agile methods in order to facilitate a much stronger customer-centricity, to make sure the teams are able to organize each other in an

independent fashion and to allow flexibility with respect to deciding who wants to have which degree of (self-)responsibility. A combination of classical and agile elements has its charm for sure, especially when a project requires a multitude of classical as well as a lot of agile elements. This is something we need to decide on a case-by-case basis.

7.2 Practical Example

By November 2022 we had already entered the ‹hot phase› of working on our manuscript, but still, every now and then we got together for a decent brainstorming session to find out what benefits and added value we could produce ‹for the world› other than writing a book. We thought about which additional products, concepts, trainings etc. we could think about to really set the sails with our project management skills. So, it was all about cross-selling, meaning the conception and distribution of similar or additional, complementary products and services. Along with a very close friend who is also very much interested in project management and who happened to be in town at that time we went away for a weekend to a wonderful hotel in the German region of the Southern Palatinate for a creative type of ‹workation› where we did not need to worry about our daily business, but where we were able to give our creative ideas full rein.

I am a big fan of the agile design thinking method because I like the idea of remaining in the so-called ‹problem room› to focus on the initial situation and to fully understand what

the problem is before moving into the ‹solution room›. Our friend suggested using a very pragmatic variant of the design thinking approach that is much shorter, namely design sprint – a design thinking process that is carried out in a very condensed and much shorter time. A terrific idea! We oriented ourselves at the five activities empathize, define, ideate, prototype and test and then got started.

During empathize it became very obvious that for our target group it would not be enough just to read our book to become really fit for their roles as future project managers. In order to set sails successfully more input was necessary as well as additional ideas, a different mindset and a massive change process in general. A lot of project management books on the market strongly focus on presenting project management theories and describe one project management method after the other. Very often they lack practical experience or best practice. Therefore, reading on project management alone (understandably) will never be enough to become a successful project manager. Another aspect is that a large number of people working in projects clearly have a deficit with regard to leadership issues, which is reason enough for us to ponder on what leadership qualities it really takes for successfully managing projects.

First we came up with some ideas but they were dismissed soon afterwards. During our define phase we threw new ideas into the ring and I was in charge of visualizing them. We then weighed some of them up and went into the ideate phase. As trainer and project manager I was always enthusiastic about sketching visuals. Therefore I was fully equipped during our creative weekend abroad and had packed up all sorts of magical things such as a huge DIN A3 drawing pad, lots of colored pencils, crayons, glitter pens,

scissors, glue and different markers. I made little sketch notes of our ideas during the prototyping phase, and together we created small 3D models to better visualize everything. During a very rough and minimalistic test phase we then scrunched up one or two of our models because we thought they were bad. Step by step and yet with a perceived ‹turbo boost› we worked ourselves through all the phases during our little design sprint and by the end of our weekend in the Southern Palatinate region we had a rough draft of our possible add-on product which we called ‹leadership in PM›. With imagination this rough draft was indeed some sort of MVP, a minimal viable product. In the end we had our little design sprint result by means of the rough outline of a modular training and coaching program. We had thought about the context and discussed first details. We agreed to stay at the ball in order to take care of some fine-tuning later on in additional sprints. And this is exactly what we did within the course of our book project! We talked regularly to our friend, either on the phone or all three of us met in video conferences in order to keep on exploring our cross-selling ideas. With each loop within our creative process our ideas became more and more specific and sophisticated.

By the end we had a practical concept for modular training and coaching, tailor-made with thorough insights on leadership in project management as much as with regard to the individual power skills Leadership / Ethics / Culture, Values and Diversity / Agile Mindset / Teamwork / Communication / Conflicts and Crisis / Courage and Motivation / Creativity and Problem Solving and last, but not least, Negotiating. We were inspired by the various competency elements listed in the ICB 4.0 (IPMA) framework and consider these power skills so valuable and

important that we even dedicated to them an entire chapter of our book on project management.

7.3 Quintessence

Very often people get the impression that the world of project people is all about the competition ‹agile versus classical› or ‹agile versus non-agile›. Indeed, some topics on agility become fads, hypes even, and very often they are the initial spark for a big fight of (presumed) experts leading to some big discussions. Actually, if we look at things from a very objective point of view, the issue of agile or classical is only about choosing different methods and to help decide which method is best suited for the relevant project we are currently working on. All things considered, the different process models are only tools in the toolboxes of the people working in projects. The tools help us solve problems and lead our project toward success. The only difference is that we would probably never even consider to have such heated discussions when talking about specific types of hammers, as we have them discussing the issue of agile versus non-agile.

For us project people the emphasis should not be on whether some specific method is trendy or not. Nor should it be about having to choose the one and only true method, because we must rather ponder the question of what options we have overall, what the framework conditions look like, how much impact we have, what difference we can make and yes, we should also ask ourselves how much flexibility we are able to (or allowed to) apply.

Still, a large percentage of projects are carried out according to classical project management methods, the reason being that the traditional approach is often better suited for a specific project. Another reason is that switching to agile process models is not always wanted by the companies or not always possible. Switching to agility or agile process models is certainly not as easy as some organizations might think. It depends on so many factors that are all crucial when we need to decide which process model suits the company or organization best. The wrong choice has the exact opposite effect. In that case nothing works out and in a worst case scenario the employees literally stop using their brains and end up working to rule, just doing what they need to do (not one bit more!) and mentally they have already handed in their notice because they are fed up. Classical as well as agile process models have their charm and their reason for being, especially if professionals are involved who know exactly what they are doing. Scrum co-founder Jeff Sutherland once got to the very heart of it: «The enemy of agile is not waterfall. It's bad agile!«. When agile methods are implemented badly, when there is no agile mindset or when agility is forced upon the people top-down and the necessary proficiency or experience is not there, things are bound to fail big time and our boat sinks!

A lot of projects are carried out today according to hybrid approaches. This is a very pragmatic and practical way to choose the best from all worlds for the projects. Where a plan-based approach is the right way to do it, then let us do the planning. Where project creators have the possibility to be more flexible and self-organized and when we know exactly what we are doing, of course we are allowed to consult our agile toolbox. We can also combine different agile process models with one another or complement

classical approaches with agile techniques. It is important that the process is suitable for the project, but also for the company, for the organization that need to work with the relevant method.

7.4 Tools and Tips

A very pragmatic and at the same time valuable tip is that we need to choose the right method when we want to work according to agile methods, meaning that we should not automatically and exclusively think about Scrum. Pick from the wide range of agile methods and process models the ones that support our project best. It means finding the right mix and, if suitable, also in combination with traditional elements. We should also keep our projects as small as possible to keep the degree of complexity to a minimum. This makes our projects clear and keeps the interpretation range small as the more there is for us to interpret, the greater the danger to make the wrong decisions.

A major aspect of agile methods is self-organization of the teams and the independent or entrepreneurial mindset. This requires that, before we start, we achieve voluntariness with our teams in order to facilitate self-responsibility. We need a clear-cut awareness of all project participants that successful self-organization always requires that people take over responsibility for their actions instead of manifesting ‹egoistic cherry-picking’. This also requires, of course, a solid applied error culture that tolerates mistakes and refrains from sanctions. Working

agile requires a different knowhow, because yes, even working with sticky notes needs practice and should never be done without prior reflection. Therefore it is not only okay, but even necessary to offer the project participants accompanying coaching, to organize project management trainings and to make sure that everybody has the necessary proficiency to lead the project to success.

! Engaging Questions for Agile Methods

- Why are we here?
- What is the benefit and added value we create?
- With which tasks can we identify ourselves?
- What is our self-perception?
- What do we do to fulfill our assignment?
- What is our contribution to the project?
- How do we apply agile principles in our project specifically?
- Which roles and competencies do we need in our team?
- How do we make sure that every employee gets the required degree of self-organization and decision-making power?
- Which communication structures do we need to set up to be able to integrate and involve all the relevant people, our customers and stakeholders?
- What effect do we want to have on our customers and on our environment?

7.5 Interviews with Project Managers

Stephan Scharff

MF: What about the buzzword «agility«?

SS: Seen from the point of view of business it is the promise that I can solve my problems well and that I can react to the market without having to use complicated processes. I place the person in the center of attention, involve them in a democratic way and therefore my product will be a lot more dynamic. I am able to react quickly to changes and I can focus on what my job really is. Therefore I create less waste. So agility is a very attractive canvas that does not command much but instead, gives me a lot of freedom of choice. From a technical point of view to me agility means adaptability and this is exactly what I need when I want to, for instance, develop IT products.

MF: What are the biggest challenges with respect to agile respectively hybrid?

SS: A lot of people want to try out ‹agile›, but they have no clue what for! So they might not really know what different methods there are and have no experience. Besides, there is no such thing as THE agility per se. It is only a selection of values, principles and a few frameworks. Everything else is mere interpretation. There is a big and colorful zoo of all different sorts of ‹agile animals›, so to speak, and the canvas we can use here is gigantic but so little is pre-defined. When I have no clue how to lead projects to success and only approach the issue in a very dogmatic way, I will not be able to succeed, not through classical, nor agile or let alone the hybrid approach. I always have to know what I am doing and why I am doing it. Self-organization requires a certain setting, otherwise we fail. But hey, agility does not mean that everything is always self-organized, by the way… Agility is what we make out of it! There are a lot of doctrines here and it is not about ‹black or white› and not even about ‹good or bad›.

MF: According to your expertise – what process models for projects apply mostly? Classical, agile or hybrid?

SS: Agile, of course! Because I can apply it to everything, when I do it right and in a thought-out manner! I need to see where I stand, what I need and in which context I move about. In practical project management there are many in-between worlds and that is how it should be. I need to adjust my own personal ‹agility› in a way that works for me. When I need high adaptability in my IT products, then I need a high degree of self-organization. But I cannot control everything and my hands are tied. I cannot go ‹full speed› and I do not need full dynamics, in that case.

Therefore hybrid forms are an advantage in practice. However, what I definitely always need is an experienced Scrum master who knows exactly what he is doing. And I need someone experienced; not someone who has just finished a weekend class of Scrum, for that matter…

MF: Which tips do you have for companies or organizations that want to switch to ‹agile›?

SS: Start with the WHY. Because it won't work any other way. Once this is clarified, then we are able to think in a very modern way and ask ourselves where we currently stand with our company and what we currently need, and then implement all of that in very small steps, one at a time. There is no fast-forward here! It will neither work with pressure nor by rushing. Unfortunately, there are so many bad apples among all those self-proclaimed ‹agile professionals› that we cannot demask that easily. When I want to change my organization into agile, then I need real, experienced professionals. Period. Because such a professional applies realism and challenges me being the CEO or boss every now and then. But I also need that if the conversion to agile is to work! When I want to apply Scrum, I always need someone who takes care of everything, someone who sees the big picture, who knows his way around and who can handle things. ‹People over processes› – so that means I adapt Scrum in a way that suits me and my company. And if this is done with sense and understanding, then switching to ‹agile› works well. This needs, however, quite some time and companies should never underestimate that.

Michael Künnell

MF: According to your expertise – what process models for projects apply mostly? Classical, agile or hybrid?

MK: In our company and also according to my experience we rather apply classical process models for our projects. With special emphasis in the areas IT, strategy and optimization processes.

Daniel Laufs

MF: According to your expertise – what process models for projects apply mostly? Classical, agile or hybrid?

DL: The CAPTN Initiative, the umbrella, so to speak, under which all our projects

are carried out, manifests agility. This means, our general structure is very agile. But a lot of projects within the initiative often are very classical, too. That offers us a much bigger flexibility when looking for partners. Unfortunately, some people hide behind the buzzword ‹agility› and so topics and terms are mixed or misinterpreted a lot and this is really sad. Very important: Agile does not mean not having a clue! On the contrary… In order to be really agile and to manifest agility we need a lot of expertise. I, personally, love our mission-oriented approach, because the goal is crystal clear, but how to get there is still open. In the end, I think, a good mix between agile and classical is perfect.

Arie van Bennekum

MF: Currently there is no other official reference for the definition of agility concerning project management (or «agile PM«…), except for the Agile Manifesto. What do you think? Is it interpreted just the way you wanted it to when you and the other authors established it «back then« in 2001?

AvB: No, it is not really interpreted the way we wanted it to be interpreted. When we went into the room writing the Manifesto, we left our ego at the door! All of us were already working very ‹agile›, so being very structured and using our common sense really was always part of the deal. People don't like change. Now there are too many silos and this is not going to change. Too many silos, even when we talk about agile methods or tools. It's not about getting a certificate in Scrum or visiting a course and calling it «agile«. When the mindset is not agile, you are not agile. Period. And just reading our Manifesto – sorry, that is not enough. It always depends on what people make out of it. Agile doesn't mean that I do whatever I like. It means that I do whatever the team needs!

MF: Which practical tips or recommendations have you got for companies and organizations that are interested in becoming «agile«?

AvB: There is no shortcut! I mean here that there is no easy and fast way on how I help them to get from A to B! People don't like change, but people share habits and want to stay in their comfort zones. So we need to make sure ‹agile› becomes our new comfort zone. This is necessary when collaboration should work out. Very often the management or leadership team assigns me to «make the company agile«, but most of the time they are really against this and show resistance. «No, we cannot accept this…« or «Nope, ain't working for us«, I often hear then. When you want transformation, then you need to be able to go fast. And agile helps. What I see out there often goes something like this: A little bit of Scrum here, a bit of Lean there, whatever… When we talk about a transformation towards agile, then you need to know who you are in the first place and

where you want to go. I also need to know where you are NOW. It is necessary to define a transformation roadmap. When you're telling me: «I want to be an athlete«, then I need to know what kind of athlete you want to be and how fit you are at the moment or whether there are any previous sports injuries. If you want to be a runner, you need a certain fitness level, equipment, health status etc. Agile means that you are able to move, act and react. Transformation means that teams move forward together!

MF: Which is your favorite agile tool and why?

AvB: «A fool with a tool is still a fool…«. Agile is a transformation and requires a mindset first. Only then it makes sense to think about tools or methods. My tools are: 1.) Collaboration, 2.) Choose exactly the tool you need for delivery of your product. That's the most important thing. It is about deliverables and viable products! And 3.) Different forms of agile. I love using testing platforms and TDD (test driven development), because I work a lot in IT projects where it is all about software development. I also use JIRA – but JIRA alone doesn't make you agile… It always depends on your mindset and how you use your tools. I always explain that with my ‹agile umbrella›. For big groups that want to increase their efficiency, I like using LeSS (Large Scale Scrum) and SAFe (Scaled Agile Framework), as much as Lean or Kanban. When we are talking about efficiency and value increase of teams, there is also XP (Extreme Programming), or Chrystal (developed by Alistair Cockburn of IBM; it's an agile framework which puts people into the focus instead of processes) or FDD (feature driven development). I work on agile transformation by helping the agile coaches. And I love that! I love challenge! When the mindset of the team is okay, than it's great! In this way we find the exact tools we need to bring the team forward. There is no «one size fits all« solution… Everything is agile!

René Windus

MF: According to your expertise – what process models for projects apply mostly? Classical, agile or hybrid?

RW: Hopefully this ‹dogmatic war› with respect to ‹everything must be plan-driven› and ‹everything must be agile› stops now. In practice the best way is the hybrid way. For me this means, we start out plan-driven, then add a bit of flexibility by using Kanban, Scrum or whatever agile process model works best for us to keep us maneuverable and adaptable. And in the end we use a very structured approach again for closeout. However, it all depends on the agile mindset! When I have this, then I can work perfectly in a plan-driven way. I find that people with a fixed mindset who only know ‹classical› project management will never cope with ‹agile›.

Stefanie Gries

MF: According to your expertise what process models for projects apply mostly? Classical, agile or hybrid?

SG: I think that projects come in all shapes and sizes. They are all very individual and nowadays often controlled by mixed methodologies. Pure agile PM needs to be learnt by an organization beforehand, but for a classical-only control our world has really gotten too fast, actually. This is why individual methods are created and evolve, but I think this is absolutely okay.

MF: What makes a project manager/Scrum master/product owner good? What are, according to you, important leadership (or facilitation) skills?

SG: Not the topic, but the people should be the center of attention!

Olaf Piper

MF: According to your expertise what process models for projects apply mostly? Classical, agile or hybrid?

OP: To call earlier project management ‹classical› is exaggerating, I think, because most of the time the project managers did not know what they were doing and they lacked know-how and qualifications. We have been really quite naïve up until about ten years ago. The agile approach at FESTO is overrated, I believe. But I am saying this from a position of someone who invested a lot of time and effort into my IPMA Level B qualification, as someone who is a traditional project manager, so to speak. In my opinion, an agile approach also needs the toolbox of traditional project management. The new here is, that we don’t overly stick to the defined goals, but exchange thoughts more often and are more open or willing to adapt the goals. This and working with intermediate sprints for me is what modern project management is all about. At least this is how I try to act. So yes, we could say that this is indeed somewhat of a hybrid approach.

8 Soft Skills in Project Management

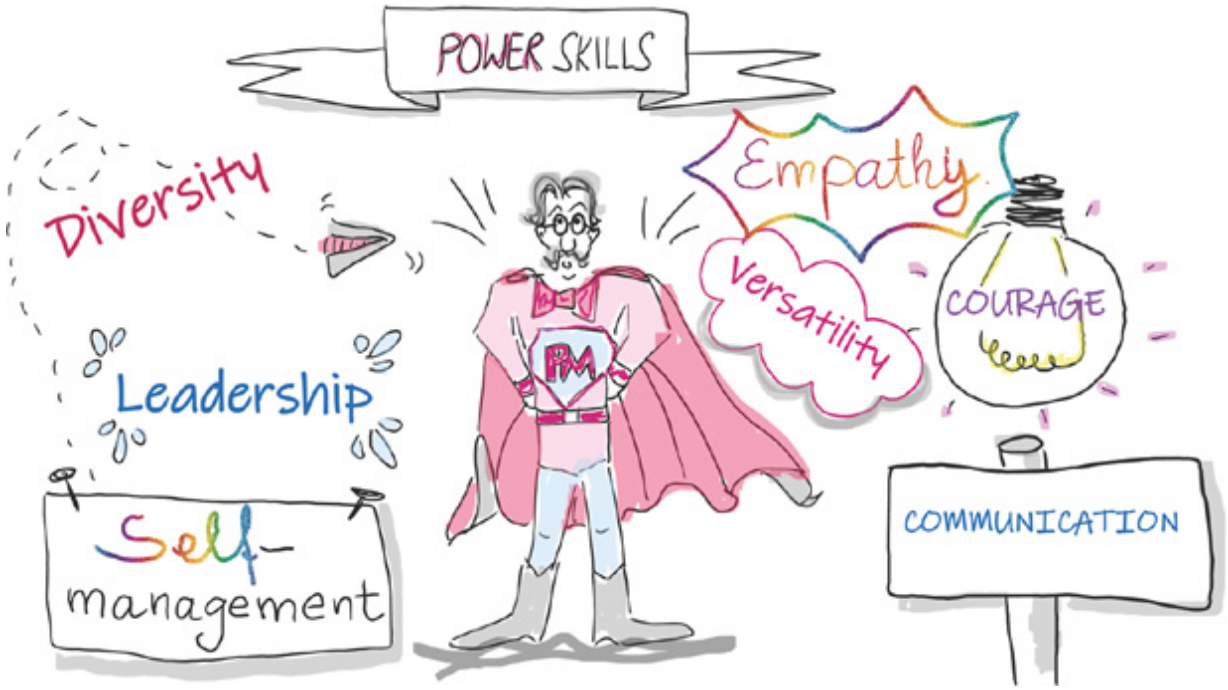

Illustration 21: Overview Power Skills

8.1 Fundamentals

When talking about project management, most companies focus solely on the various project management methods. It is all about tools, operative business, fields of competency, facts and figures. However, what is often disregarded and underestimated are the so-called soft skills, the typical

people skills such as communication and motivation or culture and values. These skills are core competencies when working with people. They are power skills, not only soft skills. Projects are made by people for people, so the interpersonal interactions, the reading between the lines and applying all sorts of emotional aspects should – no, must! – definitely be taken into consideration when dealing with project management. We need to tackle the different aspects of leadership, teamwork, talk about the issue of agile mindset, about creativity and problem solving and we should learn how we manage to negotiate best with the people in our projects.

In our practical example, the genesis of our first mutual book project, it is all about understanding practical project management and having access to a guide for project work. Therefore we as authors want to make sure our readers gain all the necessary knowledge and skills for successfully setting the sails in their projects. Leading projects to success means facing all sorts of social competencies and being able to lead yourself as much as leading your project team, and it also means reaching your goals and ensuring the satisfaction of your most important stakeholders. The entire range of soft skills are put to the test, because without having a certain talent and feeling for working with people, leaders will fail. Same applies for project management, so let us take a closer look into which power skills play an important role here.

8.1.1 Leadership

It does not matter which project management methods you want to work with or which project management approach

you choose, leadership matters. The leading manager takes over different roles, depending on his personal beliefs, organizational forms, approach or competencies; he applies different leadership styles or techniques and chooses his favorite concept accordingly. For instance, there is the authoritarian leadership style, where the leader alone takes decisions and is in full command, always going over people's heads. (This leadership style, by the way, is actually not as negative as many people might think at the first glance, because e.g. police forces, fire fighters, military people or emergency surgeries in hospitals require quick and clear decisions and that someone is in charge and in control.). Another leadership style is called laissez-faire (deriving from French meaning «let them do it«). Here again, there are different perspectives. On the one hand, this style could represent an attitude of «I don't care«, on the other, it also means that the leader facilitates that the experts of the team have the possibility and to work freely without being interrupted. The leader trusts them completely knowing that in the end there will be a result which is necessary to lead the project to success. The cooperative leadership style means, that the leader asks the team for expertise and opinions, reckons on their comments and input so that they are involved in decision-making processes. Leadership concepts, however, are different «management by« techniques – for instance management by objectives, management by exception or management by delegation.

In agile projects we talk about the servant leader, represented for example by the Scrum master. He is not a project manager in a traditional sense, but rather someone who ensures that the team can work without being interrupted or hindered from someone in the outside world. The Scrum master has the backs of the developers and makes sure that everyone applies all Scrum rules during

every sprint. The role of the product owner represents the view of the customer and ensures that the customer is satisfied. The power skills of these roles are, so to speak, to facilitate working efficiently on the project by applying agile values and principles. Hook, line and sinker.

In traditional project management, too, the leading executive – the project manager – is the center of attention. That separates the wheat from the chaff and it is very important that the project manager uses a lot of empathy and sensitivity not only in working on the project but for working with the project people as well. Successful stakeholder management is the supreme discipline in project management. Healthy leadership is not about achieving the impossible, but, to paraphrase Dipl. Psych. Dr. Mathias Lohmer, about the triangle connecting self-management, task orientation of the team and strengthening team cohesion.

Depending on the project organization form, the leader has different authorities and responsibilities, meaning that in many cases we have a real project manager on board who is authorized and capable of taking decisions and who takes over full responsibility. In line organizations, however, the project manager should be rather called project coordinator, because here we do not have any authority or responsibility, but we need to speak of lateral leadership. During the course of the project we will find out quickly whether the person incorporating such a role masters the soft skills and is able to connect with all relevant stakeholders, enables communication on eye-level without imposing too much pressure and if all people involved can work together successfully.

When talking about leadership, we cannot avoid using terms such as power or interests. Power can be very formal

as well as informal and comes in all different shades. He who has the power can influence and even manipulate the behavior and scope of action of other stakeholders, even against their will. In our projects there are people with a certain amount of expertise, they are experts on their topics and use their knowledge to solve complex problems. So these people have power by means of knowledge. But having information advantage as well gives us power and authority to some extent. «I know something and you don't!« is based on the fact that someone has access to more or less relevant information and is able to use appropriate communication channels for his own purpose. Despite our love for the existence of knowledge and the use of applied communication – we should always be aware that with this type of knowledge there is only a fine line to the much-cited fake news, because we can by no means always judge a person correctly and we have no guarantees that the presumable knowledge really contains the truth.

