Diploma thesis

Concept for a Methodic Structure to Optimize the Project Start-up Phase of Magna Steyr's Product Development

Authored by

Felix Hoffmann

Submitted at

Institute of General Management and Organization,

Graz University of Technology

A-8010 Graz

In cooperation with

MAGNA STEYR Fahrzeugtechnik AG & Co KG

A-8041 Graz

Graz, December 2012

Assessor: Univ.-Prof. Dipl.-Ing. Dr. techn. Stefan Vorbach

Supervisor: Univ.-Ass. Dipl.-Ing. Christiana Müller

External Advisor: Dipl.-Ing. Wolfgang Fritz, Dipl.-Ing. Ludger Weyers

Statutory declaration

I declare that I have authored this thesis independently, that I have not used other than the declared sources / resources and that I have explicitly marked all material which has been quoted either literally or by content from the used sources.

Graz, 28. January 2013   ………………………………

                                                                    Felix Hoffmann

Acknowledgements

Due to some kind of time pressure, I have to keep thanksgiving brief. But nevertheless I feel really glad to have these persons around me and appreciate a lot their support.

Of course my greatest thanks go to my parents and my sister, Maxi!!

I want to say 'thank you' to Wolfgang Fritz for his openness and the willing to help every question at any time. Also thanks to Mr. Weyers, who teached me to keep focused on targets and the importance to act with a well-thought strategy. I will surely remember this experience.

Thanks to Christiana Müller. I appreciate her friendly support - even from the other side of the world and her sense for perfectionism. Thanks to Mr. Prof. Vorbach for his constructive inputs.

'Thank you so much' especially to Ayreen, who rescued me from starving with such delicious food during lonely long nights of writing this thesis.

I feel glad that Bruno Götzinger opened me the doors to Magna Steyr and made it possible to write the diploma thesis I wished to.

I am also very happy to have friends like Anna and Raimund. Without these guys I would be hardly able to finish the thesis on time.

Abstract

The automotive industry and its associated cooperation partners, such as suppliers and developing services, are going through a process of transformation. The distribution market is changing and the pressure of competition is rising. This causes shorter cycles of the market and innovation. Products have to be developed and produced in a period, at a better quality and with lower costs. Furthermore, cultural, political and geographical barriers have to be overcome.

In order to deal with these changes, it is absolutely necessary to work more efficiently as well as more effectively. For Magna Steyr - as a leading company in the supply and servicing of product development for the automotive industry - an optimization in its project process is crucial in creating an advantage against their competitors in this global challenge. It has been proven in many former investigations that the project start-up phase is the most important step in setting the foundations for the project realization.

During the diploma thesis the question of which actions are necessary to optimize the project start-up phase of development processes is answered. The resulting guidelines offer a general standard of how to handle this phase and offers chronological steps, which can be implemented within the specific project task.

As concrete standards or detailed considerations regarding an optimal project start-up for industry companies are hard to find in literature, a completely new system has to be developed. Based on the defined project mission, the objectives are investigated. These targets support a significant start. All objectives are generated from the chronology of success factors and their relation to each other. These factors are explored with employee interviews. The next step is to work on strategies, which provide a deeper insight into the objectives and give direction to the actions that have to be performed. After the formulation of strategies, concrete tactics are investigated. To provide a clear and structured investigation procedure, the tactics are developed into steps. The first step aims to give all strategies practical requirements, which have to be completed to fulfill the strategies. The next stage analyses the detailed tactics, which lay out the exact actions that are necessary to perform the basic tactics. All detailed tactics are chronologically sorted and the result is a manual for Magna Steyr that details how to perform future project start-up phases.

Contents

1 Introduction

"Tell me, how you are beginning and I tell you how it will end." This wisdom has never lost its validity. Especially nowadays, when detailed project preparations are crucial in business, where projects have an intense complexity that keeps on increasing with growing globalization.