Different people have a different access to leadership. Some people love to taking over responsibility… also over other people. They want to be in a leading position and maybe they even have the talent to become a leader. Others, however, prefer self-determination and liberty. Same applies for project work. Some people are team players with no problem receiving commands while others prefer to work alone and be the lonesome rider.

Project people want to be addressed and dealt with differently. Some expect clearcut orders and feel safe when the project manager and leading executive operates in an authoritarian fashion while others need to be involved in all processes at an early stage because they prefer cohesion and consensus. But not only the individual preferences of the stakeholders play an important role in deciding which

leadership style presumably is the best, it also matters in which project phase we are working on at the moment and how we need to interpret the overall project situation. The more hazardous the situation, the less «harmony all over, singing and dancing« we should apply. In situations of crisis it requires leaders who know what they are doing and who know how to be in command, giving clear instructions and moving ahead fearlessly. This only works when people trust their leading executives and when they think, their leaders are competent and capable.

Looking into one’s own mirror is important for every leader and can be very illuminating. Who am I and how would I like to be seen and perceived? What kind of people are in my team, in my projects and how can we manage the task of ‹leading and being led›? Here ‹Johari› might be helpful. In the 1960s the American socio-psychologists Joseph Luft and Harry Ingham developed the renowned scheme or window about self-assessment and external assessment and the question of how we manage to develop trust by either giving others information about ourselves or by receiving feedback from others on how we are perceived. Thus, we have the possibility learning something about ourselves and to make our ‹blind spots› a bit smaller.

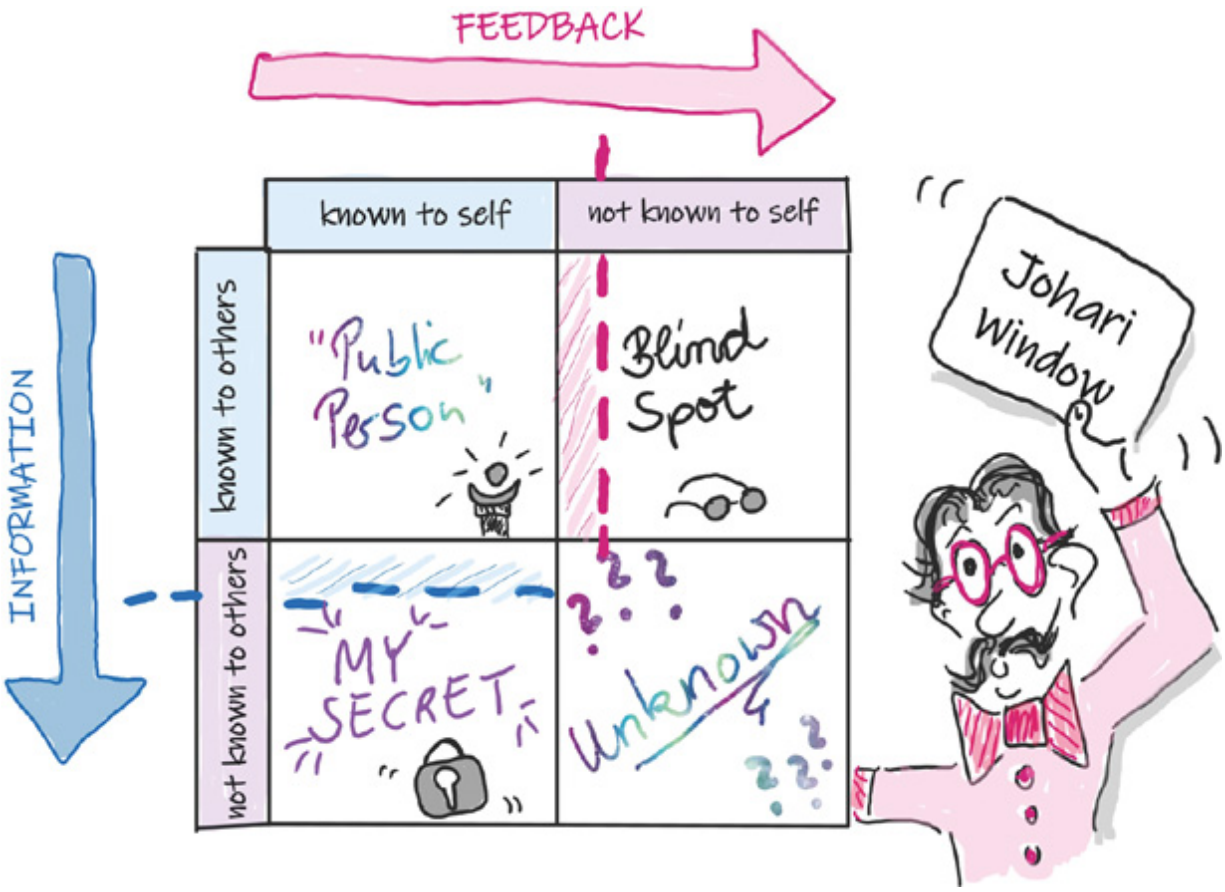

Illustration 22: Johari Window

8.1.2 Ethics

In many projects (and corporate entities) there are codes of ethics and guidelines on how project people should try to reach their projects' goals in a way that the fundamental values of human dignity are safeguarded. Ethics plays an important role during various project phases and requires clear intuition for approaching this tricky topic. Ethics, however, comes nationally as well as internationally in different shades, because it is very subjective and it depends on the different philosophies dealing with how a human being per se is acting. Due to the fact that our

projects are surrounded by topics relevant for society and because our projects strongly influence our various stakeholders, it is mandatory for us to shed light on what is going on in our projects so that we can align all our activities with utmost empathy to ethical core values. This also has a lot to do with interpersonal aspects, with personal integrity and reliability, with building trust and a fair collaboration with respect to our project work.

How can we formulate results or process objectives together with our stakeholders in a way that we consider ethical points of view and so that nothing we do in the course of our project does harm to others, but instead sustains life? Easier said than done. It is helpful if we apply CS here, our common sense! For which projects do we want to work? What is important for us from an ethical point of view? Probably respect and loyalty. Maybe active appreciation and sustainability. In a very pragmatic way we ponder on areas such as generosity, reputational gains or integrity relating to our deliverables. Are we fair towards our competitors or do we sell not only our souls but also our mothers-in-law if we are offered a good price? What about child labor? Do we want to work for projects in the field of say firearms industry? What about consulting projects where our job is to identify those so-called poor performers? From a moral point of view no problem, because child labor as well as working for projects in the weapons industry or consulting projects which result in firing a lot of people in the company are legal in most countries of the world and they also mostly fully meet compliance regulations. But projects are temporary and situational and therefore have a strong relation to ethical aspects. Enough reason for us to put the people that play an important role in our projects into the focus, because it is so much more than merely applying methods. To self-

reflect and to stand looking into our (own) mirror, especially relating to ethics, is a power skill that matters in our project work. Therefore it is important not only to gain an awareness of how the topic of ethics is interpreted and lived in the company or organisational context, but it is also very important what our very personal attitude to this topic is and that we deal intensively with ethical questions, find our own answers to this and position ourselves.

8.1.3 Culture, Values and Diversity

When talking about culture, values and diversity, it very often becomes quite vague and obscure, even though these buzzwords are very present in our modern world and are seen in both a business and social media context. The same applies to the world of our projects. There is reason enough to deal with those terms a little more at length, because here we manoeuver very close to people and therefore tackle the entire range of soft skills. Culture has to do with how we confront our environment, which values we (as a group) consider important and in which social systems we move about or which decisions we take within the course of our lifetime. Companies and projects as well have their very own and individual culture. Knowledge, experience and tradition influence the behavior of people in companies and organizations. In projects, the environment or audience plays a crucial role, namely the objective and social factors influencing our project as much as the project people. The project culture manifests in the way we work together on our project, how we choose our team and our roles and how we communicate with each other. But also, the rooms we use for our project work play an important role for our

project culture and shows how many creative possibilities we have in our daily work. There is also such thing as a project management culture, but this refers to organizational and political framework conditions in practical project work to ensure that we strictly follow project management methods. According to the US-American organizational psychologist Edgar Henry Schein, we differentiate three different levels of project culture. His **Model of Organizational Culture** can be explained as follows: There is a first, conscious level called artifacts where our communication and actions manifest as active aspects and where passive aspects are things such as clothing, status symbols, project rooms or power structures. In the second, partially conscious level everything is about values and standards and in the third level, the assumed values, it matters how we think and act, what influences us and which idea of man we have defined for ourselves. Here fundamental beliefs play an important role meaning the things that we take for granted the way we perceive our surroundings and how we respond to our environment. These basic beliefs are very strongly unconscious and influenced by our upbringing, by doctrines and by the way and where we grew up.

In companies, organizations and as well in projects we often use the term **cultural fit**. It has to do with the topic that people we want to get on board as employees need to fit into the relevant (and presumable) corporate, organizational or project culture. Here we really touch on the soft skill part very strongly, because when we talk about employees' attitudes it is about much more than just mere ‹hard skills› such as certificates, qualifications or careers. Instead, it is all about how the interpersonal relationships are and whether or not people really click.

Another important cultural aspect in projects is the fact that projects become more and more international. «Other countries, other customs, other cultures«. We do not even have to go very far to see other cultures and mentalities because even in a small country like Germany there are sometimes huge cultural gaps between people coming from the North, the East, the South or the West and to reconcile them all into our projects is not easy at all. If nationally all this is perceived as a major challenge and if it proves to be difficult to motivate different cultures to work together successfully then we can very well imagine how it is much, much more demanding to work in projects with people from all around the globe, adding their very individual cultures and points of view. Working in international projects is incredibly inspiring, educational, demanding and absolutely worthwhile. It requires the right feel for people and a lot of empathy, it requires a lot of love for intercultural cooperation and a feel for diverse situations.

Values, that are deep-rooted beliefs build the basis for the activities of members of a community. It is about ideals and needs, about differentiating between good and bad and it is about the major question of what we want to achieve for ourselves and for others in our life and how we are planning to behave. Every one of us has values such as abundancy, easiness, relationships, family, faith, romance, sport, independency etc. But corporate entities and organizations deal with the issue of values and define not only their vision and mission, but also their corporate values and mission statement. This vision describes a future reality and clarifies where the corporate journey goes to, so that the employees of a company or organization understand. The mission describes the process itself and aims at the customers so that they know precisely which steps the company or organization undertakes. The mission

statement combines vision and mission and adds the values the company has defined. Unfortunately, such mission statements very often are quite double-standard and half-heartedly presented in golden letters on the walls of stylish entrance halls of corporate headquarters and nobody really takes all of this seriously. In projects we often work with so-called value compasses (or at least people pretend to work with such compasses). Often, we start some sort of quest for the famous ‹purpose› in our projects. It is the question in respect of the benefit for society and «Why do we want to do this?«.

When talking about values, it is necessary to talk about empathy and appreciation. Here again, we really are in the midst of soft skills, because in order to be empathic as a project person, one needs more than just instinct. We need active appreciation and caring. When people (employees) feel appreciated, they feel better, they identify much better with the company and they also perform much better. When we approach the stakeholders in our projects neutrally, we relate much better, cooperation is more successful and we remain fair and non-biased. Mindfulness and gratitude are important aspects here and help transform us into true super heroes in relation to soft skills.

Everyone talks about diversity. This term incorporates the idea of variety, divergence, that individual people of one society interact regardless of their age, gender, religion, ideology, race, ethical origin, sexual orientation or health and disability. Project people need diversity, because every project per se is unique, individual, complex and totally new. Therefore, not every human being fits automatically into every project. It depends on combining these different views, cultures, experiences etc. in a way that the individuals complement each other, enabling cohesion and

leading our projects to success. The better the personality of the project manager fits to the personality of the relevant stakeholders, the better all of them cooperate and the better everyone can connect in project work. The more diverse and heterogeneous a project team is, the better we can reach our project objectives, because diversity brings forth different points of view, different experiences and talents, all of which we can use to make our project successful. All those different perspectives create an enormous dynamic full of creativity and new impulses. When the project team manages to really express and manifest their diversity, negativity has no chance and collaboration wins. Of course, all of this requires that everyone involved is competent in all those people skills and can jump in at the deep end, meeting the challenge to be tolerant and open and to use the full range of power skills. The more leaders as much as project workers embrace diversity as something truly positive, the more successful their projects.

8.1.4 Agile Mindset

The (project) world spins faster and faster, a lot of things change dramatically and project creators need to remain or become flexible. There is this golden rule which says «no transformation without an agile mindset« which not only applies for people conducting their projects by means of agile methods. Having an agile mindset nowadays is a real power skill, for project people as much as for leaders and employees in companies and organizations. It depends on our inner attitude, on our self-image. An agile mindset is based on values such as transparency, appreciation,

flexibility or trust and enables us to develop a so-called growth mindset where we focus on possibilities instead of being limited by fears or boundaries. An agile mindset changes our attitude towards success and failure and this power skill enables us to add clarity to our actions, to make our intentions transparent and to facilitate a healthy relationship between attitude and experience.

When our minds are flexible enough, we can focus on the chances we are being offered and we can use our intelligence to create spaces for decisions and choices. We put people above processes and we do what we need to do. This is imperative in project work! When everything around us is new, complex and interdisciplinary, when we have to deal with people and when we are forced to think outside boxes, an agile mindset is extremely helpful. It literally blows wind in our sails and encourages us to look for solutions, to leave well-trodden paths, to become brave and to develop our own (project) culture. Vision and mission become alive by means of an agile mindset and are finally no hollow words any longer. Mistakes are seen as chances to learn and to improve and we finally stop expecting perfection from the start. This power skill enables us to deal with people and with ourselves in exactly the way we need to. With a great deal of empathy, foresight and trust instead of command and control or imposed authority.

8.1.5 Teamwork

Projects are made by people and for people, so working in a team is an essential part of project work. A project team’s capacity to function and collaborate successfully depends on various factors such as, for instance, how well the team

members interact socially. Again here we are at what is presumed to be soft factors which prove to be a lot more demanding in practical project work and which are often totally underrated, because a project team operates in an interdisciplinary way and consists of a wild mix of different people from different nations with different qualifications, experiences, needs etc. Every team, according to Bruce Wayne Tuckman's experience, goes through different team phases. During the 60s and 70s the US-American psychiatrist and scientist dealt intensively with team building processes and to this very day his findings explain in a very clear and vivid way a lot about teamwork during various phases of a project. Even when the model of the so-called team development stages according to Tuckman do have their weaknesses, it still is very helpful when we want to understand how teams generally work and why teamwork confronts us with one or two problems along the way.

During the first stage, called forming, according to Tuckman, the team meets for the first time and people get to know each other and learn about the project. Information is gathered, rough rules are established and people are assigned their roles. If the project team people do not already know each other from previous projects during the forming stage they get a first glimpse of who they are. It is comparable to a party where not all guests know one another so they first interact with reluctant small talk. The project manager is the host who introduces the guests and who gives first instructions; where the drinks are, where the buffet is, where the place the smokers can go to is and where the bathrooms are. Every guest, in our case every project team member, puts on his or her happy face and is on his or her very best behavior.

During the second stage, called storming, the first masks are dropped and the going may get rough. We see first conflicts or smaller or medium-sized fights because not everyone on the team is happy with his or her assigned role, because sometimes the chemistry between people is just not right and, of course, because working in a project also means pressure and tasks that need to be fulfilled. Here it becomes very obvious which project manager really has the right feel for soft skills and manages to function as ‹catalyst› by defusing conflicts and becoming a mediator. Sometimes this stage also requires more drastic measures on behalf of the project manager such as assigning roles to other people, exchanging members of the project team and doing some straight talking.

When the storming is over the team then enters the next stage, called norming. Processes are being defined, rules are passed by all parties and there is clarity on who is responsible for what and how – and finally the focus is back on target attainment and thus back on project work. Here the project manager needs to be a partner or moderator helping the team to find the structure necessary to lead the project towards success.

According to Tuckman the fourth stage is called performing. If the team manages to get here, everyone can rejoice because the team really works as a true team. They generate results and they truly perform well. Everyone knows what to do and the team is both efficient and highly effective. Finally the project manager can take care of other things and focus on management tasks. The project manager always has the team’s back and he can also be sure the team does its work (he also knows that he does not need to control them!). In an ideal case the performing stage is the longest phase during the entire team process.

The fifth and last team development stage is called adjourning. Our project approaches the closeout where all results need to be handed over to the customer. It is time to say goodbye. Very often some team members have already left and are off looking for new horizons with the consequence that the remaining team members need to take care of all remaining tasks. At this point we need to take care of a lot of different things, completing our project documentation, carrying out possible post calculations, the formal external and internal project completion plus the elaboration of our final project report. Of course it is also necessary that the team engages in the lessons learned. The project manager at that stage needs a very special feel for the situation paired with a good deal of empathy, because here all forms of soft skills are needed to take care of the individual needs of the team members. Thus, the project manager now acts as a coach, literally lending a shoulder to cry on, is ready for various talks and carefully listens to peoples' sorrows or thoughts. The end of a project very often means major uncertainty or fear of the future, because many team members have no clue yet as to what will come next, whether or not they can still have another assignment or what will happen to their company or organization. During this stage the team performance is usually weaker. It is even more important at this point for the project manager to master the power skills and to act as a good coach, motivating and empowering each team member individually.

Tuckman's team development model can be adapted to all areas of life. Let us assume, you are currently looking for a new partner, then I am sure you will want to be ‹dressed for success› for your first date. You will be on your best behavior and want to avoid showing your weak spots (Forming). Then, when the two of you are a couple living

together, first conflicts will arise due to little things such as the toothpaste tube left open or the toilet lid not put down (Storming). At some point every partner says what he or she considers important and the couple agrees upon the rules and regulations of a successful, happy cohabitation (Norming). When you have known each other for a long time you start understanding and trusting each other fully, everyone knows the strengths and weaknesses of the partner and both complement each other in the most wonderful way (Performing). Hopefully you'll never get into adjourning, but statistics have it that unfortunately about 38 % of all couples in Germany are bound to fail and separate. But back into the performing stage in which you live happily ever after. When at this point something changes regarding the team setup, because, for example, you're having a baby (or one of your kids that has already moved out moves back into the famous ‹Hotel Mama›, as we like to call it in Germany), of course you fall all the way back to the forming stage and the game described by Tuckman starts all over again! The reason for that is that every new team member interacts and participates vividly (crying baby, active toddler) or the new team member claims his or her rights (remember what we just said about ‹Hotel Mama›?).

This phenomenon of the deck of cards that is reshuffled completely initiating the next stage of Tuckman's team development model does not only tackle our private life, but of course, it also happens while we are working in our projects. Therefore, please choose wisely the time when you integrate new team members into an existing project team. When your project is literally on fire, then newbies are not an advantage, but might cause additional impediments adding fuel to the fire. Remember the famous quote: «Never change a winning team!«

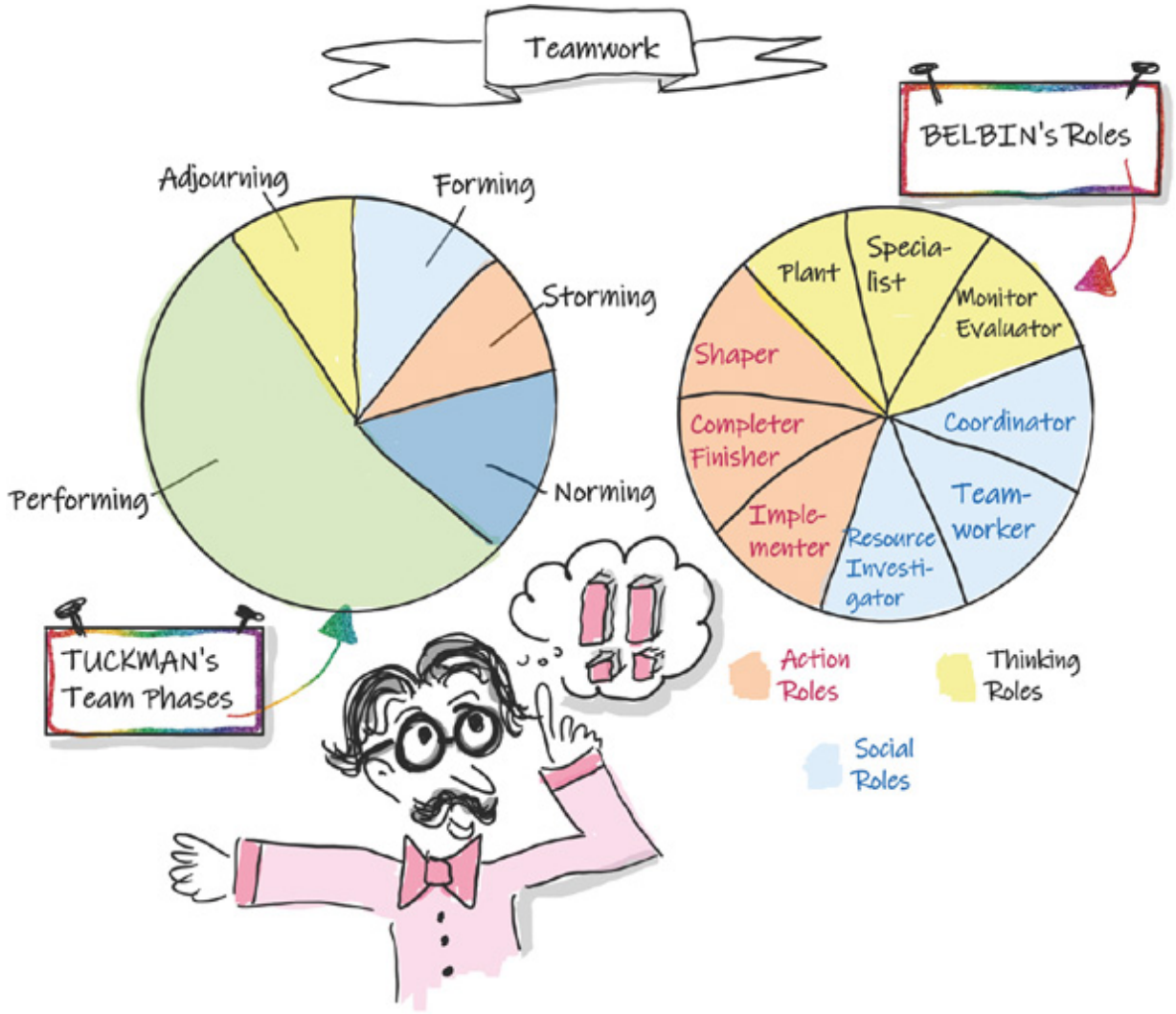

Illustration 23: Teamwork

Teamwork in projects has to do with formal as well as with informal roles. The formal roles include the advertised position for which people get on board, for example the role of project manager, project assistant, project controller, project engineer or project lawyer, just to name a few. The informal roles are a little more difficult to detect, because here the personality of the team member plays an important part and there are no clear-cut predefined roles at all. The nine team roles studied and elaborated by British psychiatrist Professor Meredith Belbin back in the 1970s at

Henley Management College is quite an interesting approach. Of course, they are not carved in stone, but they summarize in an impressive way which team (stereo)types we can find in groups of people acting as a team. According to Belbin the success of a team actually does not depend on how smart or intelligent an individual is, but rather on the fact that in the end different people with different strengths and weaknesses get involved and interact, working as a team making the team (and the project) successful.

The category called action roles according to Meredith Belbin include the implementer, the completer finisher and the shaper. All three roles representing strong personalities known for pragmatism, dynamics and diligence, but also perceived sometimes as provoking, difficult or inflexible.

According to Belbin there are three social roles, namely the coordinator, the team worker and the resource investigator. Each role representing personalities known for enthusiasm, cooperation and optimism and for people who are true networkers but yet who sometimes lose interest quickly or who have difficulties taking decisions because they rather go for harmony.

The third category is all about thinking roles including the plant, the specialist and the monitor evaluator. Belbin states that these roles represent people who love new ideas, who go for details having quite a lot of expert knowledge. However, people belonging to this category are often perceived as troublemakers, cranks or nerds.