A project that is started correctly sets the precondition for a successful finish to the whole project. The increasing technological and organizational complexity in development projects requires professional project planning and coordination with project partners. It cannot be assumed that all details regarding the basic conditions and the task sequence in the early stage of a project are clear. But it is crucial to plan all relevant processes and incidences. This guarantees a transparent project. This offers a reference for all persons involved in the project and reduces the effective effort in the realization.

This diploma thesis is a cooperation between the 'Institut für Unternehmungsführung und Organisation' (UFO) and 'Magna Steyr Fahrzeugtechnik AG & Co' (MSF). The goal is to develop a general concept for the optimization of a successful and frictionless implementation of the project start-up phase resulting from a product development acquisition. The project start-up phase provides the coordination, organization and mobilization of all necessary prerequisites to ensure that the project realization can be put into action.

1.1 Initial situation and problem specifications

The current process in MSF is that after a project acquisition has been accepted the project realization can be started. A standardized procedure exists for the acquisition as well as for the project realization phase. However, no process has yet been defined to connect these separate phases. This means, the project is forced to organize itself during the beginning of the realization phase. The resulting problem is apparent with an average delay of about three months in the effective project start date after the official project start..

MSF's internal analysis has detected several causes for the inefficient project start:

- A big part of the knowledge that is generated from the acquisition phase gets lost during the transfer to the project realization phase.

- The target agreements, which are defined in the acquisition phase, cannot be practically transferred into tasks for the specific project roles.

- The acquisition structure is not consistent with the project structure.

- During the acquisition phase, organizational topics get a too low priority in regards to the practical performance within the project.

- New project team members with little project experience get insufficient support.

1.2 Targets

The requirement of the Thesis is to investigate a standard operation sequence for the project start-up phase. The relevant results that are required have to be fed into the project realization phase. The ambitious target is to start the project three days after the official project start thus reducing the start-up time by over 90% from a previous lead time of three months. This enormous reduction in time is to be achieved by the disposal of 80% of the project's realization preconditions.

The following figure [Figure 1: Project target] illustrates the reduction in time by improving effectiveness and efficiency. It shows the current situation of a break in information and the resulting long lead time in the effective project realization. The target shows a project beginning with a smooth transition from the acquisition into the project realization phase and the resulting gain in time and relative constant project knowledge.
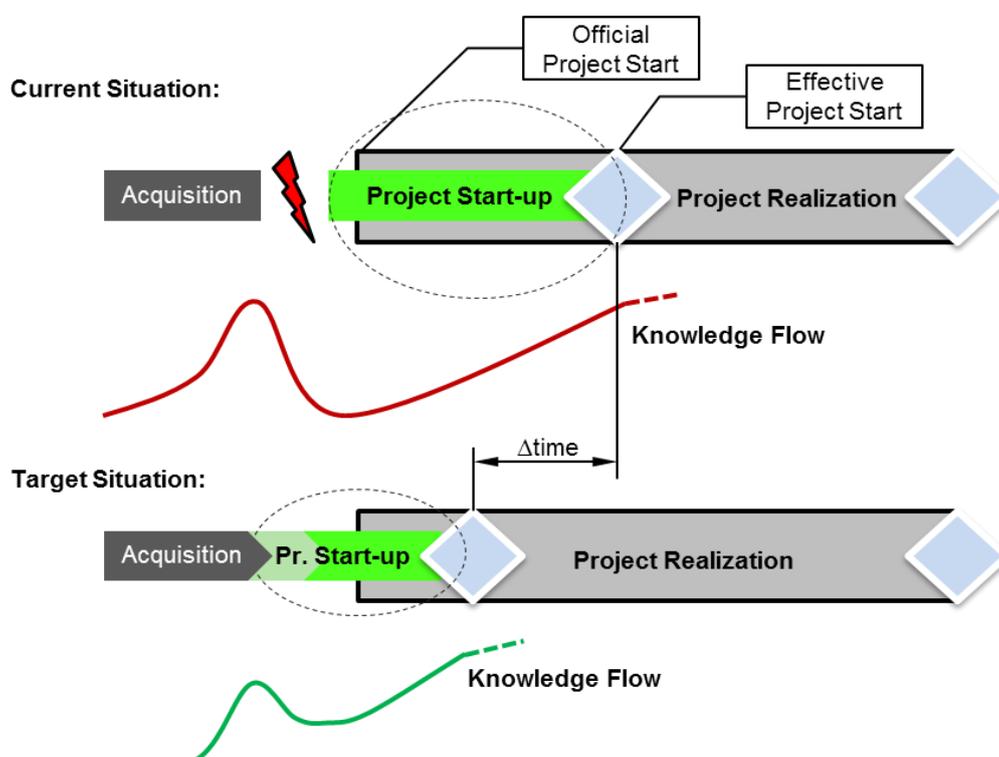
Figure 1: Project target

1.3 Research assignment

How does a standard concept - in a customer oriented product development process - have to be designed to perform an effective as well as efficient project start-up in accordance with a successful acquisition? This is the initial question what was requested by Magna Steyr

According to the Thesis procedure, the research assignments can be formulated more precisely:

To clear preliminary considerations following questions have to be solved: Which strategic preconditions are necessary to allow a target - oriented work process for the diploma thesis? Are there possibilities to promote the satisfaction of relevant involved people? Which process steps are necessary for the Thesis to achieve the project targets within the defined period? After the preliminary questions are solved it has to be investigated: What are adequate objectives to describe a successful project start? What activities are needed to achieve these objectives? Is it necessary to arrange these activities by dependences? The final outcome has to be prepared for a practical use in MSF and leads to following question: How could a standard concept look like, which allows the implementation into the MFS' project development process?

1.4 Presentation of Magna Steyr

Magna Steyr Fahrzeugtechnik AG & Co KG is an Austrian / Canadian company and one of nine international acting subsidiaries of the parent company Magna International, based in Canada. The company was founded in 2001 and was previously part of the Steyr-Daimler-Puch conglomerate. MSF's administrative headquarters are located in Oberwaltersdorf, Austria, and it has its primary manufacturing location in Graz, Austria. [1]

MSF is the leading worldwide supplier to the automotive industry. Its core competences are the development and manufacturing of complete vehicles as well as automotive components for particular market and product requirements, elaboration of solutions from the customer order to series maturity.

MSF also focuses its investigation into an innovative and future oriented working approach. Extensive efforts are carried out in the fields of: sustainable mobility (integration of environmentally friendly propulsion systems), efficient processes (virtual product development and production process, cost efficiency and quality assurance), emotion / comfort (innovative end-customer-oriented low-invest concepts, styling), lightweight

---

[1] Cf. MSF (2012), page 2ff.

technologies and materials (development of lightweight structures and vehicles, validation of feasibility of production), information and active / passive safety (development of new vehicle electrical systems and safety concepts). [2]

---

[2] Cf. MSF (2012), page 9

2 Preliminary consideration of the diploma strategy

The following chapters give an insight into the strategic approach that is used to conduct the diploma thesis. The strategy-method used is called M.O.S.T - analysis and is taken as a framework for a methodic work process. Because this Thesis works in cooperation with MSF and Graz University of Technology, a successful outcome has to be adapted in the interests of all stakeholders. So it is necessary to create a stakeholder - analysis to implement the expectations of both parties. Based on these considerations, the diploma thesis's schedule, including its action steps, is generated. Objective investigations are crucial for scientific representation, thus each process step is based on the problem - solving - cycle that guarantees a structured work flow and comprehensible results.

2.1 Orientation on the M.O.S.T. - analysis

It is essential that the required targets of the diploma thesis are achieved by completion of an efficient strategy analysis method. Its purpose is to find a target oriented configuration for a logical work process.