Of course, in practical project work people are always a mix of different categories and have roles and never belong to one single category alone. It is amazing how much truth there apparently is in Belbin’s theory. When you do the **Belbin Test** with your team (not taking it too seriously, that is), then you realize that indeed, there is sometimes

more than just one grain of truth to be found and people might identify with one or two of Belbin's roles. When you want to have the right combination of people in your team it is helpful to have one representative per category (action roles/social roles/thinking roles) on board to add different perspectives and personalities. You do not need to cast all nine roles for your project team, but having to do in our team with critical monitor evaluators only or when every team member is a high-flying shaper, then we would be in big trouble. Due to the fact that every person, by nature, has a tendency to take over two to three of Belbin's roles, we can be sure that our project team consists of a solid mix of different people with different strengths (and weaknesses, too).

In general, it is helpful for our group dynamics to carry out a team diagnos for our project team. Here again it becomes obvious which project manager has the right feel and the right amount of empathy to convince on a social level. It is helpful for any team to confront its strengths and weaknesses to become aware of possible potentials and impediments. Different potential assessment models analyzing your personality might create one or two aha-experiences. The better the project team gets to know each other, the more successfully they will collaborate. That is stakeholder management at its best and it is definitely worthwhile to tackle the entire range of power skills.

Virtual teams should really ponder on how they manage to collaborate successfully online. It depends to a great deal on a healthy mix of serious project work, on the one hand, and leaving room for fun activities and private exchange on the other to make sure that the team members that only know each other virtually still manage to become part of a true team based on trust and successful cooperation. It is

helpful for every project team when the team members meet in situ at least at the beginning of the project and to be able to ‹breathe the same air›, so to speak. This really enhances the team spirit and facilitates all project work that later happens by means of video conferences and across miles and continents. Agree upon rules with the right feel for situations on how you want to work together as a team online and make sure nobody is disadvantaged because of different language proficiencies or time zones. For example, the team could decide that a project meeting time varies, so that it is sometimes scheduled according to Central European Time (CET), sometimes according to Eastern Time (ET) and yet another time the meeting is scheduled according to Atlantic Standard Time (AST), so that everyone has the chance of a ‹home advantage›.

8.1.6 Communication

A true soft skill ‹classical› is communication, of course. Even though Austrian philosopher, psychotherapist and communication scientist Paul Watzlawik knew that we cannot *not* communicate, in practical work communication is not an easy task, because communication always depends on what is received. It can happen that the sender’s intention might have been different. This is what makes life difficult for project people in communicating with one another: We all use four different ‹mouths›, so to speak, to communicate and we listen with four ears, on four levels of communication. Communication always addresses different levels: factual information, appeal, relationship and self-revelation. The factual information is exactly this: talking about facts and figures I want to inform about in my

message. At the relationship level our communication shows how the sender and receiver of a message interrelate. The appeal level clarifies what the sender wants the receiver to do while the level of self-revelation sheds light on what the sender reveals about himself or how the receiver feels. German communication psychologist Friedemann Schulz von Thun elaborated his legendary **communication square** stating that every message has four sides, meaning that when you communicate as a human being you are perceived and effective in four different ways and everything you communicate contains four messages at the same time.

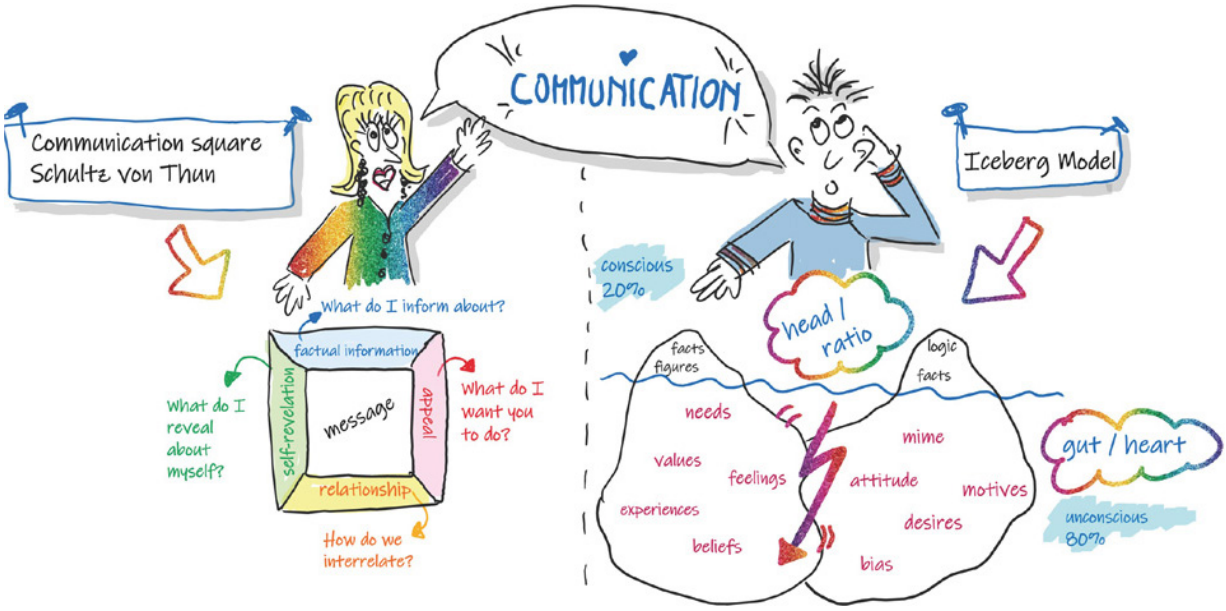

Illustration 24: Communication Models

The **iceberg model** explains why communication between people in general in project people in particular often proves to be difficult. The model is based on the general personality theory by Sigmund Freud which business economists love to use for clarifying the **pareto principle** (stating that roughly 80 % of all tasks can be fulfilled with

approximately 20 % effort), but the iceberg model is quite a vivid communication model. «Could it be, that everyone of us is some sort of iceberg?« we could ask and of course, the answer is yes. We humans often only show the literal tip of the iceberg while the much bigger part is invisible underneath the ocean's surface. Very often we think that communication is all about facts and figures and that the level of consciousness and logic plays a primary role. Not at all! It all depends on the level of unconsciousness, on all those things we are not even aware of such as the wild mix of feelings, upbringing, belief, desires, movements and facial expression etc. It very often is much more important *how* we are saying something rather than *what* we are saying. Considering all things it is no surprise whatsoever when human icebergs literally crash against each other underneath the surface and we experience conflicts we have not seen coming because above the surface we had the impression we were safe and still far away from trouble. Only when we focus on the unconscious and include the relationship level, do we know how the other one thinks, where we know about his needs and expectations and where he is coming from, then communication becomes easier and we start understanding one another. To make all of this work, project people need a big toolbox filled with all sorts of soft skill tools! In practice it is advisable to develop a solid feedback culture within the project team to make communication work. This includes that the receiver gives feedback to the sender on a regular basis, that we play by the rules and that exchanging information becomes an appreciated habit within our team. Good feedback should always be seen as a gift and comes to life by appreciation, constructiveness and respect. The person providing feedback needs to make sure that it is not given without being asked for. If feedback is asked for, however, then we

need to make sure that we only talk about the things that the other person can influence. I can only talk about what I perceive and what I think. I can never talk for someone else. Genuine feedback always includes criticism, at least when being constructive, fair and appreciative on the factual level. The person receiving the feedback needs to decide whether he is really open to that feedback. When the answer is ‹yes›, it means, just listen to the feedback the other one gives you without commenting or explaining. Just listen. This is not always an easy task! In Germany feedback culture is not all that common in many areas and therefore a lot of people do not have enough experience with this type of communication method at all. Feedback is all about the subjective opinion of someone else. Whether we want to accept the feedback or whether we are willing to reflect upon it is always decided by the person receiving that feedback.

In projects we experience synchronous as well as asynchronous communication. This means we communicate simultaneously in real-time during mutual meetings, video conferences or personal conversations over a cup of coffee, engaging in so-called (informal) **underground communication**. But a lot of communication is also time-delayed, like, for instance, answering our e-mails, elaborating reports or completing our documentation. Here we decide what time suits us best when we want to communicate. Synchronous and asynchronous communication both have advantages and disadvantages at the same time, of course. Being able to communicate in real-time means being able to react quickly and directly without useless delays. This can also create a disadvantage or danger because we react without prior reflection, and sometimes we react very emotionally even though thinking about things first would have been the wiser decision in a

situation of conflict. Asynchronous communication means exactly this. We wait before replying to an e-mail and reflect before we communicate. However, sometimes this means that we are only checking our e-mails twice a day or postponing an important phone call for a few days and we miss important opportunities in order to make a definite decision. Asynchronous communication can also lead to severe misunderstandings because we are mostly communicating facts and figures without taking the relationship level into consideration. Remember, we are talking about approximately 80 % of communication here, so we really need to read between the lines in order to understand and often we are not on safe turf.

Communication in the virtual space in chat rooms, social media or during video conferences requires a lot of tact and communication skills of all participants. Here we need to build up trust and relationships and we need to avoid communicating facts and figures only. It is helpful to set up communication rules for virtual teams to avoid misunderstandings and make it easier to communicate with each other in the right way. We could define objectives and content for our chat rooms or reach an agreement to not post anonymously, for instance. Or the entire project team could commit to always use their video cameras in video calls, that they upload profile pictures and commit to actively participate. We need to become aware that in the virtual space we have to focus a lot more on our voice and intonation since we lack important ‹pieces of the communication puzzle› such as gestures and we should think beforehand about how we want to get our messages across in the best way.

8.1.7 Conflicts and Crisis

Conflicts arise at different times during our projects and when we do not confront these conflicts, they might become a true crisis. We need our full range of soft skills to do the right thing and to show our power skill proficiency. How could conflicts arise in projects? Well, on an interpersonal level there are many reasons for conflicts. Starting with the ‹chemistry› between people or different opinions on objectives, processes or expectations. Depending on the project phase we are in we might also add factors such as tight budgets, narrow timelines etc. and the conflict appears faster than we think. The problem with conflicts is, that very often we only recognize the symptoms or the effects. For example, when the atmosphere in the team becomes difficult, when more people call in sick or when the performance decreases, this usually is an indicator for ‹smoldering› conflicts. Objective relations also provoke latent conflicts and should therefore be dealt with. But how? We have several possibilities ranging from flight to adaption, finding compromises, using power or destruction of the opponents or delegation towards a third party by means of a mediator or arbitration. No matter which variant we chose it is important that we never ignore the conflict but rather confront each other with it deliberately. A conflict is nothing bad per se, but it shows us that we are in a situation where we need to act upon something. Conflicts always imply chance and when we as a project team are able to solve conflicts, then this strengthens our team spirit and makes us more resistant and stronger. It requires strong communication skills, empathy and the skill to be able to really listen to what others are saying to be able to meet each other in an unbiased way at an eye to eye level. Of course, it is desirable when project people manage to

prevent most conflicts by reducing conflict potential and by applying conflict solving strategies ahead of time. The more we can walk in the other peoples' shoes and manage a change of perspectives, the better we can understand the other one and what needs or desires, fears and doubts play an important role. As soon as we realize that there is no such thing as the ‹right perspective› – preferably our own! – and that it does not automatically mean that the other person's point of view is ‹wrong› but rather ‹different›, then we manage a lot easier to find a cooperative approach in solving conflicts.

Especially when facing major changes in our projects or when we are confronted with management of change, conflicts usually are not very far. Change processes usually appear on three levels; on the strategy level, on the level of processes and structures and on the behavior level where it is all about people and cultures. And these levels sometimes collide leading to all sorts of conflicts that need to be tackled actively and constructively. No change process happens without resistance – that is a fact. But resistance has a message behind it and we need to decipher it with a lot of empathy, open ears and open hearts, for that matter. Humans always fight with different conflicts on intrapersonal levels where we are our own worst enemies as well as on interpersonal levels because we have a specific problem with a person which makes cooperation rather difficult. When conflicts then expand to an intercultural level, very often we cannot do without getting (external) help. Even the best and most empathic project manager mastering the entire range of soft skills does not need to be able to solve all conflicts alone! Especially when dealing with change processes it is wise to get professionals on board who can support us with the implementation of changes in our company or organization. It is all about

finding the right communication channels, motivating the relevant stakeholders and reaching mutual understanding on where there is potential for conflict and how we could possibly confront it. Our task as a project team should be to develop an adequate mindset to be able to prepare ourselves for change and to set sails for necessary transformation processes. Kurt Lewin formulated his model of change and raises the issue of changes regarding organizations and societies. The first stage is called unfreezing where we are getting ready to change and we question existing processes and activities. We deliberately destabilize our status quo and all participants are prepared for the change process to create some sort of willingness for new approaches. In the second stage, called changing or transition, we try out new processes and approaches. We pave the way for new solutions and behaviors and prepare for our inner journey towards transition. In the third stage, called refreezing, we implement all new behaviors and processes. The new equilibrium requires new strategies and behaviors that need to be accepted and become our new routine in our company or organization and respectively in society. What do we need for all this? A lot of courage, trust and a bit of a ‹Pippi-Longstocking mentality›: «I have never done this before. It will certainly be great!«

8.1.8 Courage and Motivation

We are constant pioneers in our projects, always off to find new land and thus we are once again confronted with excitement, drama, lots of questions, new topics and a multitude of different situations that we are not familiar with. In our often-quoted **VUCA world**, an acronym for the

terms volatility, uncertainty, complexity and ambiguity, we are confronted with **disruption** (meaning to tear down walls to create a new room), we act as (project) knights in shining armor and ride straight into battle for our customers and stakeholders. Project management is not made for the faint-hearted and we need a lot more than a quantum of courage to navigate our PM boat across the seven seas during storms into the safe harbor. So courage is an important power skill unfortunately underrated by experts. It requires a lot of courage and broad shoulders to encourage transparency in our projects and to tackle all those things necessary for project work. Australian project management expert Rob Thomsett came up with the catchy English term of the so-called ‹watermelon projects›. The analogy with a watermelon which is green on the outside but very red inside (or at least yellow, depending on the type of watermelon) says that project people do not like to admit when something is not going well in their projects. It sounds a lot more positive when the status report is on ‹green› and a lot of people lack the courage to openly talk about a red status and that they need help. It so important for projects to cultivate a healthy realism and to continue talking about important topics until they are seriously dealt with. Transparency in conflict situations, talking openly about projects in trouble (especially our own!) scares many people who are responsible for projects. Project people, however, are the sort of ‹superheroes› that should not have a problem with calling a spade a spade, to openly talk about problems arising and to boldly go where no man has gone before. We should be brave enough to stand up for our projects and particularly for the people in our projects, brave enough to fight for resources, clear decisions and we should have enough courage to bring our project ships to shore.

While courage and innovation are something taken for granted especially by young project managers at the beginning of their careers where they approach new projects with a lot of idealism and bravely confront things that need to be talked about, their will to be brave decreases over time, unfortunately. It is hard to talk about uncomfortable issues of project work and to ‹put a finger on the wound› (as we like to say in Germany), to keep consistently on track and to never stop confronting decision makers with possible impediments until they react and we can solve the problem. It also requires brave project people to bring forward these projects our world desperately needs, such as projects dealing with renewable energies, projects in the area of water or projects dealing with AI, artificial intelligence, just to name a few.

Courage, which for a good reason is one of the five Scrum values, means to take over responsibility and to do the right things to meet the challenges of the project. It also means to be brave enough to admit when we do not know something, when we need help or when we do not agree with a decision that has been made. The person who wants to push innovation forward needs to confront the power skill courage to be able to leave old paths and to quit doing the same things over and over again.

There is a very logical connection to yet another important soft skill, motivation. Project work requires that all project participants commit themselves to move towards an identical goal to lead the project to success. This goal-oriented influence can only be managed by motivation. The term comes from Latin and means to make something happen. Much has been written about this topic and, there are a lot of studies and articles. No other topic is as up-to-date as in time of pandemics, working at home or new

work. Everything we do should make sense and our project work should be based on true appreciation, on healthy ethics and reliability. This motivates us as much as our team and generates a sense of achievement.

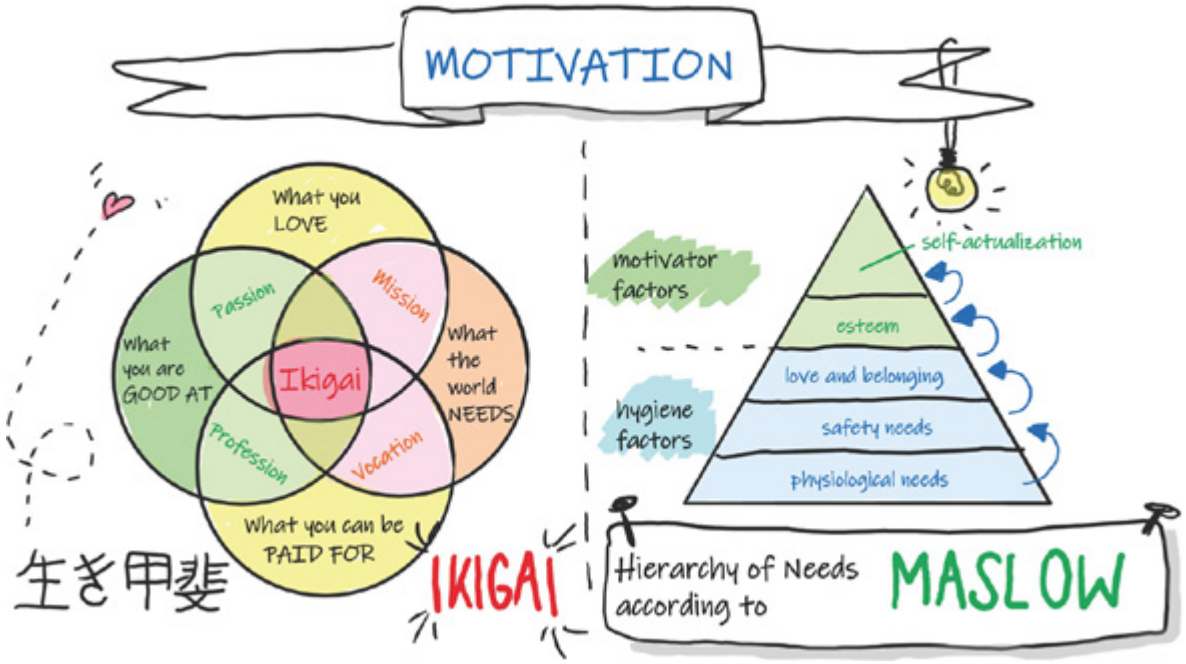

Illustration 25: Motivation

US-American psychologist Abraham Maslow clarified everything with his **hierarchy of needs** (most people know the typical pyramid graph): People have needs and experience motivation as much as demotivation. Maslow never really visualized his hierarchy of needs by means of a pyramid, but the graph with the five different levels or hierarchies are well known by most people. When we apply Maslow's hierarchy of needs to our projects, we can find a multitude of possibilities and measures to prevent demotivation of our team members and, in an optimum case, contribute in motivation. Let us take a look at the lowest level – according to Maslow, physiological needs such as food, beverages or sleep. Transferred to our projects we

could, for example, make sure our team has access to yummy, healthy, organic, sustainable food, that beverages are supplied by the company for free and that project managers make sure that people take their regular breaks for their work-life balance.

Maslow's next level is all about safety needs such as physical and mental safety, basic income or having a place to sleep at night. In our projects we could encourage unlimited working contracts or ensure that people are transferred into follow-up projects. Or it could mean that we stand for fair payment or that companies offer and pay for additional insurances for their employees etc.

On the level of love and belonging, according to Maslow, project creators could think about cool training courses or engaging events or we could decide that family members are also allowed to have lunch in the corporate canteen, that the company offers babysitter services to relieve parents etc.

The level called esteem is all about trust, appreciation, freedom and independency – much of that we can transfer 1:1 to our project work by taking care of our teams, implementing good feedback culture and to unfold the hidden potential of our employees.

The top level of Maslow's hierarchy of needs is about self-actualization, very often in combination with spirituality or transcendence even, which is not easily transferred into our projects. We could, for instance, think about making sabbaticals possible for our employees or to encourage them to speak on an expert conference about their field of expertise or to publish a specialized book. According to Maslow the next level of the hierarchy of needs is only reached when the needs are almost fulfilled on the level we are currently at. When the needs of our present level are

not yet fulfilled, we are not interested at all in any other needs or levels. Assume you are dying of thirst and finally you approach a waterhole, however, a lion is already there. Would you try to reach the waterhole anyway? Of course, you would, because drinking water for you is essential to survive at that very moment. So your safety needs are playing a minor role now because the physiological need for water is not fulfilled yet. If a fairy godmother came by now conjuring up a nice box of beer, it would indeed matter that there is a lion at the waterhole. Let us assume you and a friend are followed and hunted by a lion in the desert. Would the two of you feel like having a nice chit-chat and easy stroll in the desert? Of course, you would not, because your safety needs are prioritized in this situation and you would really take to your heels and run to escape the lion. Only when the danger is gone and you have fulfilled your need for safety are you open for additional needs such as the social needs of love and belonging. How fast do you have to run, by the way, to escape the lion? Just a bit faster than the slowest in your group (as the wide-spread and rather cynical German joke has it) because lions follow Maslow's hierarchy of needs as well. As soon as the need for food is satisfied, the lion is not motivated any longer to follow you!

The Japanese culture has a very particular way of dealing with motivation. Finding our own self is often time-consuming and difficult, but helpful is to apply some sort of inner quest called **Ikigai**. *Iki* stands for the meaning of the word life and *gai* means bowl. Translated freely it means that we need to find out what drives us in life and what is worth living for. Literally speaking, what fills our ‹bowl of life› and what motivates us to get up in the morning, to do our thing and to experience joy and fulfillment.

In our interviews with experienced project leaders and executives it became clear how important this power skill is when working with people in companies and organizations. For most of our interview partners motivation is something indispensable in our everyday life, because when we are motivated and when our teams are motivated, the results of our work are measurably better and everyone is far more satisfied. Expressing thanks, verbalizing appreciation and establishing a constructive feedback culture motivates people. When collaboration is based on trust, gratefulness and mutual respect, then that is like a booster blowing wind into our sails that brings our boat forward.

8.1.9 Creativity and Problem Solving

Project people that know about the art of creativity and problem solving normally are more at ease in their projects, because thinking outside the box, having different perspectives and the ability to reach our goals in unconventional ways help us to lead our projects to success.

What is creativity and problem solving? We address all different sorts of creativity here, the colorful and crazy one from an artistic point of view as much as a very intelligent, methodical and even logic-driven, analytical creativity. Project people translate the desires and ideas of our customers into measurable results by means of projects and products. We deal with topics and problems we so far have not come across yet and for which we need to do things differently. Every solution-finding process usually undergoes four different phases, starting with preparation where we try to get an overview on the problem, formulate

the specific proposal and analyze the overall situation. The second phase is incubation where we move away from the problem and start thinking about everything from a bit of a distance. So, we literally mull over the problem to be able to generate spontaneous ideas for solutions during the third phase. This phase is also called illumination and means exactly this; having one or two aha moments that bring us a lot nearer to solving our problem. The fourth and last phase in this process is called verification or elaboration, because here we agree on specific proposed solutions which we want to try out next in the problem-solving process.

We all probably know creativity techniques such as brainstorming, **mind-mapping** or even the **Walt Disney Method**. All three techniques are a part of the intuitive or associative creativity techniques where we aim at generating a multitude of ideas within a very short time. For some projects it might also be an advantage to use the method with the beautiful name **World Café**, a wonderful visualization method where a group of participants standing at different tables brings forth ideas, impulses or thoughts and where we inspire each other and where we can use our swarm intelligence generating ideas we can work with later on. The format called **fishbowl** helps us as well to benefit from our swarm intelligence and to use the expertise of different people from within our group.