The International Institute of Business Analysis (IIBA) defines (business) *strategy analysis* as the "identifying [of] business needs and determining solutions to business problems. Solutions often include a systems development component, but may also consist of process improvement, organizational change or strategic planning and policy development. The person who carries out this task is called a business analyst or BA." [3]

The most suitable analytic method to plan the steps of this diploma thesis is the M.O.S.T. - analysis. Generally, it is applied as a framework method to organize the steps required to manage a long term solution for a certain strategic business task. It starts logically from the abstract mission and conducts actions until all detailed tactics are planned. This case refers to the meaning of M.O.S.T. which stands for **M**ission, **O**bjectives, **S**trategies and **T**actics. These key words have the following meaning: [4]

- **Mission:** A business mission is a statement describing what the business does. It describes the fundamental purpose of the business to explain why it exists and what it does to achieve its credibility. The best business statements describe succinctly what the business does for its customers.

---

[3] IIBA (online), access 05.2012

[4] Cf. Mike (online), access: 05.2012

- **Objectives:** Objectives start with the translation of the mission into an overall intent that drives the strategy process. More detailed objectives can also appear from strategic and tactical planning. Common criteria for objectives are that they should be 'SMART', which means Specific, Measurable, Achievable, Relevant and Timely.

- **Strategies:** Strategies are broad descriptions of how the business will set out to achieve its objectives. A strategy is a direction rather than a specific task.

- **Tactics:** Tactics are action plans through which strategies are implemented.

The M.O.S.T. - analysis provides the sequence that activities need to be performed in according to specific development stages.

2.2 Application of the stakeholder - analysis

Like already mentioned, a project's outcome is not just valued by one single opinion. The success of the project's outcome as well as the process by itself stands in a lot of relations with different in- and external participant of the actual organization. These participants are defined as project's stakeholder. Stakeholders have different influences and expectations to the process as well as to the result of a project. These involvements of stakeholders have a crucial impact to the project and require a specific analysis tool called stakeholder - analysis. This fact causes that a high effort has to be invested in the stakeholder - analysis because it sets the fundament of further investigations and its resulting quality.

2.2.1 Theoretical approach on the stakeholder - analysis

Before the stakeholder - analysis can be described, it is necessary to create a uniform understanding of the term *stakeholder*:

"A stakeholder refers to any individual or group that maintains a stake in an organization (in the same way that a shareholder possesses shares). From the numerous definitions, two dichotomous views emerge - the 'claimant' definition and the 'influencer' definition of what it is to be a stakeholder - plus the combinatory definition: any group or individual that 'can affect or is affected by the achievement of an organization's objectives. This, now classical, definition has become the most accepted of the definitions of a stakeholder, and has greater precision than the shorter version 'those who can affect or can be affected by the firm." [5]

The stakeholder - analysis gives the project team objectives, which stakeholders have to be considered in the project and how to deal with them. Often it occurs that mutual expectations

---

[5] Cf. Fassin (2008), page 7f.

or the understanding of the utilization of stakeholders' abilities are wrongly described. Resulting in incorrect project priorities or important stakeholder expectations being disregarded. To avoid these mistakes, a stakeholder strategy has to be investigated by applying a stakeholder - analysis - matrix. The following figure [Figure 2: Stakeholder - analysis process] illustrates the steps of such an analysis. [6]

Orientation:
Market Process

Stakeholder - Analysis		
Stakeholder Identification	→	List of Stakeholders
Stakeholder's Expectations Identification	→	List of Stakeholder's expactations
Stakeholder Categorization	→	Categorization of Stakeholders
Stakeholder Evaluation	→	Analysis of Stakeholder's Effect on the Project
	→	Analysis of the Project on Stakeholders
Stakeholder's Strategy Formulation	→	List of strategic Actions

Stakeholder Strategy

Figure 2: Stakeholder - analysis process [7]

---

[6] Cf. Jochen / Geers / Giebel (2011), page 119

[7] Cf. Jochen / Geers / Giebel (2011), page 122

It is useful to differentiate between project and organization stakeholders, which are directly affected in every project: [8]

- **Project stakeholders:** Project stakeholders are internal or external persons or organizations that are actively participated on the project with an interest on the project's process as well as result.