Project people who have a toolbox filled with different creativity and moderation techniques are more at ease in their projects. It is not necessary to always be artistic-eccentric here, by the way. Analytical or discursive creativity techniques are perfect for optimizing products, to refine already existing parts and to get them to the next level. We could use, for example, the **Osborne checklist** to systematically generate ideas for solutions, prior to a

project we could rely on the profound knowledge of our experts by carrying out a **Delphi study** by means of a questionnaire in several cycles which allows us to approach our complex project topic in a very detailed and deep way. When we want to refine a product we might very well use a method called **morphological box**, where the project team works on a specific task thinking about different characteristics for selected parameters to be able to get more and more in depth later on.

Our ability to expand our horizons, to look beyond and to try out new things with willingness and apply even unconventional ideas we literally conquer new worlds and dimensions in our project work. Creativity and problem solving definitely belong to the category of soft skills worth acquiring, because they are fun, they inspire and lead to a much better result orientation. By applying different creativity techniques we can focus better on key aspects of our projects – e.g. on our objectives or **success factors** and we manage to integrate the interests of our relevant stakeholders. By using the right tools we manage to create a ‹big picture› of our project at any given time so that we (project people) have a mutual understanding of what our project is all about and what needs to be done.

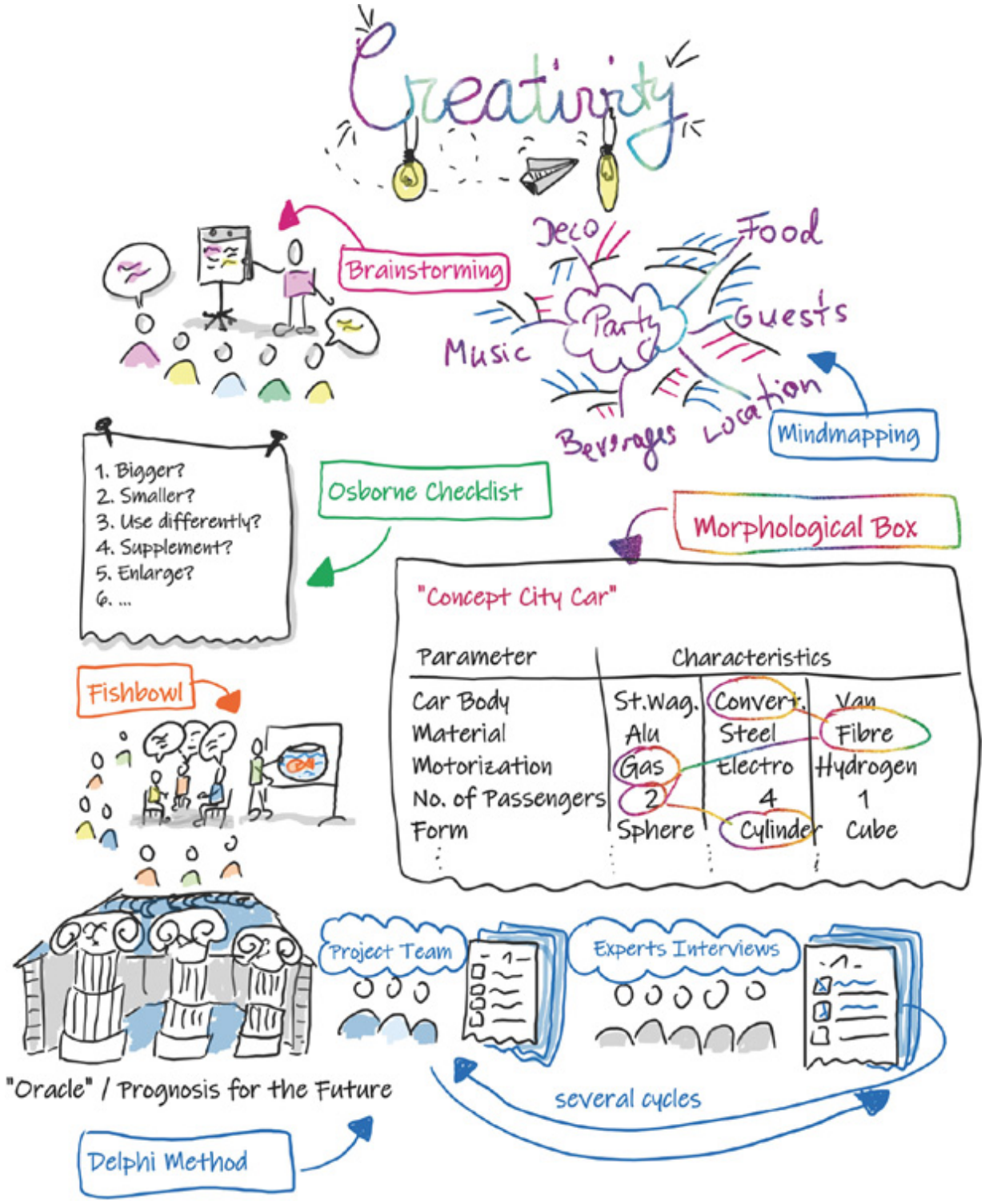

Illustration 26: Overview on different creativity techniques

8.1.10 Negotiating

We negotiate everything and everywhere in business, be it a price, conditions for contracts and agreements or the basis for present or future collaborations. It is about much more than just dealing with BATNA (best alternative to a negotiated agreement) or ZOPA (zone of possible agreement). Negotiating is a big issue in project management because many conversations within the framework of our project work are not just for handing over information or part of small talk and very often these conversations are the beginning of serious negotiation processes evolving constituting effects or legal consequences. This is one reason why it is so important to negotiate right, from a methodical as well as expert point of view. Our stakeholders have different expectations, fears or interests and the individual points of view might vary to a great extent. These points of views are not always shared openly but rather they manifest by means of their effects. By solid conversational and negotiating skills we manage to reach agreements and effective collaboration. Negotiating does not necessarily mean to pull an opponent towards our side or to ‹win a fight›. The goal is that in the end everyone is convinced that the decisions made were right and that we manage to collaborate well in the future. Many negotiations are carried out according to the renowned Harvard concept in which academics at Harvard University have been working since the mid-1970s on the topic of how negotiations should be conducted in the best possible manner. The principles of this concept are:

- Develop alternatives
- Discuss the subject matter – people are not your problem

- Focus on interests
- Go for the win-win strategy
- Objective decision criteria – it is all about fairness

It is definitely a useful approach to prepare negotiations, but experience tells us that it does not always lead to success to only focus on the subject matter during negotiations. On the contrary. Particularly the personal and very subjective level is elementary when we want to negotiate certain things to reach agreements. Negotiations often work according to a certain scheme. In the orientation phase we first pave the way, lay the foundation and create the necessary conditions for a successful negotiation. During the clarification phase we take care of the actual state, check all options available and elaborate agreements. During the change phase we focus on what we want to achieve in the future and how we can develop solutions and reach agreements. In the end we close the process, conclude our negotiations, strengthen the relationship between the negotiating parties, document the results and allow an outlook into further steps and processes.

The skill to negotiate in the context of international projects is a very particular power skill. In a project during my time in the automotive industry we once had a situation where we wanted to set up a new R&D site in Changchung (China). It became obvious very quickly that negotiating works differently in China than ‹we Europeans› thought. The same young lady was nominated as project manager who was also Head of Laboratory at our site in the Southern part of Germany. She was approximately thirty years of age, academic, a bit bold and with the typical mentality of people from the Northern part of Germany. So far, she had never negotiated anything with Chinese parties and therefore she was indeed a bit insecure and nervous. In

a first attempt, a Chinese delegation came to Germany to discuss a few things beforehand and to get an idea on the laboratory equipment of our site in Southern Germany. We quickly realized that we had more than just language problems. The first negotiations were neither expedient nor successful. It became clear that negotiations in Asia are normally conducted by those people highest in hierarchy and age, because in the Asian culture age equals competency. It was always important that the negotiating parties had the chance to leave negotiations ‹honorable› and without ‹loss of face›. In the course of our project the Head of the Laboratory traveled to China and was accompanied by one of our older foremen in production who presumably was in charge of all negotiations, or at least we managed to make our Chinese partners believe this. We respectfully followed tradition by having an ‹elder› making the decisions. This case shows very clearly that the soft skill of negotiating is definitely important when you want to lead your projects toward success. We should not only focus on facts and figures and discuss the subject matter, but also make sure to establish a good relationship with empathy and the right feel for the people involved. A mental change of perspective is also advisable when preparing such important meetings, because things are not always as they seem at first glance.

8.2 Practical Example

Dealing with the full range of power skills was not new at all for us. As project managers, trainers and coaches we master the entire range of soft skills such as leadership,

ethics, culture, values and diversity, agile mindset, teamwork, communication, conflicts and crisis, courage and motivation, creativity and problem-solving or negotiating as all of these are part of our daily business. Our work is always based on H2H, from human to human. In our book we talk about project management and projects are made by people, for people and they involve people, so reaching far into our soft skill toolbox to pick out a few tools for a much closer look is part of our daily work as project people. About half a year before our project started I got to know the Japanese method called Ikigai and it really fascinated me right from the start. Ikigai is all about our inner journey and self-discovery, striving for success and fulfillment and it is about the sense of living or the sense of our actions. When we translate Ikigai it means something like «what is worth living for« or, more literally if we look at the Japanese terms iki and gai it means that we want to find what fills our bowl of life. What motivates us to happily jump out of bed in the morning to do our work and to confront life as motivated and full of joy as possible, taking our own life into our own hands? The principle of Ikigai is very strongly connected to the topics of motivation and culture, but it is also about ethics, values, courage or teamwork.

We took our time to look at the four main areas of Ikigai and to find our very personal and individual answers regarding:

1.) What do I love doing?

Meaning – what are the things, activities or topics that warm our hearts? Which topics are we so interested in that we are enthusiastic about further deep dives to become even more proficient? Which areas of our work are fulfilling and purposeful?

2.) What am I good at?

Who has particular knowledge or special competencies in which areas? Where do we know more than the average person? How can we transfer this knowledge to others? What possibilities are there for continuous self-development?

3.) What does the world need?

Where do people in our surroundings, in companies or organizations lack certain knowledge and what in particular? Which things or topics do we not know enough about yet? How about society nowadays? And what do we wish for our environment or our fellow human beings?

4.) What can I be paid for?

What are we living for presently and where do we earn our living? Which topics in trainings, coaching or projects are acknowledged so that people in companies or organizations are willing to pay for them? Which of our competencies and skills are (financially) acknowledged in society and allow us to make a living? Where is the hidden potential? What are people willing to spend their money on in the future?

All questions mentioned above were very important, but also very intensive and they really triggered us. Mathias and I were very well aware right from the start of our book project that the book on project management was just a framework enabling our readers access to setting the sails into their future of project work and of course we wanted to go beyond and to think ahead. Which trainings or coaching could we elaborate for people in companies and organizations, for people in projects, (future) leaders or interested people in general that meant added value? And moreover – what would these people be willing to pay for? Which topics or concepts, but also which customers suited us as much as our vocation? Our values? The latter is

especially an essential issue for me ever since I started my business as an independent freelancer, because I do not want to and I will not work for ‹just anyone›! It has to be the right fit! Both in terms of personal chemistry and preference, as well as the objectives and the question of ‹Why›. Companies and customers who do not seem to know what value or appreciation means and in whose organizations people are not really seen are certainly not my customers. I state this loudly and clearly.

The power skill communication was and is an important topic for us authors. Paul Watzlawik states it perfectly: ‹We cannot NOT communicate!› Being project people and leaders, of course, we are measured by our communication skills, in both good times as well as bad or when we are confronted with massive change processes. A lot of our interview partners emphasize it in more than one part in our book: Communication is essential in project work and very often it is communication that proves to be an immense challenge. Project creators mastering this power skill contribute massively in making their projects successful.

8.3 Quintessence

In project work it is all about having a big toolbox of methodologies and the expert knowledge to be able to use the right tool at the right moment during the project. It depends on being very proficient concerning the soft skills to make sure that the relevant stakeholders can interact adequately on an interpersonal level. The more challenges project people have to face, such as incredibly new,

international projects or programs requiring a solid collaboration all across geographical boundaries (even remote!), the more important it is for us to confront ourselves with the entire range of power skills. In the long run, a healthy mix of methodology, expert knowledge, empathy, and the right feel for the moment is essential to cast off for successful practice.

8.4 Tools and Tips

To successfully use our power skills in practical project work it is helpful to take a closer look into several areas. There are wonderful tools to carry out a team diagnosis, for example, there are personality inventory models we can access free of charge online, but there are also models we need to pay for because they are licensed. All of these models may give us valuable insight. To see which Belbin role we (possibly) inhabit, there also are different online queries and an official Belbin test including the relevant evaluation. Even though such tests are to be seen in a rather playful way, it is indeed a valuable team exercise that can be very inspiring and enlightening with regard to our further collaboration in our project work. I, personally, love to work with the so-called team spiderweb, where a team chooses individual competencies and topics where we visualize the actual state in a coordinate system. Then the team decides which areas and topics should be dealt with or improved more in depth later on.

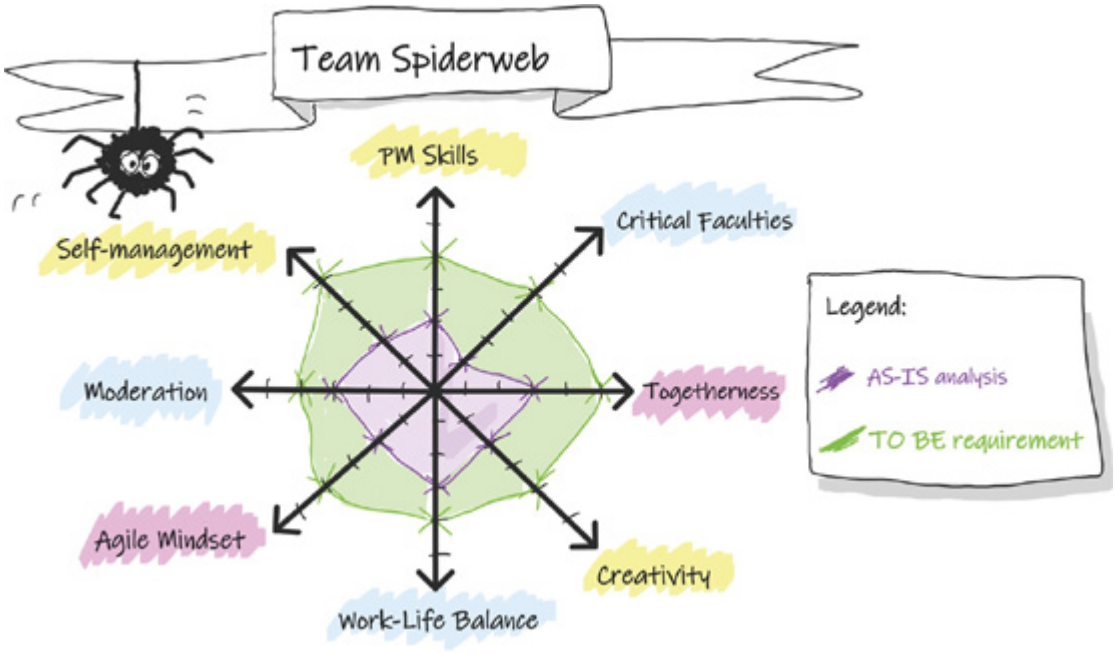

Illustration 27: Team Spiderweb

One tip that is particularly suited for working on international projects is to take a very close look into the aspect of intercultural communication. The famous German idiom ‹different countries, different customs› is of special importance for us project people, because the more we leave our familiar territory and confront ourselves with people of other cultures and countries, the more we literally speak different languages in our projects and incorporate different values, the more working together becomes demanding. This is reason enough to deal with interculturality and to initiate trust-building measures. We need role models who support projects with utmost empathy and vast knowledge on other cultures and who make sure that collaboration really functions well so that all project participants manage to think outside the box and to always be able to walk in someone else’s shoes. Intercultural training in the pre-phase of a project can be extremely helpful to avoid typical biases and misunderstandings.

A wonderful tip particularly for leaders and executives who want to become more empathic is to work with so-called Kudo cards. These are cards with beautiful motives that can be used to express appreciation. The special thing about these cards is that they are created free of hierarchies and in a very informal way for employees and team members to say thank you and to show respect and appreciation for their work. The term «kudos« comes from Greek and means something like fame or honor. Kudo cards are displayed and published openly for everyone to see and they have a positive effect on our intrinsic motivation. The person receiving a card feels great and is motivated, but the one who issues the card also feels better. Those leaders who distribute Kudo cards expressing a warm ‹thank you›, ‹great job› or ‹cool teamwork› to their employees become much more visible and they are considered a lot more empathic and therefore they are perceived as more likable. Compliments and (unexpected, but sincere) appreciation make the world of project people a bit better and put a smile on our faces. There are lots of pre-printed Kudo cards we can purchase and print out – but of course, it is a lot nicer to work with self-made, individualized cards.

To obtain an increase in our team performance it is helpful to have clear-cut roles and to make sure that the team sees the ‹big picture› of our project. Every project is a big mix of a multitude of individual pieces, comparable to pieces of a puzzle. When we look at only one single piece of the puzzle and isolate it from the others, a blue piece could either be the sky, a part of an ocean, or a blue building, for example. Only when viewing the entire puzzle as a whole, do we really know where the part belongs. Everyone on the team may and should express his perspective and get involved. That way we scrutinize matters and stop taking things for granted. We also realize where essential pieces of the

puzzle are still missing and where we need more information on the project etc. It is helpful when we get the opportunity to get to know each other personally and get to know each other's strengths and weaknesses. When we work this out, we can make sure that our strengths come into force and we can support each other by minimizing our weaknesses. In this way we also have another advantage; we can eliminate possible conflict potential along the way.

Project marketing ensures that our project as well as our project team becomes visible and that we are noticed internally as much as externally. An old German saying is: «Do something good and make sure everyone knows about it!« and this is exactly what we should do… market our projects. On the one hand, it is all about us identifying with our project and that we are enthusiastic about our tasks, our roles and functions. For example, we could come up with a mutually designed project logo, with cool project shirts or other freebies symbolizing the project. On the other hand, it is also about becoming noticed (and accepted!) by top management, by our steering committee and important decision-makers in order to get access to necessary resources and that our project is prioritized.

! Engaging Questions for Soft Skills in Project Management

- How do we incorporate respect, honesty and transparency in our project?
- How do we show genuine appreciation towards our employees?
- How do we create trust within our team, with regard to our customer and decision-makers?

- Which communication methods suit us best and which ones support our project work?
- How can we learn from mistakes and establish a strong error culture in our project?
- Which employee needs which amount of leadership or self-determination and who needs how much decision-making authority and support?
- How can we manage to ensure genuine diversity in our project work?
- Which values do we consider important?
- How can we measure the success of our team and of the individual?
- How can we show gratefulness and encourage empathy?
- How do we deal with conflicts?

8.5 Interviews with Project Managers

Ben Ziskoven

MF: What are your personal «secret tips« for successful projects?

BZ: It is very important that the customer gets to trust us. And it is a huge responsibility to maintain this trust. Meaning that the customer needs to be able to rely on us that we meet all legal requirements and follow the rules, that we do our job right in respect of ethics and morals! The entire interpersonal level very often is much more important than just following plain methodologies.

Felix Mühlschlegel

MF: What makes a good project manager? What, according to your opinion, are important leadership (or facilitation) skills?

FM: Again, I think the answer lies in the balance of several attributes. A good leader gives the team
Vision & **Clarity** – what is the goal and why are we even doing this. Making the project ambitious yet achievable.
Trust/empowerment – once the project is outlined and clear expectations are set the project manager needs to let the team run. Empower them to get the job done and clear the roadblocks for them
Flexibility – Showing an outline of expectations, however being flexible and willing to adapt when things don't go as planned
Empathy – Being curious about the people not just the work. Treat them as individuals catering to their strengths and helping with their weaknesses.

MF: In your personal view how important is diversity as a topic? Or in other words what, according to your expertise, is ‹living› or ‹established› diversity?

FM: At adidas we have very clear-cut diversity objectives. Unfortunately, for the most part, this refers to a specific quota, e.g., we need to employ 30 % Black and **Latinx** people. There also is a woman's quota including a quota of how many women need to be in a leading position. On the one hand, this is positive and good. On the other hand, diversity is so much more than just the mere color of skin, ableism, religion, or sexual orientation. Here in the US, unfortunately, it doesn't matter so much whether or not you have been working abroad for several years or if you have a special maturity or seniority in your field of expertise. The more diverse a team is, the more successful it is, I believe. I always want all sorts of people in my teams; old ones, young ones, experienced and inexperienced ones, national and international people. I not only want to have people of different skin colors on my teams, but also people who think differently and people who grew up in different environments, bringing forth different experiences. I like to look beyond, because this helps me to grow in my job in product development. This is why I love our co-operations with different artists, especially for our ‹Pride Packs›. In 2022 we cooperated with an Australian artist. The campaign had the title ‹Love Unites›. That was fun and had a personal added value for me. We supported two NGO, were able to remain very authentic and it had a ‹give back› component to it

Sebastian Wächter

MF: Due to your fate, you have intensively dealt with the issues of courage and motivation yourself. How important are these power skills for you?

SW: Immediately after my hiking accident many years ago, where I broke my neck, I had severe problems dealing with the drastic changes all this imposed on my life. In the beginning, I was focusing on my extrinsic motivation. When I was okay, my family was okay, too. But that was not enough. It was a long process that then led to intrinsic motivation to really want to accept my fate. Then my ambition of being a sportsperson was triggered. My certain sense of stubbornness was really helpful here! In many situations in our private as well as in our professional life we need a lot of courage to deal with changes. It depends on discovering this motivation for ourselves that helps us to reflect, to confront the situation and comprehend: It is okay! Leading executives and people in change projects should invest a lot more mental effort into their work, they should do a lot of reading and deep diving into matters. And yes, coaching helps a lot, too.

Michael Künnell

MF: *What makes a good project manager? What, according to your opinion, are important leadership (or facilitation) skills?*

MK: A good project manager should master leadership skills and be able to keep calm. It is also important that he always thinks one step ahead, anticipating things and keeping an overview. But most of all, a good project manager should be able to communicate well and he should know what he is doing at all times.

MF: How important is the topic «culture and values« for you in your working environment?

MK: At HEITEC values such as appreciation, transparency and independency are really lived. We are a family run company and our owner is in the office every day. Our slogan «We move man and machines« is more than a throwaway remark. This is what we stand for. It is interesting that now these lived values become important for us baby boomers because many of us still know companies where these values are unheard of. But the younger generation has entirely different views on this. For them, these values are essential and mandatory and they expect entirely different things! As HR responsible I cannot score with offering a simple fruit basket here. Gen. Y/Z expects a purposeful work with added value. At the same time those young people have very high expectations, for example, they want to take over a project lead after being on board for only a few months, but they overestimate themselves very quickly and cannot see how deep an issue this really is. Often it lacks realism and the young fellows

are not aware of what it really means to take over responsibility. I am currently paving new paths here setting up a major new project within our company.

Daniel Laufs

MF: How are things in your projects with regard to the power skills ethics or diversity? How do those two relate to your project work?

DL: CAPTN is all about autonomous, integrated, clean mobility concepts, so due to all environmental issues we are automatically amids of ethics anyway. It is about the conscious handling of resources and that we do not waste these resources; it is about ensuring sustainability etc. But of course, another big issue is autonomous driving. There are a lot of scientific approaches that need to deal with all of that already. We know this from autonomous driving in our streets and normal traffic situations. In our area we deal with questions such as ‹With the autonomously driving ferry boat do I rather turn right into the pier or should I rather turn left into the small sailing dinghy coming out of nowhere and which got lost? Or do I accept to ram the pilot whale swimming in the Kiel Fjord?› This is the moment when the professors and professionals from the university need to take over. Also, the issue of whether or not we can really trust technology is a very specific ethical question and a big topic for social scientists in our project team. Even more important is that the designers anticipate such critical questions and the fears of the public into their visual concepts and simulations to clarify what can happen and how our ferry boat is supposed to react so that they can eliminate peoples' fears. The issue of diversity for us, fortunately, does not play such an important or active role, because at CAPTN we live diversity to 100 % anyway so this issue is not even questioned or subject to discussions. For us, fortunately, this is subsisted normality already. Diversity and inclusion in all possible variations! We already have lots of wonderful structures.