- **Organization stakeholder:** Organization stakeholders are persons of the organization, which are directly affected by the project's outcome and for this reason have especially an interest on the results of important milestones, too.

Literature points explicitly to a separation of stakeholders. It can be distinguished between external and internal stakeholders. Following definitions show their characterizations: [9]

- **External stakeholders:** External stakeholders are persons or organizations of the social or economic environment of the project. They are able to influence the outcome in a supporting, inhibiting or destroying way.

- **Internal stakeholder:** Internal stakeholders are persons or organizations that are working directly on the project's process. They have the direct influence to control the outcome.

All potential stakeholders have to be found in the first step of the analysis. To receive the best possible support of each stakeholder, it is necessary to take them into account in an early stage and to identify their expectations seriously. An effective method to identify their expectation is a work shop with the most important stakeholders. The goal is getting the satisfaction of all participants that allows a successful progressive project process. All stakeholders have to be categorized and their correlations have to be classified to each other. The influence, attitude and power of the parties towards the project have to be known. It also has to be identified how the project itself affects the stakeholders. If all these indicators are analyzed, it is time to generate appropriate strategies how to implement the stakeholders for an optimal project process and outcome.

2.2.2 Investigation of the stakeholder strategy

This diploma thesis is based on cooperation between MSF and the UFO Institute of Graz University of Technology. The different stakeholders have different approaches to the work

---

[8] Cf. Zell (2012), page 36

[9] Cf. Gärtner (2009), page 37

procedure as well as to its outcome. For MSF, a company in industry, the economic advantage stands in the foreground, whilst the UFO Institute aims primarily for a scientific representation in the final work. Of course, the process also follows the expectations of the author. These possible conflicts of interest have to be analyzed in order to be able to create the right stakeholder strategies. The focus lies on an effective collaboration of all three parties, to avoid correction loops during the process and the support of a satisfying outcome. For these reasons, the stakeholder - analysis is the very first practical step of the diploma project.

The most important stakeholders have been identified as:

- **University Mentors:** Dipl.-Ing. C. Müller, Prof. Dipl.-Ing. Dr. techn. S. Vorbach.

- **MSF Mentors:** Dipl.-Ing. W. Fritz, Dipl.-Ing. L. Weyers.

- **MSF Employees:** All employees, who are directly affected by the result of the diploma thesis in their work process.

- **Diploma thesis Author:** F. Hoffmann

The stakeholder's expectations are assessed using the four P's in the marketing mix. The four P's are the four steering elements of strategy development in marketing and are components of the marketing mix. A product and its ability to find distributors in the market depends on interaction of 'product', 'price', 'place' and 'promotion'. [10] The different stakeholders are compared with consumers' behavior. For this reason, the four P's are modified to obtain quantifiable indicators used for evaluation of the stakeholder's expectations and finally to be able to build strategies from those evaluations. The element 'promotion' is not very suitable for this specific diploma application. Also 'place' is changed into 'time'. Thus, it is changed to a new element 'emotions'. The final elements that provide a proper characterization of the stakeholders' expectations are 'function / quality', 'costs', 'time' and 'emotions'.

These indicators are quantified by a scale of zero to five. Zero means that the stakeholders do not have any expectation and five stands for the highest possible expectation. Because the diploma thesis's success is based on the one hand on the development process and on the other hand the outcome, the stakeholder - analysis takes these two stages, process and result, into account. The following figure shows the results of the assessment of the stakeholders' expectation [Figure 3: Assessment of stakeholders' expectations].

---

[10] Cf. Oettgen (2008), page 40ff.