Thor Möller

MF: *What makes a good project manager? What, according to your opinion, are important leadership (or facilitation) skills?*

TM: As a good project manager and leader, I back my team up in good times as well as protecting my team in bad times. That requires a lot of strength, but

it is worthwhile and my teams have always been thankful for my efforts. As a project manager, your daily business is to make decisions and responsibility for your actions. However, you need to know how to do this correctly. In Germany, and in many organizations and corporate entities, many decisions are made daily and then, in retrospect, the same decisions are questioned, doubted and put to the test again, taken ‹ad absurdum› by others. This is exactly how it is not supposed to happen, of course. I am a big sailing fanatic and I like maritime references and here, too, when it comes to terms with leadership, because there are very catchy analogies. ‹The skipper is in command on board!› – that is carved in stone and a law that works. Let's assume there are six people on a sail boat and all of us have our sailing license and are experienced skippers.
Still, only the person who owns the boat is skipper and therefore in command. No discussions. So, everyone else is a subordinate. Not in the negative sense, but in fully trusting that the skipper makes the right decisions for the entire crew. And yes, of course to that measure it is elementary that the skipper knows precisely what he is doing. Leadership is important, because it has to do with taking over responsibility. Subordination is not bad, weak or negative, but it is correct and important. Away with our ego and off we go towards good and solid decisions that count and must be obeyed. In Germany this is something we still need to learn. Pathetic self-portrayal has nothing to do with project management! Being a good ‹PM skipper› is important and elementary. Leadership skills need to be put more closely into focus, because there is no project without good leadership. It is all about interpersonal relationships. You really need a particular talent for these skills and for what really matters. You need the right feel for the soft skills!

Tobias Rohrbach

MF: What makes a project manager or Scrum master good? What, according to your opinion, are important leadership (or facilitation) skills?

TR: ‹Leadership› or ‹being an executive› must be a neutral position. It needs to ensure that the project is led toward success. Nothing more, nothing less. Therefore those people show leadership skills who are able to put people into the first place and to motivate them to obtain the biggest benefit for the project. The project needs to be the main focus at all times.

MF: What do you think about ethics in the project or corporate context?

TR: That is a crucial topic! ESG (Environment, Social, Governance) is getting more and more important. Everything we do should be socially acceptable and person-centered. Sustainability is also a part of ethics, even though sustainability has become quite an overused term. We are responsible for

our actions and of course we need to thoroughly think about the ethics beforehand. We need to show commitment and live it.

Petra Berleb

MF: How important are soft skills in project management? Which ones matter?

PB: Interpersonal relationships are of the utmost importance in PM! Fortunately, and it has been for a few years now, there is slowly but surely a small transition regarding the perception of project managers. In the very beginning of our magazine called *projektmagazin* one of the first articles from twentytwo years ago was about conflict management. This topic generated the worst number of views and our readers did not like it at all! Meanwhile topics such as resilience, appreciation and empathy are no longer taboo. For me, communication is key.
This topic will follow me, being a very direct person, probably until the end of my days. For me it is important to get in contact with people and to create an atmosphere of mutual trust. There is no chance without empathic communication skills. My daughter (at the age of puberty) became somewhat of my personal coach regarding this. She is my very merciless mirror, so to speak. But this is how I learn so much! Everyone is very different when it comes to terms with tonality, choice of words, misunderstandings and also offense. In the end we want to remain authentic and true to ourselves without having to change too much. Good communication skills are often underrated, unfortunately, even though training is abundant on this topic and at first glance everything seems to be crystal clear. Soft skills are so important when working in projects. When it does not work out on an interpersonal level then projects fail. This is why it is so important to continue working on your skills and proficiencies in these areas; it is important to do a lot of reading, tackling those subjects and using the full range of possibilities, we have. In the meantime, a bit of humor every now and then does not go astray, either.

Chris Schiebel

MF: Which soft skills matter the most in project management and why?

CS: Counterquestion – which soft skills can we leave out in PM? I can’t think of any, actually, because we simply need ALL soft skills! Working in projects means working with people and for people and you cannot do this without

applying the entire range of people skills. The question now is how we can manage to train people in these soft skills with a very practical approach and as early as possible. Project management, in my opinion, should be a subject taught in school, because the sooner we start teaching our kids a thorough PM mindset, the better they will be able to master interpersonal relationships. It is so important to get this straight. Now, if I had to choose a favorite soft skill, then I would go for building relationships! This is because functioning interactions with others rescues us so many times in our project work and often prevents us from running straight into drama. Therefore, we really need to know how relationships function and how we can manage to do a good job in the context of healthy, functioning, appreciative relationships. Especially in times when a lot is happening remotely, real relationships matter! And please, meet as often as possible face-to-face. That really makes a huge difference.

9 Advanced Knowledge

9.1 Network Diagram Calculation

When speaking colloquially in project management about a project network diagram, we are actually referring to the so-called Activity-on-Node (AON) Network. Every activity is visualized using a node – and therefore the name. The arrows, however, symbolize the logical relationship. Network diagrams contain predecessors and successors. However, this does not mean temporal dependencies, but logical ones. In the standard visualization of the arrows the tails leave the predecessor on the right-hand side whereas the arrowheads enter the successor on the left-hand side. When we want to calculate a network diagram there are calculation operations that take place only within one single activity node. The logical relationship between this activity node and other activities does not matter. So, the start time plus the duration always equals the finish time, and vice versa the finish time minus the duration always equals the start time.

The total float (TF) is the time we can delay the start of an activity with regard to its earliest start without necessarily delaying the entire project. However, possible successors might have to be delayed or relocated in this case, too. The total float as well is always calculated within one individual activity node according to the following formula:

TF = LST – EST

or TF = LFT – EFT

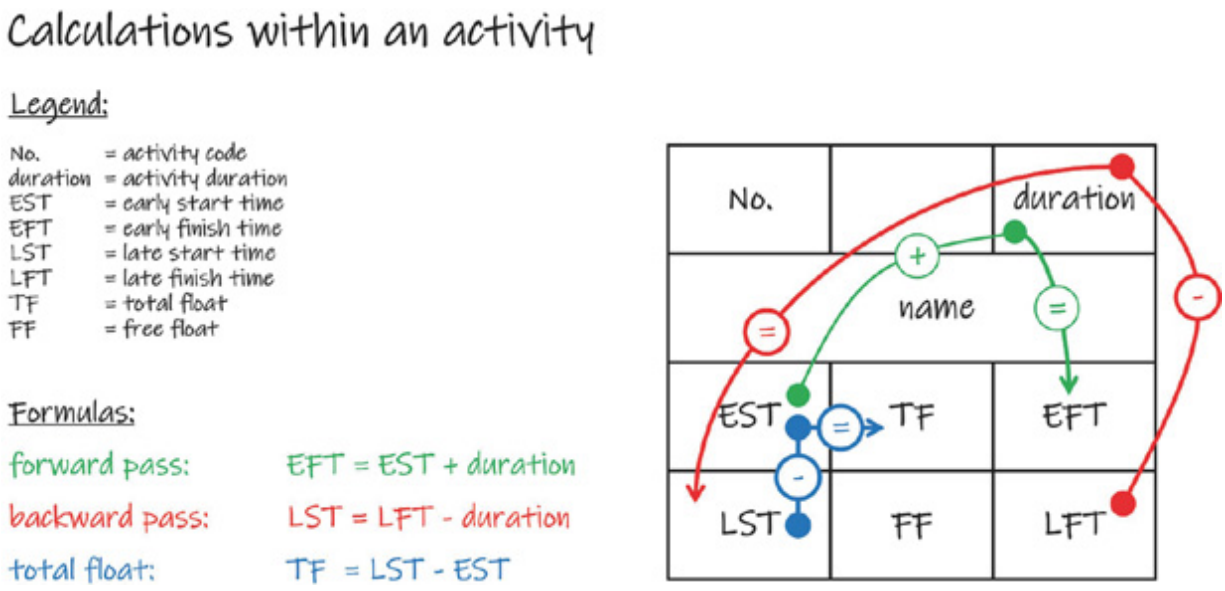

Illustration 28: Network diagram calculation within one activity node

Where calculation operations are concerned involving two or more activities, the relevant logical relationships such as end-to-start relationships (ES), start-to-start relationships (SS), end-to-end relationships (EE), start-to-end relationships (SE) and minimum time intervals (mti) have an impact on the result as well. This is why calculations containing several activities are a lot more time-consuming respectively much more complicated than calculations taking place within one individual activity only.

The forward pass is used to determine the earliest start and end dates of the individual activities. We may need to add an existing minimum time interval to the predecessor value. This value now needs to be transferred into the successor according to the logical relationship. When we have activities with several predecessors, we transfer the highest value.

The backward pass is used to determine the latest start and end dates of the individual activities. We calculate from the right hand side and move on leftwards (contrary to the normal writing direction, so to speak), meaning that the successor value (minus possibly existing minimum time intervals) is transferred into the predecessor according to the logical relationship. When we have activities with several successors, we transfer the lowest value.

The free float (FF) is the time span we can use to relocate one activity with regard to its earliest position without having a negative impact or influence on other activities, meaning that when we use the free float no other activity is really influenced.

The critical path touches all activities where we have a total float (and therefore also a free float) of zero! Every delay on the critical path automatically leads to a delay of the entire project. When a project takes too much time and we need to reduce the project duration, the activities on the critical path need to be optimized.

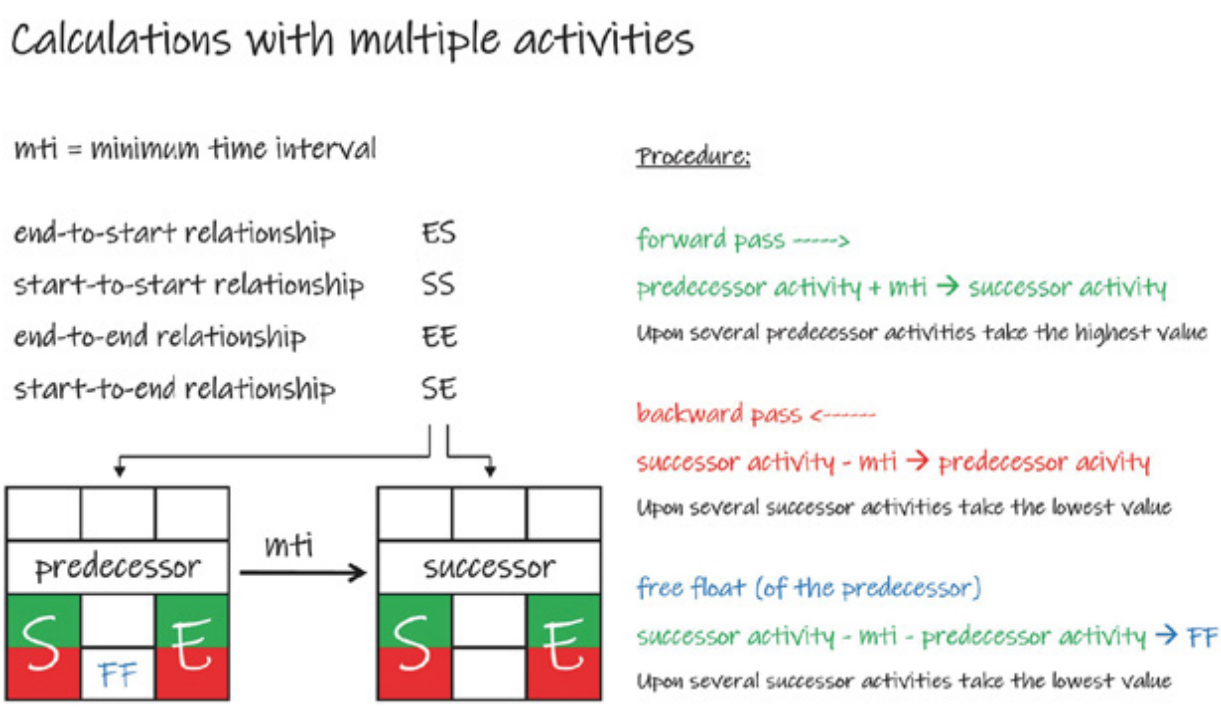

Illustration 29: Network diagram calculation with several activities

The graphic explains the network diagram calculation for calculation operations with two or more activities. When we want to calculate the network diagram, we simply choose the relevant quadrants according to the logical relationship and insert the values into the formula. The following three examples clarify this a little more in detail:

Example 1: Forward pass regarding a start-to-start relationship (SS relationship)

When we do a forward pass the green quadrants count, those containing the white letters SS. Therefore the predecessor contains a quadrant named LFT and the successor also has a quadrant named LFT. This leads us to the following:

The LFT (of the predecessor) + mti is transferred into the quadrant LFT (of the successor).

Example 2: Backward pass regarding a start-to-end relationship (SE)

When we do a backward pass the red quadrants count, those containing the white letters SF. Therefore, the predecessor contains the quadrant named LST and the successor has a quadrant named LFT. This leads us to the following:

The LFT (of the successor) – mti is transferred into the quadrant LST (of the predecessor).

Example 3: Free float regarding an end-to-end relationship (EE)

To do the calculation we only need the green quadrants (because the free float can already be calculated as soon as we have done the forward pass). The white letters EE indicate the quadrant EFT with regard to the predecessor and the successor contains the quadrant EFT as well. This leads us to the following formula:

FF (of the predecessor) = EFT (of the successor) – mti – EFT (of the predecessor)

9.2 Controlling

While we diligently work on our product during the execute phase, project management needs to keep the boat on its course. A lot of things are going according to plan, but some things will be problematic. This is because a plan is only a model of the future respectively a forecast on how the project should proceed, but the probability that this forecast really manifests 1:1 is very unlikely. To be able to

carry out effective controlling measures, we first need to know where we stand. The initial information can usually be obtained by looking at the percentage of completion of our individual work packages. We can use different methods to calculate this. The two most precise methods are the steps method and the micro milestone method. For both of these methods we assume a certain percentage for completion for intermediate results stipulated beforehand. For the steps method all tasks need to be worked on according to a predefined order, the increment always remains identical with regard to size and the percentage of completion is indicated cumulatively (e.g. 25-50-75-100 %). In contrast, the order of how we work on the work packages does not play any role when we use the micro milestone method and every task can take over a different percentage. It is only important that in the end the sum equals 100 %. Let us assume the work package consists of the four activities watching TV 5 %, learning 40 %, playing 25 % and eating 30 % and the responsible person now informs us that he is approximately half way through since he already has completed two activities, we now can control this statement easily. When he tells us that he already watched TV and played, he is not half way through his activities, but has only completed 30 %. When, however, he finished eating and learning, he is much more than half way through his activities and has already reached a percentage of completion of 70 %! These two methods are very precise, but the have the disadvantage that they are extremely time-consuming and therefore people do not really like using them (because you already need to think about which intermediate step should be assigned which percentage of completion when you are in planning phase).

For smaller work packages with a short duration or minimum effort we therefore choose the 0:100 technique

or the 50:50 technique. When using the 0:100 technique the percentage of completion remains on 0 % until the work package is fully completed. So, this means, a work package that has just begun has also a percentage of completion of 0 % like a work package that is almost fully completed. When measuring the percentage of completion according to the 0:100 technique the real work progress is always higher, so this method is suited well for rather pessimistic controllers. When applying the 50:50 technique we assume a percentage of completion of 50 % as soon as we have started working on this work package. The remaining 50 % is granted as soon as the work package is fully completed. We can use the 50:50 technique when we are working on a vast number of work packages at the same time, because when some work packages only just started to be worked on while others were already completed, then on average it more or less balances out well.

Additional measuring methods are proportionalities with regard to time, quantity or cost respectively secondary proportionalities. Here we determine the relative share with regard to the estimated total time, based on the time already used (respectively the quantity already used up). These measuring methods are not very precise because they are only correct when everyone is precisely sticking to the plan. Let us assume you need to elaborate a very extensive report and you have the entire next week for doing it and where Monday through Friday equals five days. On Monday, however, the weather is finally nice again, and since you still have so much time left, you would rather spend the day outside. On Tuesday morning you diligently elaborate your report until an old friend you have not seen in ages surprises you with a visit. So in the afternoon you go out with your friend and in the evening both of you go to

your favorite bar for some shots, because your friend needs to take off and is leaving the next day. On Wednesday morning, unfortunately, you are not able to continue with your report because one of those 14 shots from the night before must have been bad. So you take some aspirin and stay in bed all morning. In the afternoon you are feeling much better and continue with your report. Now, what is the percentage of work completed? When applying a proportionality with respect to time the percentage of work completed is the time that has passed divided by the planned total duration and multiplied per one hundred. Therefore we have the following calculation:

PC (in %) = (3 days / 5 days) × 100 = 60 %

You have, however, only worked on your report Tuesday morning and Wednesday afternoon which is in total one day. Since the elaboration of the report takes approximately five days, you only managed to complete 20 %. The other proportionality methods are equally unprecise, because all of them assume you stick to the plan. If everyone would stick to plans, however, we would not need controlling at all.

A very interesting method is called estimated costs to completion (ETC). The more we approach our goal, the more precise it gets. The money already spent is called actual costs and the money we still need to complete our task is called residual costs. The formula reads as follows:

PC (in %) = (actual costs / (actual costs + residual costs)) × 100

In the following example we compare the estimated cost to completion method with the proportionality with respect to costs. Assuming you and your partner are invited to a wedding and one of you still needs new clothes and styling.

We need a dress for approximately 300 Euros, hair and make-up for 100 Euros, shoes for approximately 70 Euros, a handbag for something like 200 Euros and costume jewelry for around 30 Euros. All in all, we need approximately 700 Euros. The partner goes shopping, returns and has spent 600 Euros. How high is the percentage of completion now?

When applying the proportionality with respect to costs:

PC (in %) = (money spent so far / total amount of money planned) × 100

PC (in %) = (600 € / 700 €) × 100 = 86 %

The partner has actually only bought shoes. Louboutin shoes were on sale and who could resist that? So the actual costs are 600 Euros, the residual costs are the costs for the missing items such as dress, hair and make-up, costume jewelry and handbag, all in all 630 Euros.

When applying the estimated costs to completion:

PC (in %) = (actual costs / (actual costs + estimated costs to completion)) × 100

PC (in %) = (600 € / (600 € + 630 €)) × 100 = 49 %

When the partner now goes out to get the missing items, we risk another cost deviation and to make sure now everyone sticks to the plan you (being the controller) accompany your partner.

As you can see, these two methods generate entirely different results: 86 % respectively 49 %. Which method is better then? When choosing the proportionality with respect to costs you lie to yourself while you obtain a rather precise result when using ETC. However, you accept that your cost plans are not met when taking a look at the residual costs. So, you can either choose plague (false

percentage of completion) or cholera (not sticking to your plans)! It is a very difficult decision, because a false percentage of completion is elementary for performing correct controlling by means of formulas. When the percentage is false, controlling delivers false results too.

The method used the most with respect to determining the percentage of completion is still estimation unfortunately! This method is hard to evaluate, because instead of an objective measurement people instead rely on intuitive perception of the completion and use estimations. Therefore how precise this method can be depends on the person estimating. The problem with this is that some people are really good at estimating while others are not capable of estimations at all.

After determining the percentages of completion for all work packages, they have to be considered in relation to the entire project in order to calculate the total progress of the project. So, when we have completed a work package to 75 % and this is accounting for 4 % compared to the entire project, then we have an increase in the percentage of completion of 3 % of project as a whole.

When we compare the percentage of completion planned ($PC_{planned}$) with the actual percentage of completion (PC_{actual}), we know if we are faster or slower than we have planned. If the actual percentage of completion is greater than the percentage of completion planned, we are faster – and vice versa we are slower.

Additional dimensions to evaluate a project are the three cumulative frequency polygons planned values (PV), earned value (EV) and actual costs (AC). The s-curve from our cost planning equals the planned costs. The highest value of the s-curve equals the budgeted costs at completion (BAC),

meaning the sum of all costs arising in the project. The earned value can be calculated from multiplying the budgeted costs at completion and the actual percentage of completion. It indicates the value of the project generated so far respectively it tells us how much the project should have cost us so far with respect to the actual percentage of completion. The percentage of completion as well as the planned value can be calculated from the budgeted costs at completion and the planned percentage of completion (which is actually not necessary, because we already have the s-curve ready at hand). The planned value indicates the planned costs to a given time respectively the earned value planned. The actual costs of work performed calculate from the sum of all costs so far respectively from all costs that have been booked onto the project at a given time.

In the earned value analysis (EVA) we compare planned values, actual costs of work performed and percentage of completion to get a status for our project. The evaluation to a given time can also be made visually by means of cumulative frequency polygons.

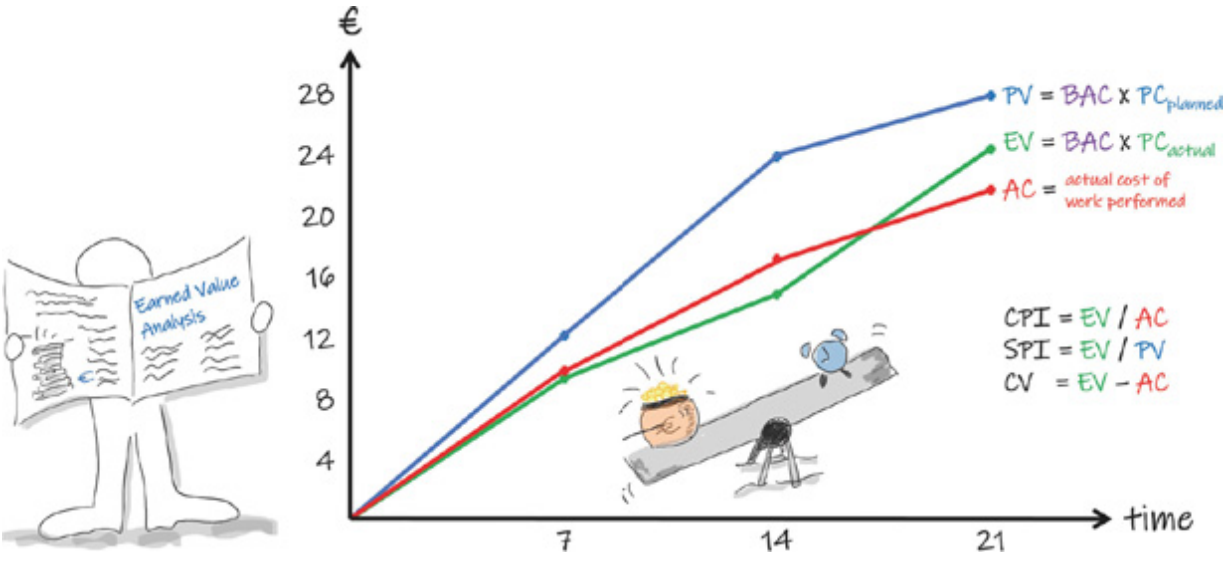

Illustration 30: Earned Value Analysis

Assuming the earned value up to the controlling reporting date (at the end of the 14th week) amounts to 15000 Euros, the actual costs of work performed amount to 17000 Euros and our planned values are 23000 Euros. When we now compare the values with one another, we can make the following statement:

- AC < PV
  We spent (6000 Euros) less than we had available
  → We are (still) solvent!
- EV < PV
  We generated (8000 Euros) less value than planned
  → We are too slow!
- EV < AC
  To generate a value of 15000 Euros we spent 17000 Euros
  → We are too expensive!

Therefore our project is not running very smoothly. The fact that we still have 6000 Euros of liquid assets does not make anything better, because the only reason for this is that we are way behind plan. If we had not worked anything at all we still would have had 23000 Euros at our disposal now!

Of course, we cannot only compare the three polygraphs above, but we can also carry out an evaluation by means of key figures, among which the following three are rather interesting:

- Efficiency Factor (EF)
  The efficiency factor is also called profitability factor. EF > 1 means that less costs were generated for the work performed, EF < 1 means that we generated more costs than we had planned.

- Schedule Indicator (SI)
  The schedule indicator is a key figure for the temporal deviation of the work performed so far with respect to planning. SI > 1 means we are ahead of time, SI 1 means a delay of the work performed (with respect to our schedule).
- Cost Deviation (CD)
  The cost deviation indicates (at a time given), how much the costs generated for work performed exceed the earned value (= negative value) or how much they fall below (= positive value).
- Linear Prognosis of the Total Costs Expected (TCE_1)
  This extrapolation of costs is based on the assumption that the performance after the reporting date continues «as well« or «as bad« as before, meaning with the same efficiency or inefficiency.
- Additive Prognosis of the Total Costs Expected (TCE_2)
  For this variant we have the same prognosis of cost deviations at the reporting date in the absolutely identical amount also for the time of completion. We assume that in the future our performance will go according to plan.
- Probable Deviation of Total Costs towards the End of the Project (DoTC)
  The deviation of total costs indicates (on the reporting date) how much the total costs expected (TCE) exceed or fall below the budgeted costs at completion (BAC).

If you visualize the budgeted costs at completion (BAC) and the total costs expected towards the end of the project (TCE_1 or TCE_2) over time, we refer to a cost trend analysis (CTA), which enables us a quick overview on the cost development with respect to the end of the project.

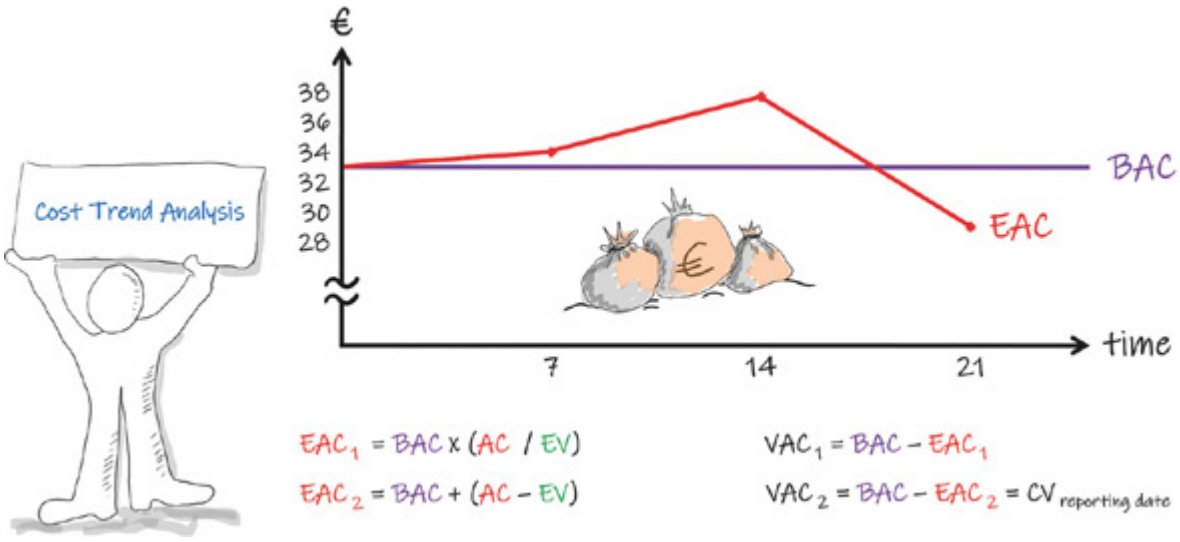

Illustration 31: Cost Trend Analysis

In addition to the earned value analysis and the cost trend analysis there also is something called milestone trend analysis (MTA), which enables us a quick overview on the timeline. It is based on the theory that we do not have to monitor each and every activity in order to be able to make statements on delays, however, that it is absolutely sufficient when we keep track on our milestones. This is because when we have delays of activities on the critical path, the milestones will be delayed, too. Every temporary deviation automatically results in temporary deviations with respect to our milestones.

The milestone trend analysis is a coordinate system which x-axis has been moved to the top. Then we connect the x- and y-axis by means of a diagonal line so that we get a triangle. The x-axis represents the report dates, the y-axis represents the milestones. In the beginning, we record the planned milestones onto the y-axis. Then we determine the milestones for each report date, record them onto the trend chart and comment deviations. As soon as a milestone touches the diagonal line, it is completed. We can now

interpret the trend by means of the curve progression of the individual milestones. We can state the following:

- Horizontal Lines
  mean that the timeline is still on schedule. In the illustration this is the case for milestones **M1** and **M2**, meaning that here we had no temporary deviations to report.
- Ascending Lines
  mean that the milestone ends later than planned, as this is probably the case with respect to milestone **M3**.
- Declining Lines
  mean that the milestone will be completed sooner than planned. In the illustration, for instance, milestone **M4** will probably be completed sooner than planned.

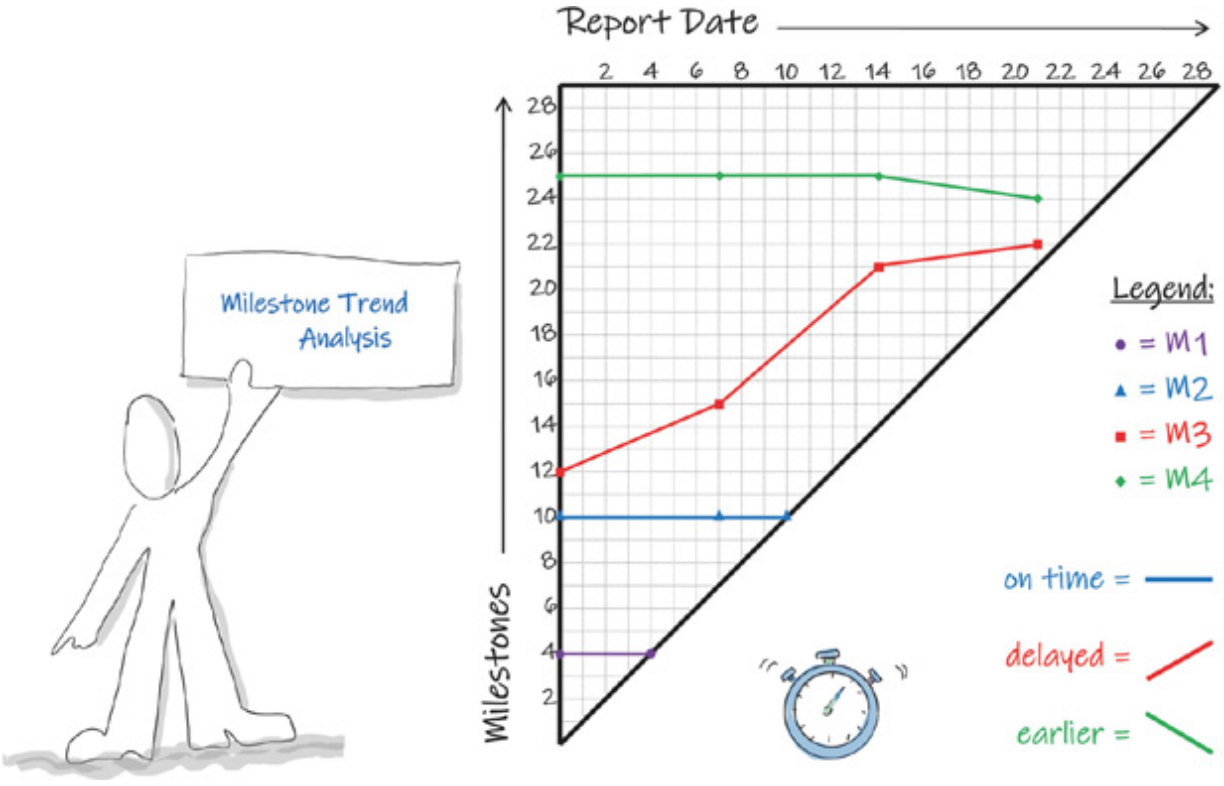

Illustration 32: Milestone Trend Analysis

Particularly when multi-project management is concerned, when there are a multitude of projects happening at the same time in an organization, it is extremely important to visualize individual milestone trends. In this way we can see on the first glance which projects need additional support due to threatening infringements with respect to the timeline and at the cost of which other projects we might set priorities here.

9.3 Legal Aspects and Compliance

Projects have a particular environment surrounding them and influencing them where there are specific structures and elements which need to be evaluated and dealt with. Therefore, nationally as well as internationally, projects find themselves in the midst of different laws, standards and regulations that need to be followed and taken into consideration by all people involved. By observing these laws, standards and regulations companies and organizations follow the objective to minimize risks. Properly processed projects ensure that companies and organizations are more effective, because they operate according to applicable law and all structures, processes and elements of the relevant project meet compliance standards. Violations of legislation in force are sanctioned and mean trouble for projects. Even more important is to take a closer look at compliance and to find out about important legal aspects with respect to our project work. A solid compliance system helps to minimize the liability risk immensely for the entire organization as much as for all employees concerned. Observing compliance improves

image, provides safety and increases the trust of employees, customers, suppliers and with respect to the entire (project) environment. When we think about compliance and tackle all important legal aspects (ahead of time!) that matter in our projects, then we deliver better quality, increase the satisfaction of our stakeholders and we also manage to be assigned for follow-up projects. We are also more credit worthy and leave our competitors behind.

But how can we manage to develop and implement solid and functioning compliance processes and measures in our companies or organizations and therefore in our projects? A first important step would be to get a full overview on which laws, standards and regulations need to be followed. Do we operate nationally and/or internationally? Then, of course, we need to expand our overview. It is always recommendable to consult professional experts to support us. In addition to defining compliance rules with respect to intellectual property rights, disclosure of corporate secrets, corruption and personal advantages or careful handling of corporate property it makes sense to develop an individual compliance code of conduct stipulating all relevant topics with respect to laws, standards and regulations applicable. If there is a workers' council in the company, it is important to involve them into the entire process right from the start. This is because such a workers' council has a very important function within the company, as we all know – representing the rights of the employees with respect to the employer, for one. The workers' council also has the right of co-determination concerning many issues or at least the right of participation. Due to the fact that compliance intervenes in areas that have more or less big impact on the employees, it is sometimes a very good move to get the workers' council on board in due time, serving as some sort of corrective and as an important interface towards the

management. When we miss out on integrating the workers' council, we create stakeholders with a very high conflict potential!

It is also recommended to name an official compliance representative who reports directly to the CEO and who deals with all relevant issues with respect to compliance and legal aspects. Compliance is a continuous improvement process and anything but static. It is necessary to always keep ourselves up to date on legal provisions, standards and regulations, to implement relevant modifications and adaptations and to inform all necessary institutions or departments concerned.

Where do we have to deal with legal aspects in our projects and how? There are many touch points here indeed! Let us start at the initiation phase. Our customer elaborates requirement specifications and the supplier responds by establishing a statement of work. Even at this early stage, we need to take a closer look at the overall situation, at the legal environment and which legal issues might probably play an important role. When the parties then agree to conclude a project contract, we are already in the midst of legal issues. We will talk about configuration management in the subsequent chapter so we will leave this out for the moment. Even when we think about possible contractual clauses with respect to penalties, intellectual property rights, patent related issues or how we handle personal data we will soon realize that all of this proves difficult when elaborating our project contracts and should therefore be dealt with carefully. As project managers, we need to be some kind of super heros per se who know their way around in all disciplines especially with respect to legal aspects and compliance. However, it is helpful to have somewhat of an understanding of legal contexts. It is

particularly advisable to know whom we can ask and who can support us with any of these topics. Whether it is our legal department or the lawyer of a legal specialty we can consult while working on our project. «It is not necessary to know everything, but it is necessary that we know where to look and whom to ask!«

Working in projects means that project people need to deal with all sorts of different types of contracts. Very often we are confronted with purchase agreements, leasing contracts or license agreements. Every type of contract has advantages and disadvantages and we should be well aware of all of this beforehand. A solid basic knowledge is helpful with respect to issues such as, for instance, how a service contract (where we owe the time) is different from a work contract (where we owe the success) and we should know these terms. Depending on how complex our project is we can easily use standard contract forms, but the more particular everything gets, the better it is to consult legal experts of the relevant legal specialties. Especially, if our projects are very international.

While conducting our project we are not legally in an empty space, but rather we are constantly confronted with laws and regulations. We need to tackle topics such as occupational safety and we need to make sure that we use our project resources wisely, so that nobody is overloaded or becomes sick and we need to prevent work related accidents with machines or tools. We need to make sure our employees are qualified and trained and that working in our project motivates and that everyone feels good. It is helpful when we have an idea of typical laws with respect to environmental health and safety, but we should also know something about data safety and how to stay safe in the workplace. We also need to know the relevant specific laws

and regulations of our industrial sectors important for our projects. Even though in most areas the employer bears the overall responsibility for compliance etc., there still are specific areas where individual employees and leading executives can be held personally liable, for example someone in the pharmaceutical industry, who occupies the official position of a so-called Qualified Person (QP) according to Medicines Law and who then is responsible for the regulatory conformity of production, declaration of products, approvals, possible recalls etc. Including personal liability.

In the closeout phase of our projects, we are again confronted with legal aspects and compliance, because from the official act of handing over our project result or product result a number of legal consequences we should know about and take into consideration. Conformity with all project relevant laws, standards and regulations is important for verification and basis for quality checks and (hopefully!) for project approval. Maybe we even need to deal with claim management, meaning talking about deviations and legal or economic consequences thereof. We may also need to deal with claims for damages and the question of who made which mistake, what possible (and verifiable!) damage occurred and which party can be held responsible for all this? Depending on project type, industrial sector or project environment there are different types of claim management and other rules or regulations might apply. Here again project people always need the right amount of knowledge pertaining to who might support us with these topics so that we can always be on the safe side.

In times of pandemics, new work and massively changing working conditions all of this becomes relevant when we

need to differentiate between the terms home office *[and by the way, Germans use this term in an entirely wrong meaning! The correct term we should use here is, in fact, working from home!]*, mobile working or remote working. This is because not everything we call ‹home office› really means working from home from a legal point of view. Different terms also have different legal and fiscal perspectives. This is certainly reason enough for us to address these topics; because the people in our projects nowadays do not necessarily work in situ at their corporate headquarters and they do not always use the locations of their organization for their work. On the contrary project people become more and more flexible with respect to where they are working from and they appreciate possibilities where they can work for their project without being bound to one specific location. Working at the lakeshore, abroad or in one of the typical **co-working spaces** popping up everywhere definitely becomes trendy. But also, working on a train, at the café nearby or while visiting friends at the other end of the country. Working mobile has the consequence that we might need to confront ourselves with different legal framework conditions here. For employees as much as for freelancers it is important to think about all these aspects and to face all the possible consequences the individual working model brings forth. When using a co-working space I enter a contractual relationship with the operator of this space and we talk about grants and, most of the time, about tenancy. When talking about working mobile we need to think about two different aspects. For one, the regulations with respect to working hours and then we need to talk about occupational health and safety. Of course, data protection and data safety plan an important role as well; who has access to work equipment such as a laptop, mobile phone etc. and

when? Where do we store what data? Who supplies the work equipment we use when working from home? And how about tax deductibility with respect to work equipment? How long somebody employed in Germany is allowed to work abroad? How can the employer fulfill his duty of care? Who needs to pay taxes where and how much? And how about social security contributions? Here again different countries, different customs, and depending on how long we want to stay abroad we need to take several things into consideration. Generally, the legislation of the country of the employer as well as the legislation of the country of residence where we enjoy working mobile need to be followed when talking about taxes etc. This also might include double taxation depending on whether we need to follow EU legislation or legislation of third countries. From an employer's point of view, it can be very uncomfortable when employees work from abroad on a regular basis, and even though new work, self-organized work and agility in all forms really are cool topics. We should take all perspectives into consideration and make sure, it works out for all parties involved in the long run.

9.4 Configuration Management

This term stands for the sum of all physical and functional features that have been determined and documented. Therefore, it is very important for project people to be familiar with the issue of configuration management and that we take all technical, organizational and legal measures or structures into consideration that apply to our project or product. Configuration management is very

closely connected to quality management, which we will address in more detail in the following chapter.

What does configuration management consist of? Let us start with configuration identification (CI), meaning the description of every single parameter referring physically and functionally to the product we need to develop respectively on the project we want to work on. Or we already have an existing product and want to find out its individual components, because we want to adapt or modify this product. For example, our project is about developing stylish sunglasses for our customer. The configuration identification is about describing which components are necessary for these sunglasses and which function the sunglasses have. Therefore we get some sort of parts list and the information, that our sunglasses should protect us from UV radiation, they should look really stylish and they need to be comfortable without creating painful pressure marks on our nose.

Another part of configuration management is configuration monitoring (CM), also called change management, meaning monitoring and dealing with all change requests occurring in our project. Reasons for such change requests may be that our customer wants things changed, but also new laws or different technological possibilities might be reasons why something needs to be changed. In our above mentioned example it could be the case, that our customer suddenly has the idea that the sunglasses he ordered now need to be in animal print design and in pink! So, the customer wants a design and pattern that looks like a zebra or cheetah and moreover, in a very unusual bright color, namely pink. From a legal point of view we now have the situation that the declaration of intent of our customer has changed and therefore the basis for our contract has changed, too. We

need corresponding declarations of intent in order to conclude a contract. And then our customer's idea might result in changing one or other parameters of our triple constraint, because it might be that the changes generate higher costs or that the delivery date will be delayed. We probably have already worked on the development of our stylish sunglasses and produced the glasses frame in a standard version but now we need to destroy all that because it does not fit anymore. So, we have already made payments, costs arose and we need to see it is at all possible for us from a technical or capacity point of view that we can accept the change request of our customer. In practical project management this means that we possibly need to elaborate a new price quotation and that we need to inform our customer (in written form) about the consequences his change request has and how we are planning (and under what conditions) to implement it. If our customer agrees to our modified conditions, the change request is approved and needs to be implemented, meaning that all relevant areas and departments in our company need to be informed on the modifications and are assigned with carrying out the approved changes. When the change request, however, is turned down, and no approval can be received, we also need to document this in written form for reasons of provability and traceability to protect us from claims.

Then there is record keeping (RK), meaning taking care on describing the configuration and to record everything. Every change request needs to be documented properly including the relevant information leading to the decision on how the changes need to be carried out and how the changed (contract) conditions now are. The reason for all of this is that later on we have complete documentation and can comprehend the entire change history of our project.

Why is this important? Very simple – let us assume with our sunglasses project that we have reached the moment where we hand everything over to our customer. Let us assume further that the change request concerning the new design (animal print in pink) has been approved and confirmed properly by our customer. We have thus changed the entire development and production process in a way that we now can deliver the desired quantity of stylish sunglasses to our customer. The customer looks at us puzzled and does not understand one thing! Animal print? Pink? The customer does not have a clue. Good thing that our record keeping works extremely well and we can prove that everything we did was based on the requirements of our customer! The same applies, of course, to when the customer did not approve any contractual changes (new price, delayed delivery) and therefore declined the change request. When the customer is puzzled because we hand the project respectively the sunglasses over in standard design without any animal print whatsoever, then here, too, we can immediately clarify and prove that the customer himself declined the change request and therefore no changes were implemented.

The last part of configuration management is configuration auditing (CA), meaning that we need to verify which possible approved changes of the configuration are implemented in what way into our project or product. So here we look at the new configuration which is the original configuration plus all approved changes. Configuration auditing is the systematic verification of all configurations; configuration units or parts of configurations as much as entire configurations as a whole. We need to make sure that everything we do is according to what we have agreed upon in the contract and an examination thereof needs to be done by means of official auditing. Very often they are

related to project specific milestones and therefore play an important part in our project work.

In a nutshell, we can sum up configuration management by the following ‹formula›:

CM = CI + CM + RK + CA

For those of us working in projects, configuration management is an important and integral part of project management with a direct connection to contract management, claim management, quality management, risk management or to everything that has to do with documentation or information. Solid (well thought out and lived) configuration management in classical project management has the function of making sure that the customer gets what he has ordered. In the end he should get exactly the product he needs. When agile, iterative project management methods are concerned, it is important that the customer is continuously involved and can influence which product he will receive. So here we do not need configuration management explicitly, because the customer is involved in all processes right from the start and can express his wishes and expectations which then can be followed continuously with the result that the customer always gets what he wants in the end.

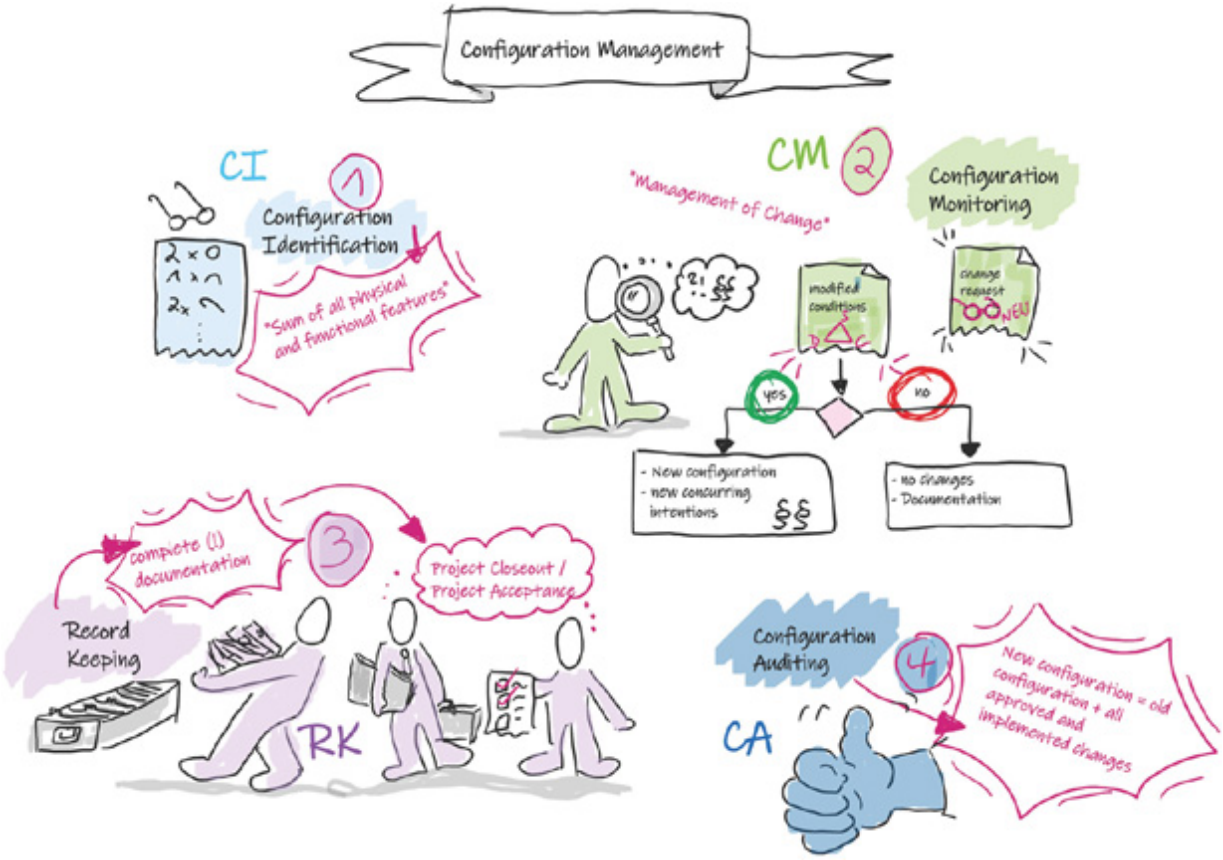

Illustration 33: Overview of configuration management

9.5 Quality

«Quality means when the customer returns and not the product!« Hertie founder Hermann Tietz nicely put it in words! What exactly does quality mean when talking about our projects' environment? It mainly has to do with ‹a degree to which a set of inherent characteristics meet the requirements› – therefore the features typical for the project and how we need to implement them specifically. To determine quality we need measurability and reference values, because what we interpret as ‹good quality› is

always extremely subjective. By having adequate key figures and references we are able to measure and control the quality of our projects.