Expectation comparison

Scale of assessment:
Diploma process / Diploma result
1 (no interest) … 5 (very high interest)

	Felix	MSF Mentors	MSF Employees	UFO Mentors
Function/ Quality	4 / 5 - Efficient work flow - Expectations of support by MSF and UFO Institute - **Good Final Mark** - Practice-oriented result - Satisfaction of MSF	3 / 5 - Solution-oriented - Investigation of new theoretical aspects - Practice-oriented solution - Tolerance for adaption for different projects - **Embedding in MSDS** - Potential cooperation with TU Graz	1 / 4 - Low expectations - Participation of ideas - Practice-oriented solution - **Low change-over process** - **Obvious benefits of solution**	3 / 4 - Process-oriented - Self-contained work process by regarding of scientific standards - Potential relations to MSF - Positive finish of Dipl. Thesis
Costs	2 / 4 - Low interests about costs because very low investment costs - Future cost saving through effective results	3 / 4 - Low Costs - Cost savings through efficient solution	1 / 4 - No expectations - **Obvious cost saving through efficient solution**	4 / 0 - Compensations by MSF - No expectations
Time	4 / 4 - Finish in 6 months - Reduction of conflicts between Diploma work flow and lectures - **High reduction of time while project starting phase through effective results**	4 / 5 - Fast familiarization to subject - Efficient work process - **Very high reduction of time while project starting phase through effective results**	1 / 4 - No expectations - Obvious time saving while project starting phase	2 / 2 - Keep in time limit - No expectations - Time saving is a evidence for effective solution
Emotions	5 - **Diploma: very important for future** - Motivation to transfer theoretical knowledge into practice	4 - Very high interest in successful solution	3 - Difficult participation to new processes	3 - Effort for positive Diploma finish

Figure 3: Assessment of stakeholders' expectations

It is not possible and also not meaningful to judge all stakeholders' expectations equally. Alexander Brink defines a thesis, how to manage different stakeholders: He describes that it is appropriate for an organization to generate actions to fulfill stakeholders' satisfaction if the costs of non-satisfaction (financial loss or existential threat to the organization) are higher than the costs of realization of these satisfaction-promoting actions. [11] The costs play a minor role for this diploma thesis. In this case, the work effort can be treated as a synonym for the costs. To classify which stakeholders have a certain degree of importance and to prioritise the implementation of special actions to fulfill their expectations, a specific tool is needed. The stakeholder - matrix is a helpful tool, which shows the categorization of the stakeholders and gives hints on how to act with them.

The object of the stakeholder - matrix is to compare the relationship between strategic utilitarian rationality and ethnic consensus orientation. It solves the question of how and to which degree the interests of stakeholders have to be considered. [12] The stakeholder - matrix's coordinates illustrate the potential of the stakeholders' influence on the Y-axis and the level of stakeholder's concern on the X-axis. The higher the potential influence of the stakeholders on the diploma's project success, the more importantly they are regarded. The degree of 'stakeholders' concern' represents the level of interest in the outcome of the diploma thesis. This is typically an indicator of how much the outcome will impact them. Following evaluation of the stakeholders by means of the stakeholder - matrix [Figure 4: Resulting stakeholder - matrix [1]] illustrates the outcome of this analysis. [13]
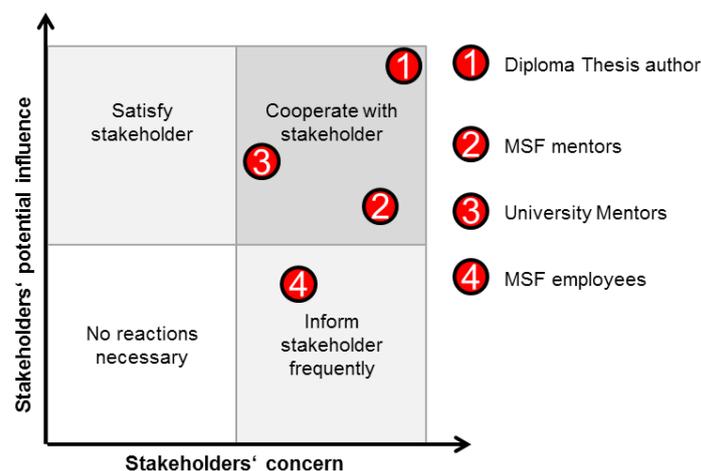
Figure 4: Resulting stakeholder - matrix [14]

---

[11] Cf. Brink (2011), page 111

[12] Cf. Nil (1994), page 180ff.