The term quality management includes four different areas. The first, quality planning, means the determination of all relevant criteria that need to be implemented in a project with respect to quality. Then there is the aspect of quality control. This is in very close connection to quality planning and includes all the preventive, controlling and monitoring activities we need to fulfill so that in the end we can meet all quality standards and quality objectives successfully. *(A small anecdote: The reason why we refer to certain things as «okay« has its origin in quality control at Ford. Oskar Kraus – the great-great-great-grandfather of Daniel Kraus, one of our participants – used to mark tires he already checked for quality by signing his name on it. In order to become faster he soon only used his initials O and K. His US colleagues therefore knew that everything was all right when these two letters were seen. When pronouncing O and K they become «o-kay«!)*

How can we monitor and examine quality? Firstly, there is the criteria as defined by the customer. From the performance objectives of our project we formulate specific acceptance criteria (compared to performance requirements) and we determine who is allowed to approve what, how and when. In our practical example, writing our first book, we defined *performance objective L3: All sketch notes and illustrations are hand made by the authors.*

Until the relevant milestone our product manager received all sketch notes and illustrations in different digital formats electronically and she then had to approve everything. By means of a checklist she examined the individual visualizations with respect to existence on the one hand,

and the number of pixels and readability on the other hand so that she could decide if the quality of the illustrations were appropriate for the book.

Another important area is quality assurance, which necessitates quality control and, as a consequence, possible rework of the project or product. Quality assurance has the function of making sure that the quality of products and services is given, it surveys the processes and activities, it makes possible optimizations of production or products transparent and ensures that we meet all compliance regulations and that our staff is well-trained in all quality matters. Quality assurance can be performed internally as well as externally. When deviations have been detected during a checkup, then we might have to carry out reworking. This means that the defects detected at a product need to be corrected and eliminated, so that the quality our customer expects can be met at the end and that our project can be approved. Reworking can be, for instance, that a plastic part that has been produced according to injection moulding (automotive dashboards, for example) contains a so-called ridge, thus material parts that appear in an area where we do not want to have them because they exceed the component part. These surplus material parts need to be filed off subsequently, for instance, so that the component meets all requirements and can be evaluated «i.O.« (German for ‹*in Ordnung*›, meaning okay). When a component cannot be approved, even when reworking has been carried out, quality assurance procedures require that this component needs to be sorted out and is therefore considered a reject.

The Japanese chemist Ishikawa Kaoru is known as the founder of Japanese quality control in the automotive field and he developed a multitude of quality tools in the 1950s

which quality management nowadays cannot do without anymore.

In the following I want to explain the most famous tools, Ishikawa's Q7:

1. Flowchart
   A typical way of visualizing processes and procedures. The advantages are simple symbols and a variable degree of detail.
   The disadvantage is, however, that a flowchart leaves much room for interpretations and there are no clear-cut rules.
2. Fault Collection Card
   Common errors are recorded in a very simple way by means of a tally sheet. So this tool can be used easily, but an error analysis is not really possible and the process becomes extremely unclear the more errors are detected.
3. Histogram
   This is a plain bar chart to visualize typical frequencies such as, the chance for goals, for both teams in relation to the minute during a football game. A histogram can be established easily and even when we have a large amount of data.
   Here too the disadvantage is that there are no possibilities to analyze the errors and we are limited to metric data only.
4. Quality Control Card
   This means the temporary founded recording of measured values of a process over a defined, longer period of time. Random samples are taken at specific times and the results are documented. We define different areas, upper and lower boundary lines, and the «green area« where all values are still within specs.

5. Pareto Diagram
   In a Pareto diagram we record individually detected errors with respect to the level of their consequences compared to the percentage they have for the problem. The errors are visualized as bars in a coordinate system, starting with the error with the highest consequence. We then visualize the error with the second highest consequence etc. We continue to record the error causes (which we previously detected by means of, e.g., a fishbone diagram) into the diagram as long as they have reached the 80 % mark. So, when we have eliminated 80 % of the errors, this usually is sufficient to satisfy the customer.
6. Correlation, respectively Scatter Diagram
   Here we have a point cloud with which we can detect the correlation between two features by entering the data into a diagram with two axes. When we have enough data points, we can see a pattern which then allows interpretations with respect to statistical correlations between two features.
   A simplified example for a point cloud would be a map where we indicate each COVID patient with a point. Where we can see many points we have an area of extremely high infection risks.
7. Cause-and-Effect Diagram (Ishikawa Diagram or Fishbone Diagram)
   This is named after the inventor himself. A visualization method for a problem solving process where we are looking for causes for detected effects. This quality tool has established itself as 5 M variant as basis standard in quality management. Typical for this tool is the segmentation into the five main cause variables man, machine, material, milieu and method.

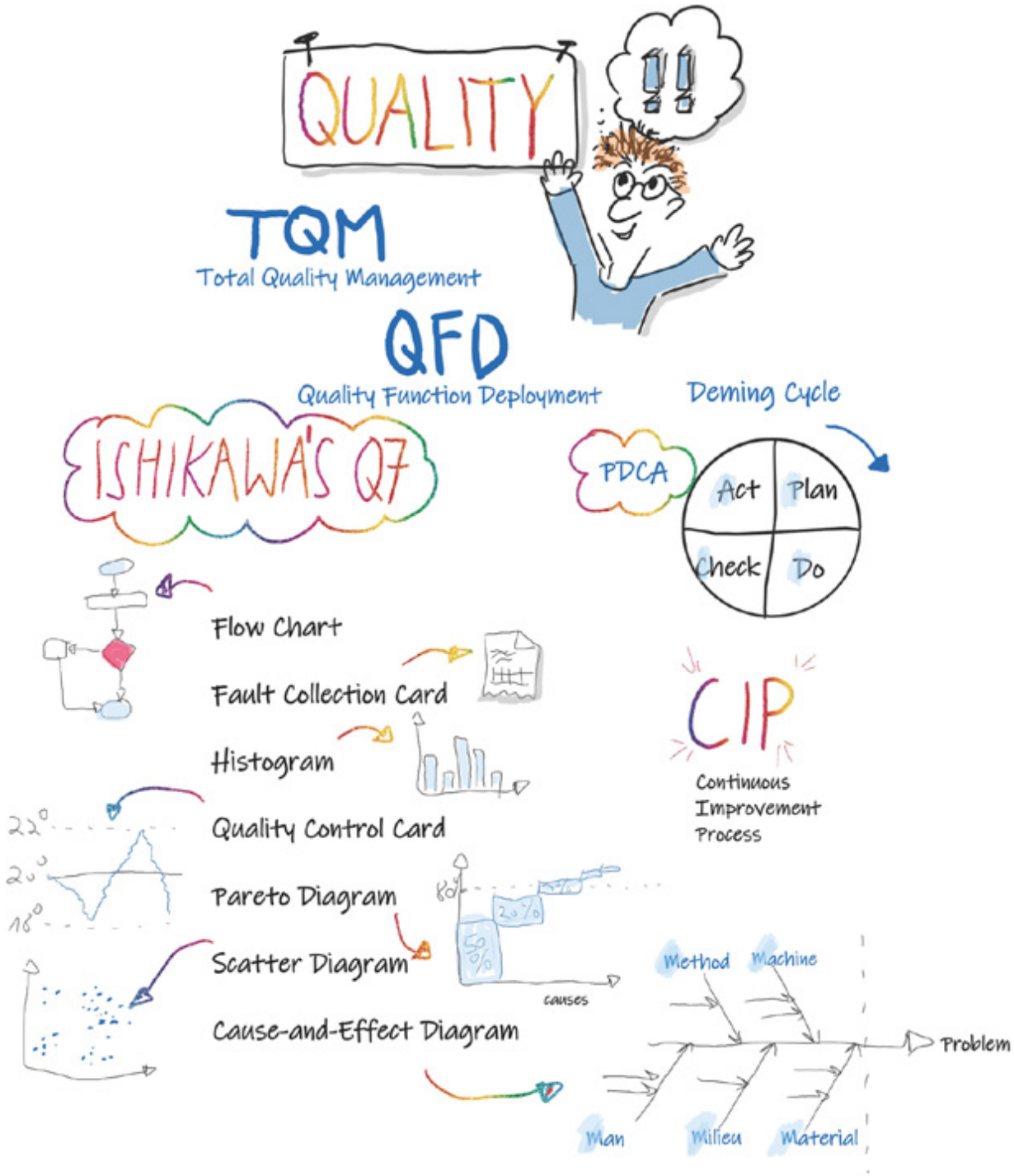

Illustration 34: Overview on Quality Management

When talking about quality management methods we should not leave out talking about William Edwards Deming, who during WWII, supported the consequent

application of quality criteria to avoid material defects and which ideas inspired the Japanese to elaborate the so-called Deming cycle when they reconstructed their country. This quality control cycle Plan-Do-Check-Act it is about establishing a continuous improvement process for enhancing products. During the *plan* phase we detect improvement potential which we then try out during the *do* phase to a small extent while we evaluate the improvements during the *check* phase and we implement those improvements that are considered useful during the last phase called *act*. Since this cycle needs to be gone through repeatedly, we also talk about a continuous improvement process (CVP).

TQM – Total Quality Management – this is quality management on various levels following a holistic approach. This method, too, has been developed by American physicist William Edwards Deming and is all about promoting quality management by taking into consideration all perspectives including the customers' views as much as the perspective of the suppliers, of the management and of all relevant stakeholders and to include all of this actively into our thoughts. Deming came up with 14 different rules which, according to him, were mandatory for improving quality, for example to visualize processes and objectives in a very clear way, to support quality-related trainings and educations, to identify with one's work or to apply a cooperative leadership style, just to name a few.

The concept of quality improvement has its origin in the Japanese automotive industry and was particularly influenced in the 1960s by Toyota. An important aspect is to look at quality assurance from the customer's perspective. During this time Yōji Akao, a specialist for strategic planning, established a method called QFD

(Quality Function Deployment), a systematic analysis of customer requirements aiming at constantly improving the quality of the products. In the so-called ‹house of quality› all the elements from the QFD are proportionally united in one graph. The house of quality got its name because the graph resembles the image of a house. A matrix evolves that looks a bit like a roof of a house with several areas that appear like rooms and side wings of a building. This ‹house› is usually built by following ten defined steps and begins with evaluating the customers' desires, then it evaluates the competitors and subsequently ponders on technical feasibilities. Feasibility and importance are rated by a score system proportionally.

Poka Yoke is a concept to avoid (Yoke) unintentional mistakes (Poka). The intention of Poka Yoke is to avoid mistakes at an early stage by thoroughly examining all parts. The expectation thus is a zero-tolerance production where ideally no mistakes occur. The principle is applied on two levels – both when developing the products and then also on the production level. It is about creativity with respect to product creation, it is about avoiding mistakes and it is about excluding process errors despite incorrect operation. By means of the three functions measuring, detecting deviations and regulating Poka Yoke almost becomes a philosophy with respect to process optimizations and quality improvements.

Quality is a very big and important topic in project management and despite the numerous methods and different approaches quality management is indeed something we almost apply intuitively and which we (should) consider important by our own expectations. However, the more complex our projects are, the more important it becomes for us to deliver high-quality results

taking quality aspects into due consideration in order to make sure that our most important stakeholders are satisfied. To use the words of Austrian media manager Helmut Thoma: «We can very well argue about quality. But one thing is for sure: The worm needs to be eaten by the fish – not by the fisherman!«

9.6 Stacey Matrix

Choosing the project management approach that is suited best for our project is a difficult task for many people. One reason for this is that there is an almost infinite number of methods or process models and another reason is that there are some people who are really into the issue of ‹agile› versus ‹non-agile› and for them it is more important to (presumably) ‹win› instead of actually finding the appropriate process model for the project in question. When selecting appropriate methods, personal taste or philosophies should be in the spotlight, but we should also ask ourselves how much we need to (or allow to!) regulate in our project. It is a fact that there are projects for which a classical approach is simply much more appropriate than an agile one because the project needs good planning and lots of regulations right from the start. This is the case, for instance, when we want to construct and erect buildings. In this case, we need to know beforehand how many floors the building is supposed to have in order to take this into consideration for the statics of the foundation. In addition to this the official approval procedures require submission of the building plans. But of course, there are also projects where an agile approach is much more suited than a

classical approach as we only find out about the specific requirements during the course of the project, because cause-and-effect relationships are still unexplored or because the project's environment is constantly subject to change.

The Stacey matrix is based on the theory of Ralph Douglas Stacey, who describes organizations as complex, reactive systems. The Stacey matrix has two axes, namely the HOW (technology/practical approach/solution approach/implementation) and the WHAT (requirements/objectives), which scales reach from known to unknown and where projects are classified into the four categories simple, complicated, complex or chaotic. Placing our own projects into one of these four categories is an indicator for a possible practical approach.

Simple Projects

We talk about simple projects when all requirements with respect to the project are known and when we also know precisely how to implement the solution and how to deal with all tasks. Since we know the underlying technology and because we have clearly defined dependencies, there will hopefully not be many surprises ahead. Simple projects can be easily planned, therefore sequential process models like, for instance, the waterfall model or parallel process models such as, for example, simultaneous engineering are suited very well. Note: When we have parallel process models, we need to deal with phase overlap, meaning that some phases are worked on at the same time (or partially at the same time) to save time.

Complicated Projects

Complicated systems are systems that can be decomposed into fragments and whose functions (when we put everything back together again) lead us exactly to the goal we had in mind initially. Let us think about airplanes, for instance. Airplanes are complicated, they consist of thousands of parts and components. And yet the designers and engineers know precisely which bolt needs to be put into which nut and which cable belongs where so that the airplane can do what it is supposed to do – fly from A to B! Transferred to projects this means that we talk about complicated projects when we do not yet know all of the requirements right at the beginning, when cause-and-effect relationships are not clear initially or when we have not yet fully mastered the technology we have to use. By means of thorough analysis however, and the use of experts we can eventually find and use cause-and-effect relationships. Complicated projects, like most technical systems, consist of a lot of individual components, but can still be planned fairly easily, because we know where the components intertwine. We do need to take many things into consideration. Of course, many errors may happen along the way. Therefore, we need to pay particular attention to minimizing faults and to quality as well. An appropriate process model would be, for example, the so-called **V-Model**, a sequential phase model which has been extended by the aspect of ‹quality›. The ‹V› represents the terms verification (which means testing according to specifications) and validation (meaning that we examine if the product is suited for the desired field of application).

Complex Projects

We talk about complex systems when a system is no longer predictable, because there is feedback of those actuators, which are part of the same system. Everyone who interacts in the system, influences the overall system. For instance, in traffic, traffic jams are unpredictably as is how long they might possibly last. Transferred to complex projects, this means that the underlying technology is not yet known to the participants or it still needs to be developed or understood. It also means that requirements cannot be formulated beforehand because they are absolutely unknown. We also refer to complex projects when we have many project participants with entirely different interests and motivations. Typical complex projects are major change projects in companies, projects in the area of digital transformation, opening new markets, a multitude of projects in the field of climatic change and environmental protection. Such projects remain manifold (therefore: complex!) and they cannot be simplified. You cannot plan the entire project in a classical, linear way, but you do need to always react to the current situation and therefore you can only go one step at a time. After each step you examine where you stand and you use the lessons learned for planning the next steps. Repetitive process models are ideal for working in complex projects. We differentiate between **incremental process models**, where we develop a product gradually by means of individual parts and **iterative process models**, where the product is enhanced gradually. Appropriate classical process models would be the **spiral model**, where we refine the product further in every loop or iteration, or there is the so-called **evolutionary model**, where any further development or refinement is based on some sort of core function determined right from

the start. Particularly suited are agile methods such as Scrum, because a lot of agile methods support an iterative procedure; all experiences are constantly updated, the lessons learned are implemented into further steps and the customer is actively involved into all the development phases of the project. Hybrid process models combining classical process models with agile methods, for example the Water-Scrum-Fall model, are perfectly suited for working in complex projects.

Chaotic Projects

Chaotic projects are projects for which the requirements as well as possible solutions are still totally unclear, meaning that there is no relationship detectable between cause and effect. All we can do here is trial-and-error, examine the result and, if something useful can be found, include that into the planning of the further steps. Then we do a trial-and-error again and examine everything, using those solutions that prove to be helpful, jot down ideas that prove useless, try again and so on.

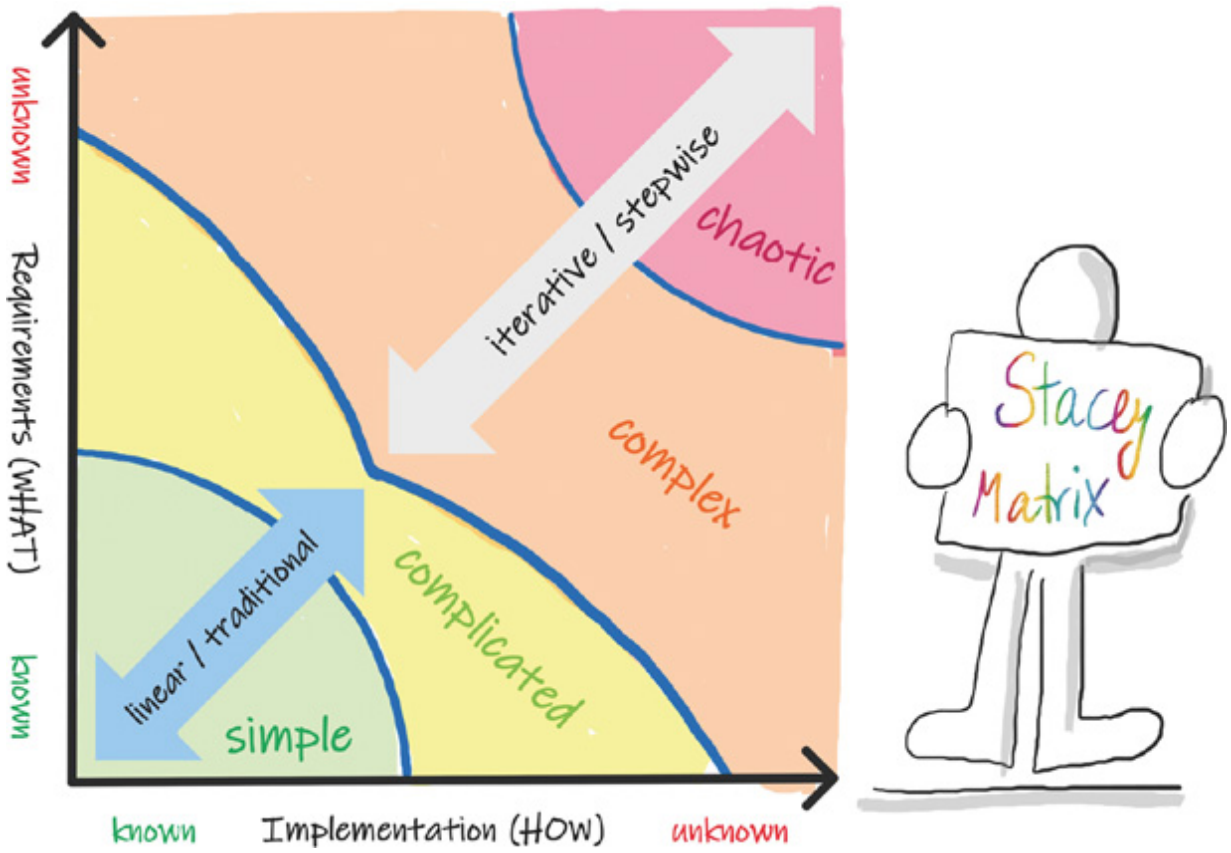

Illustration 35: Stacey Matrix

10 Our Interview Partners

We would like to express our most heartfelt gratitude to all the wonderful people who agreed to be interviewed by us and who answered this potpourri of questions regarding the different project management phases and topics. With their openness in the interviews they allowed us so many fantastic deep dives into their immense wealth of experience and PM know-how. When writing a book about understanding practical project management it is of utmost value to receive first-hand insights both nationally as well as internationally. So here we want to give our interview partners the opportunity to introduce themselves briefly.

Ben Ziskoven

Being an agile coach and Scrum master, I live and work according to agile principles, actively participating in a multitude of software or marketing analysis projects. The customer’s perspective matters a lot to me as does having a personal and close connection with the client. I always have and eye on the business and the objectives when working in my projects. My professional and private center stage, so to speak, is Amsterdam in the Netherlands; I work nationally as much as internationally on my projects.

Carsten Mende

I have more than 15 years of experience in different industrial fields such as consulting, the public sector and defense and automotive. I implement different shared services within HR from scratch. At the moment I lead the transformation of the HR organization of Valeo Germany as well as the implementation of a new HR core system. It is my mission to anchor project management know-how and an economic point of view within the area of human resources and to support HR colleagues in their projects and in the use of change and project management methods.

Peter B. Taylor

I am a keynote speaker and coach, author of the number 1 bestselling project management book ‹The Lazy Project Manager›, along with many other books on Project Management, PMO development, Executive Sponsorship, Transformation Leadership, and Speaking Skills. I have delivered over 480 lectures around the world in over 25 countries and have been described as ‹perhaps the most entertaining and inspiring speaker in the project management world today›.
(www.thelazyprojectmanager.com)

PMOs: I have built and led some of the largest PMOs in the world with organisations such as Siemens, IBM, UKG, and now Ceridian, where I am the VP Global PMO.

METHOD: I have also said that my PMOs and PMs run ‹hybrid› projects utilising a mixture of agile, lean and some waterfall elements, especially in the areas of stage gate management and quality assurance. In fact, in my last company we joked that we ran ‹Glagile› projects – gated, lean, and agile.

PROJECT MANAGEMENT: Having been active in project management for the last 35 years for me it is always about the people, forming and leading a group of individuals to deliver something quite special at the end. I have had the pleasure to watch my chosen profession mature and grow over these years and am proud that I have, in some small way, been part of this journey for some people.

Astrid Beger

I am an all-rounder and passionate project person who loves to lead and to take on responsibility. In a technology group I used to be a top talent of the board of directors. As a mother I experienced hitting the glass ceiling and this is the reason why I came to an entirely new perspective with respect to projects and economies. Besides working in the board of directors of the group, I used to be an executive in the public authorities and now I am, maybe part-time, a freelance and well connected entrepreneur. Learning, on an academic level, about regenerative economy is my passion at the moment. I am connected with the two authors by means of my activities in and for the GPM (registered German Association for Project Management).

Felix Mühlschlegel

I work as marketing director for adidas in the USA. I have worked in marketing their products for 20 years now and in product creation. In answering these interview questions, I considered the creation process of a collection as being a project. Therefore, the project duration is approximately 5-6 months and involves a lot of different departments, decision-makers and external influences. At the same time the basic structure of these projects repeats, therefore we can continuously optimize the process over the period of years. This is necessary, because our consumers, our competitors and our environment are subject to constant changes, as well.

Sebastian Wächter

I experienced changes myself in a very radical way. At the age of 18 I fell whilst I was hiking and broke my neck. I am now able to say that I mastered my changes and I combine the experience of my paraplegia with my knowledge as long-standing stock analyst. These days I support companies and organizations in their change projects and I am by their side during their change processes. I shed new light onto the term ‹change› and I show, that change is always progress, after all.

Stephan Scharff

I love to literally ‹rock my projects› leading them to success for my customers. I also coach customers on how they can reach success by setting-up their projects according to the Five Levels of Agile.

Michael Künnell

I am a passionate family man and economist having worked for almost 30 years as CFO for different family businesses with a broad lineup with respect to responsibility internationally. I am always searching for the stories behind the numbers in order to be able to make the right decisions for the future.

Daniel Laufs

I am Daniel and I work as a network manager at the Scientific Research Center Kiel. At the beginning of my PhD in technology management at Christian-Albrechts University Kiel I was already interested in and enthusiastic about interdisciplinary collaboration in large-scale projects and I am convinced that the challenges of the times we are living in can only be tackled collaboratively. This also applies for urban mobility which we deal with at #CAPTN –

Clean Autonomous Public Transport Network in different innovation projects collaboratively.

Thor Möller

As an economic scientist and entrepreneur, I build up my own companies and lead them to success. In doing so I focus on my scientific knowledge and pair them with the practical challenges of the corporate entities. The theory ensures the impulse and practice provides the solution. As a consultant, trainer, coach and speaker I work in all kinds of industrial sectors and for companies of all sizes on a global scale. Implementing the right projects in the right way and preparing companies for their future is my credo. I studied economic science at the Institute for Project Management and Innovation (IPMI) and got my PhD, I worked as department head and project manager, I am acting as a consultant and trainer in a lot of corporate entities and universities all around the globe and I have published a multitude of books. Project management is my passion and I am connected in many ways with the GPM, first as a member of the board of directors and then, from 2021 to 2022, as president.

Tobias Rohrbach

I am an entrepreneur and investor with more than 25 years of experience in the area of project-oriented implementation of IT consulting and consulting as well as in the field of building businesses and the development and transformation of corporate entities. As director of Lutz und Grub AG I focus on and support qualified, modern and innovative training concepts particularly in the areas project management and IT.

Arie van Bennekum

I am a pragmatic person who embeds my pragmatism in structure, discipline & common sense. I have done this from my early days in health care and the military forces up to where I am today. This eventually led to me being one of the authors of the Agile Manifesto. Over the years I have become an expert on Agile transformations and Business Agility. I work as a thought leader for *Wemanity* (www.wemanity.com) and IFAAI (www.IFAAI.org). At Wemanity I am responsible for international transformations across the globe with an international team. Alongside my work in Agile and Agile transformation, I have lectured at the universities of Rotterdam, Amsterdam and Utrecht on topics such as Agile, (agile) project management, business value and agile transformation. (www.integratedagile.com and www.arievanbennekum.com)

René Windus

After my studies in the field of electrical engineering at the University of Hannover I started my professional career at the automotive supplier Continental/ContiTech. I started out as a team member for 12 years, then as a manager of sub-projects and then as a project manager. In the beginning, it was all about software development projects with respect to processing factory data and later with respect to controlling large-scale international IT and organization projects. I have been CEO of Decisio and acting as interim project manager, coach and project consultant since 2001. In 2006 Decisio implemented the topic qualifications into our service portfolio. As an accredited and certified Project Management Trainer (GPM), Business Coach (IHK) and IPMA Level A certified Project Director (GPM), I love to share my knowledge of methods as well as of my project experiences with the next generation of project managers. In addition to that I consult and support organizations who want to implement project and portfolio management. My heart beats for project management because when working in projects you are always where there is movement and action. Projects can change the world in a positive way and it is great to be able to help shape that. Besides, working with people and therefore the ‹human factor› is something that I really love doing.

Stefanie Gries

I am born ‹Kasselanean› (from the German city named Kassel) and I learned to love my little ‹village with the tram›. I quench my thirst of being in lively metropolitans by travelling as much as I can. Since finishing my studies I have worked in the area of photovoltaic and every day I am more thrilled and excited about being on the ‹bright side of life› acting as a small gearwheel in the fight against climate change. When I first heard about project management within my course of studies my initial thought was «Wow, you can have a job without having to work yourself?« Well, I quickly realized that this was not really what it was like in reality. Nevertheless, I love the interplay of all project manager’s tasks each and every single day.

Olaf Piper

Born in 1969 and a trained banker and certified economist, IPMA certifications Level D and B. I have worked for Festo since 2001. For quite some time now I have been in a department with only certified project managers. We are assigned to IT needs-based projects. Now I am working on a project for the technical new orientation of our IT support services. The aim is that chat bots one day may be used and tested for handling simple support cases. In my project work I particularly enjoy having personal interactions with colleagues and partner enterprises. Projects at Festo are almost always very international and this is the reason why I often travel to one of our 60 country organizations dealing with, for instance, controlling project-related roll-outs. Working with people and cultures all around the globe

makes project management so incredibly fascinating and interesting for me.

Petra Berleb

As CEO of Berleb Media GmbH and editor-in-chief of the *projektmagazin* I am responsible for content, product development and strategy. Up to 1997 as commercial computer scientist, I worked as editor in an IT publishing house, then I as a IT consultant and journalist. In 2000 I founded the *projektmagazin*. In addition I am certified according to Prince2-Foundation as well as certified project manager with respect to AFW Bad Harzburg.

Chris Schiebel

I have worked on various projects for 16 years and I am known for thinking outside the box and presenting fresh new perspectives. Being an ambassador for *zeitgeisty* project management my motivation is to add a modern touch to the objective topic of project management giving it a voice. A good example is my first fitness studio for projects, which I founded in 2020. As consultant, trainer, coach, podcaster and speaker I combine classical as well as agile approaches with change management, new work as well as with personality and team development turning it into a holistic approach.

11 The Authors

Michaela Flick is a passionate project manager, trainer and author for leadership and project management, both topics very close to her heart. Her success is based on her experience and competency, her professional approach, her empathy as much as on her positive attitude. Together with her husband Mathias she loves sharing her knowledge and supporting others in mastering their vocational trainings and getting ready for certifications. As a delegate of GPM Deutsche Gesellschaft für Projektmanagement e. V. (registered German Association for Project Management) for Rhineland-Palatinate, Michaela Flick contributes to professionalizing and advancing project management in Germany. She supports specialists and executives in mastering their tasks. Her motto is: *«We cannot change the direction of the wind, but we can adjust the sails to reach our destination.« (Aristotle)*

Mathias Flick is a business economist and an enthusiastic project manager. Effortless, calm and with well-grounded professional experience he leads and consults a multitude of projects. As Lead PM of Lutz & Grub Academy he supports his project teams and participants in mastering their projects as much as in getting ready for different project management certifications. As a delegate of GPM Deutsche Gesellschaft für Projektmanagement e. V. (registered German Association for Project Management) for Baden-Wurttemberg and as a member of the Certification Board of pm-ZERT, Mathias Flick is committed to voluntary service in the association supporting its engagement with respect to standards and regulations. Together with his wife Michaela he lives in the southern Palatinate region not far from Landau. His motto is: *«First, have a definite, clear practical ideal; a goal, an objective. Second, have the necessary means to achieve your ends; wisdom, money, materials, and methods. Third, adjust all your means to that end.« (Aristotle)*

12 Attachment

Glossary

Acceptance Criteria	Contractually stipulated issues such as performance requirements, delivery time or successful test operation, which need to be fulfilled so that the customer is required to take delivery.
Activity	Tasks are called activities once the process planning has been done. An activity cannot be divided any further which means it is usually processed without interruptions.
Adaptive Growing®	Adaptive Growing® means the unerring mixture of the right content, learning forms, learning times and the active promotion and help of external experts or like-minded people (peer group).
Agile Methods	In a complex, dynamic environment the project life cycle cannot be predicted perfectly right from the start. Therefore, a product is developed in short iteration cycles. The entire project is not planned all at once but rather only the next upcoming cycle.
AGIL-Scheme	**A**daption – react to external conditions **G**oal Attainment – following mutual objectives **I**ntegration – create a sense of community **L**atency – maintaining a cultural value system
Audience/Project Environment/Project Context	The environment, in which the project takes place and which, on the one hand, influences the project and, on the other hand, is being influenced by the project, too.
Belbin Test	A multiple-choice test according to an accredited method which aims at finding out which of the

	nine Belbin roles correspond most likely to our personality.
Benefit	The advantage, respectively the success that we achieve by successfully managing the project. The «expected« benefit therefore is the reason why we are setting up a specific project.
Bottleneck Resource (DRUM Resource)	Resource of the permanent or parent organization necessary for the realization or implementation of a project, but which is not available at any given time in the requested quantity (due to multiple stresses or limited capacity). This resource makes it necessary to adapt the project plans, because it jeopardizes the attainment.
Brainstorming	Creativity technique where ideas are being spontaneously thrown around by a group of people. A moderator writes all of the ideas and/or keywords on a flipchart or whiteboard for further processing.
Budget Cash flow	Limitation for costs. The amount of money we can dispose of at a given time during the course of our project. It is calculated from the sum of all revenue minus the sum of all expenses that have occurred until that specific time. If the result is negative, we need to refinance because otherwise we will not be able to cover our liabilities (the money we owe others).
Classical (linear/traditional) Project Management	The attempt in anticipating the entire project life cycle, visualizing it in a plan and then following this plan sequentially step by step along the way and possibly also incrementally (in partial steps).
Closeout Phase	The fifth and last project management phase in which the final product is handed over to the customer. Lessons learned are documented and the project closeout takes place.
Communication Square	The communication square according to Friedemann Schulz von Thun indicates that every message has four facets and occurs on four levels. 1. Factual information – what do I inform about? 2. Appeal – what do I want you to do? What should I do/think/feel?? 3. Relationship – how do we interrelate? 4. Self-revelation – what do I reveal about myself and how do you feel?
Communications Matrix	A communications matrix determines how we

	communicate in a project. It consists of the following columns: y Sender (who is communicating?) y Recipient (with whom?) y Type of document (with what?) y Content (about what?) y Rhythm (when?) y Quantity (how much?) y Means (in what way?)
Configuration	Configuration is defined as the sum of all functional and physical features of a product or service, how it is described and stipulated in the relevant documents and how it needs to be implemented in the product.
Cost Trend Analysis (CTA)	Enables a quick overview on the development of the costs with the objective of forecasting possible cost overruns or lower costs.
Cost Hydrograph	Graphical display of the actual costs per unit time in the project.
Costs	Monetary evaluation of the real consumption of resources.
Cost Planning	Determination of the costs according to the formula «quantity × price« with respect to materials respectively «hours × hourly rate« with respect to personnel/machines. Display of the costs per unit time (= cost hydrograph) and the cumulated costs of a project over time (= s-curve).
Co-working Space	Generally stands for the rental of a desk or office in a community building where people are working together independently. The term describes a popular, new work model.
CS (Common Sense)	The ability of a human being to make decisions based on daily experiences and common wisdom. According to Immanuel Kant it is «common sense, in so far it judges correctly«.
Cultural Fit	The term has its origin in personnel psychology and describes how well the employer and employee fit with respect to their cultural values and beliefs. The main focus lies in the relevant corporate or organizational culture.
Definition Phase	Second project management phase in which we determine the specific objective and general implementation possibilities.
Deliverables	Factual results being handed over and delivered to a defined time or at the end of the project to the customer.

Delphi Study	A structured survey where experts are interviewed in different cycles by means of a questionnaire in order to get profound expert insight (mostly preliminary to a project). A Delphi Study usually requires a long timeframe and is apt particularly for R&D projects with a high level of innovation content.
Discursive Strategy	Strategy to control the project environment. It is based on balancing the interests of the stakeholders.
Disruption	The term refers to the fact that existing technologies, business concepts or services are constantly overtaken or displaced by new ideas and innovations. Thus, they are literally «destroyed« in order to make room for something new.
Earned Value Analysis (EVA)	Special method to measure the performance which serves the evaluation of progress in projects. At a reporting date a specific degree of completion (earned value) is compared with the planned costs and the actual costs in order to obtain information on the status of the project.
Empathy Map	Method to detect the expectations and requirements of one’s own target group with the purpose to get to know them better and to be able to «walk in their shoes«. It is used to develop a so-called «persona«.
Estimated Cost to Completion (ETC) Evolutionary Model	All costs that will arise until the completion of the project. Process model in which the project object or product is developed and evolved in several cycles. The evolution focuses on some sort of core functionality that has been determined beforehand. The evolution by version of e.g. software is an example of an evolutionary model.
Execute Phase	The fourth project management phase in which, in pre-defined time periods, the planned data are compared to the actual data. In the event of deviations, actions and interventions become necessary.
Execution Benefit	A project has been successfully completed within the framework of meeting all necessary specifications.
Expense / Effort	Use, consumption or utilization of resources necessary to carry out an activity, work package

	or project.
External (Project) Completion Feedback	Delivery of the project's results to the customer and acceptance on behalf of the customer. In communication feedback means the recipient of a message tells the sender what he or she has understood from the message and how the message has been interpreted.
Fishbowl	A creativity technique where a small group of people discusses a defined topic while other members of the group stand in a circle around the participants of the discussion. If one of the outsiders wants to participate he or she indicates the replacement and takes over the place within the discussion.
GENBA	Japanese term from quality management: «*the real/actual place*«. This defines where added value is created such as in production. This means that we should go where the important things happen.
GPM	(Registered) German Association for Project Management
Hierarchy of Needs	According to Abraham Maslow these are mostly outlined as a pyramid of five levels such as physiological needs, safety and security, love and belonging, self-esteem and self-actualization. It is about motivation and the will to reach the next level but this is only desirable, when our current needs are fulfilled to a level of at least70 %.
ICB Iceberg Model	International/Individual Competence Baseline of IPMA A communication model which visualizes the ratio of the conscious level (1/7) and the unconscious level (6/7).
IKIGAI	A Japanese method used to find out about the purpose of life and what literally fills our bowl of life. (*iki* = life; *gai* = bowl).
Implementation Benefit Incremental Process Model	The project or product has led to a clear benefit. An incremental approach means that a product is developed step by step in individual components or parts. At the end of one cycle (a repetition) the customer receives a usable deliverable. The sum of all individual parts and repetitions then equals the project's result. For instance, you could develop a game of chess

	incrementally by firstly producing the dame, then the kings, the knight and so on.
Information Requirement Matrix	An information requirement matrix defines which information the individual stakeholders need and when. It consists of the following columns: y Content and form y Sender (rapporteur) y Recipients or audience y Frequency
Initiation Phase	First project management phase in which all information necessary is collected in order to decide whether the project can be carried out or is generally feasible.
Internal (Project) Completion	Formal project completion or finalization of all controlling matters. It consists of a final project analysis, lessons learned and the project closeout.
IPMA	International Project Management Association
Iterative Process Model	An iterative approach means that a product evolves gradually, from the gross to the subtle. First, we develop general functions and then we enhance them gradually, getting better as we go along. A sculptor works iteratively by carving a rough contour from the stone block first and then adding the fine details such as the face, eyes, the nose etc.
Kick-off Meeting	Conference in which target values and data with respect to the project is announced officially.
Lateral Leadership	Leadership without authority, also called «lateral leadership« or «leadership on eye level«. Influence can only be exerted by means of charisma, trust and mutual agreements.
Latinx	Neologism; a combination of the terms *Latin American* plus the gender-neutral *x*. Since 2004 it refers to the Spanish-speaking population in North America.
Legal Consequence	Indicates which impact (from a legal point of view) can be expected with respect to a specific activity which requires the fulfillment of specific requirements.
Lessons Learned	Means learning from our projects. Lessons Learned includes that the experiences gained during the course of a project are being addressed, collected and made available for upcoming projects. In retrospect all relevant project people come together and talk about the

	project and how it went. The (new) knowledge is documented, e.g. in a knowledge database.
Milestone Trend Analysis (MTA)	Enables a quick overview on a deadline situation with the objective to be able to forecast whether or not milestones are within specifications or not, if there are delays to be expected or if milestone results might possibly be reached sooner than expected.
Mind Mapping	A creativity technique where ideas are visualized on a graphic road map in a very free and easy way.
Model of Organizational Culture	The model of organizational culture according to Edgar H. Schein includes three levels. Firstly, the conscious level with communication, actions and artefacts. Secondly the partly conscious level of values and standards and the unconscious level with basic assumptions, ways of thinking etc.
Morphological Box	A creativity technique, which is perfect for enhancing or expanding already existing products. A chart with pre-defined columns contains all parameters of the product and adds further manifestations or characteristics.
New Work	The term describes the structural change in the world of work by means of digitalization, digital transformation or approaches with respect to Work 4.0. For a lot of organizations New Work stands for an entirely new approach to address all relevant topics of the world of work.
Non-Objective	A non-objective is necessary to sharpen the projects' margins, which means that we can determine clearly what is not part of the project.
OKR	A method in order to separate objectives into quantifiable key results. OKR is a framework for modern management and has been used for the first time by Google.
Osborne Checklist	A creativity technique to generate solutions for improving or expanding an already existing product by consequently processing a list of defined questions and impulses.
Pareto Principle	According to Vilfredo Pareto it is a fact that approximately 80 % of the tasks can be done with 20 % effort. However, if you want to achieve 100 %, you need to invest the remaining 20 % again for 80 % of the effort!

	Thus, the principle says that in most cases we do not need to be perfect, but that we already achieve a high result with major satisfaction from our stakeholders by way of a relatively small effort!
Participative Strategy	Strategy to control the project's environment which focuses on the active inclusion and involvement of the stakeholders.
Penalty	The debtor (e.g. customer) needs to pay the creditor (e.g. supplier) a contractually agreed upon sum of money in the event of deliberately not fulfilling his/her obligations.
Perflo.co	A software and team diagnostics solution that empowers teams to continuously improve.
Permanent or Parent Organization	Permanent, project independent organization form of a company. This includes the project organizational structure as well as the process organization and all of its requirements.
Planning Phase	Third project management phase in which we establish all relevant plans such as stage plan, WBS, schedule or flowchart, network diagram calculations, Gantt chart, resource plan, cost plan and a financial plan. The sum of all plans is called «project plan«.
PMO	Project management office; a permanent facility in a company or organization which supports with respect to project selection, initialization, planning and controlling of all projects or programs within the portfolio and which is responsible for the advancement of project management.
Process Objective	The aimed and desired process or framework of conditions within the course of a project; e.g. «no child labor«.
Profit Center	Part of the company or organization for the responsibility for the financial success of the project. The area managers operate like independent entrepreneurs.
Project	New, complex endeavor, which follows specific objectives, contains a start and end date and is carried out by a team.
Project Organization	Temporary organizational structure that lasts for the duration of a project, for example influence

	project organization, matrix project organization or autonomous organization.
Project (Management) Plan	The whole of all plans of a project, e.g. with respect to content, quality, schedule, costs, resources and financing is called a project plan or project management plan.
Project Closeout	Allocation of residual tasks, liberation of resources and release of the project manager.
Project Closeout Analysis	Evaluation of the project (upon successful acceptance and closeout) consisting of post calculation, profitability analysis, variance analysis and a customer survey.
Project Context Analysis (PCA) Project Design	Collection of all relevant social factors (people) and objective factors, which may have an impact on the project. Translation of the desires, requirements and influences of a corporate entity or organization into the layout of a project in order to ensure the highest probability of success.
Project Management	The sum of all accompanying tasks necessary in order to bring an endeavor becomes successful (leadership, communication, coordination, organization, planning, controlling)
Project Objectives/Product Project Organizational Structure Project Start Workshop	The project result, respectively the product (deliverable), that the customer receives at the end of the project. A hierarchical structure of a permanent organization or corporate entity. Meeting at the beginning of a project in where the participants elaborate all that is relevant to carry out the project.
Project Team	A project team is a group of different people who fulfill different tasks in the same project. In practice we differentiate between the project core team (the group of people doing most of the project tasks) and the extended project team (people who are not fully assigned to the project and assist only partially, when necessary).
Projectification/Projectivization PULL Principle	Process during which course a decision is made whether or not a task or an endeavor becomes a project. The employee decides for him or herself as to which tasks are to be chosen; production only starts operating upon receipt of an official order.

RACI Matrix	Technique to allocate and analyze responsibilities. (**R** = *responsible*; **A** = *accountable*; **C** = *consulted*; **I** = *informed*)
Repressive Strategy	Strategy to control the project's environment and audience. This strategy focuses on the use of power and oppression and has an inhibiting impact. A milder form is the restrictive strategy in which stakeholders are merely informed of something.
Requirements Specification Resource Planning	Contains the expectations and requirements of the customer; WHAT we need to do and what for. Allocation of available resources (personnel, machines, consumer goods, durables) to activities.
Resources	All resources such as personnel, consumables, durables necessary for carrying out the project.
Result Targets/Result Objectives Reversal of the burden of proof	The project object or product which the customer obtains at the end of the project. Occurs after the first six months subsequent to the transfer of risk. After purchasing an object or item and in the event of a defect it is assumed, in favor of the buyer, that the defect was already there at the time of the purchase. The seller is then obliged to put forth counterevidence.
Riemann-Thomann Model	A model describing typical behaviors of an individual. There are four different basic orientations: closeness, distance, duration and change, all graphically visualized in a coordinate cross.
Risk	Uncertain event with negative impact on the project.
Risk Analysis	Identification and evaluation of possible risks and planning of preventive or corrective measures. Preventive measures are efficient against the probability of occurrence and/or against the damage amount of a risk. Corrective measures are the «plan B« when the risk hits and serves the damage limitation.
Scoping	Aimed at a mutual understanding of the project's scope including approximate costs and what resources are available.
S-Curve	Displays the cumulated costs visually over the entire course of the project.
Spiral Model	The spiral model is a repetitive process model in

	which four identical steps are carried out and thus differentiates and refines the product (improving and completing it): 1. Determine objectives 2. Identify risks and minimize them 3. Develop and test 4. Plan next cycle
Sponsoring Stage Plan/Project Phase Chart	Looking for people who support our project financially. A plan consisting of time segments (phases), control or checkpoints (milestones) and a timeline giving an overview on the total project in a very appealing way.
Stakeholders	People or groups of people that have something to do with the project. They are either interested/involved in the project or they are affected by the project's results or impacts.
Stakeholder Analysis	Identification and evaluation of the stakeholders and planning measures on how to deal with them properly.
Statement of Work (SOW)/Functional Specifications	Describes in a very precise form how the supplier is planning on fulfilling the customers' requirements. It is about HOW and WITH WHAT the implementation takes place.
Sub-task	A group of relating work packages within the work breakdown structure (WBS). A sub-task divides in additional elements (sub-tasks or work packages).
Success Criteria	Feature, attribute and valuation standard for measuring and evaluating a project's success.
Success Factor	The conditions that contribute to the success of a project.
SWOT Analysis	Instrument of strategic planning where ***S**trengths*, and ***W**eaknesses* of a company or organization are contrasted with the ***O**pportunities* and ***T**hreats* of the project environment or audience.
TARS Matrix	Overview on the **T**asks, **A**uthorities, **R**esponsibilities and **S**kills which are allocated to a specific role-/position within the project.
Transfer of Ownership	Buyer and seller of movable objects come to an agreement, the contractual object is handed over and becomes the property of the buyer (if all requirements are fulfilled).
Transfer of Risk	In Civil Law it describes the moment where the risk of deterioration or the risk of loss of a contractual object is transferred back from the

	debtor (e.g. the supplier) to the creditor (e.g. the customer).
Triple Constraint/Magic Triangle Underground Communication	Describes three factors determining the project success: Time, Cost and Scope. Informal conversations in the workplace, such as in the kitchen over a cup of coffee or «grapevine« talks in the smokers' area.
V Model	Sequential process model which has been completed and expanded by the aspect of «quality«. For each activity on the left side there is a corresponding part on the right side of the V-shaped model.
Validation	«Have we undertaken the right project?«, which aims at the examination if the project has brought us the desired benefit and fulfilled its purpose.
Verification	«Have we undertaken the project correctly?«, which aims at the examination of if we have met all necessary specifications and requirements.
VUCA World	VUCA stands for: **V** = *(volatility)* **U** = *(uncertainty)* **C** = *(complexity)* **A** = *(ambiguity)* The term is used for strategic leadership and organizational development in order to point out how much our business world is changing.
Walt Disney Method	A creativity technique which had presumably first been thought of by Walt Disney, in which a problem is looked at from the three different angles and positions of a dreamer, a realist and a critic.
Warranty	(Alternative term: liability for defects). A period of time stipulated by legislature in which the seller of an object is liable for possible defects and can be held responsible for correcting this defective performance.
Waterfall Model	Linear process model which is organized in subsequent project phases. Just like the waterfall of water, the results of the waterfall model cascade down step by step and phase by phase and they are then further processed or taken as given requirements.
Work Breakdown Structure (WBS)	The work breakdown structure contains all activities that need to be performed within the course of the project. It consists of work packages, sub tasks and the root element.

Work Package	Part of the project, which is not subdivided any further within the work breakdown structure. A work package contains a completed service that can be clearly differentiated from other work packages.
World Café	Creativity technique, in which the participants share their thoughts and ideas and take notes of them in one way or the other. It can be compared to an informal get together in a coffee shop.

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