[13] Cf. Bulmann (2007), 26ff.

[14] Cf. Risiko manager (online), access: 12.2012

After sorting the stakeholders, the matrix offers help regarding the decision of how to solve the conflict between economic and ethnically motivated actions. The figure is divided into four sections. Two of the sections are relevant for the Thesis purpose: [15]

- **Inform stakeholder frequently:** The stakeholders' potential influence is low but the concern high. Typically, this group involves the people that are directly affected by the results of the diploma thesis. Despite the fact that this group cannot exert huge influence over the program direction, they can at least exert huge influence over achieving the schedule. It is crucial to motivate this group with regular communication, and also take time to collect feedback from them. So it is a goal to tailor the communication and make alterations to the project with these stakeholders.

  The stakeholders for this section are the employees of MSF, especially those who are actively confronted with the start of a project. They are more interested in the results which will directly affect their own working process by dealing with projects in the start-up phase. Thus, it is important to have a mutual dialogue with them.

- **Cooperate with stakeholders:** The stakeholders' potential influence as well as the concern is high. Obviously, it is necessary to engage these people fully and manage a positive relationship with them carefully. It is essential to keep them included in the general project communication but additionally it is important to distribute more focused communication specifically for them or even meet with them regularly, individually or as a group. Without this group an efficient process would not be possible and it is crucial to cooperate with them.

  The stakeholders for this section are the mentors of the university as well the mentors of MSF. The author has probably the highest ambition to work for a positive outcome of the diploma thesis and is very interested in its process. Cooperation with MSF's mentors will always be positive because they have many years of experience and know the structure of how to handle projects in Magna. Also it is very helpful to get feedback regarding their experience, methods and thoughts. On the other side, the cooperation with the mentors at Graz University of Technology is very important as well. They direct the formalities of the process and control the scientific work. Of course they support the process with their feedback and have a wide knowledge of theoretical aspects.

---

[15] Cf. Bulmann (2007), page 26ff.

The final step is to formulate the right strategy of how to cooperate with the identified stakeholders. The strategies are based on the same modified indicators of the marketing mix as already mentioned in the assessment of stakeholders' expectations. The strategies concentrate on the work process as well as on the Thesis's outcome.

- **Function/Quality:** Attention is paid to work according to TU Graz's scientific manual. All investigation steps are documented in detail and refer to their origin. The process is focused on a practical oriented solution. For this reason it is necessary to clear important actions with the mentors from MSF as well as the UFO Institute and discuss future milestones or applied methods.

- **Costs:** Besides the monthly earnings of the diploma author, MSF has to pay a unique expense allowance for the support of UFO Institute. The diploma thesis's outcome should ensure a solution that offers a reduction of costs while the project start-up phase works more efficiently with less correction loops.

- **Time:** The total process time of the diploma thesis should be completed within six months. The time schedule and the terms of each process step have to be agreed together with the mentors of MSF and the UFO Institute. A practice oriented and adaptable outcome of the diploma thesis ensures time-saving benefits for future project starts.

- **Emotion**: It is necessary that the author works with a lot of effort on the Thesis to earn a good grade and thus help to set a milestone for his future life. Also a good result should be achieved to fulfill the mentors' expectations and honor their engagement. For this reason it is important to work autonomously with the direct support of the mentors. In order to achieve the employees' willingness to identify with the outcome, their feedback has to be asked for and reviewed during the investigation. It is also relevant to inform them of the provisional result to ensure solidarity with the employees.

2.3 Development of thesis' procedure

This chapter gives an introduction to the planned chronological course of the diploma thesis.

After the right strategy of how to handle the different stakeholders is defined, the step to investigate a time schedule for the diploma thesis can start. The assumed overall duration of the diploma thesis is about six months. To guarantee a logical and target oriented procedure, the M.O.S.T. - analysis is applied. This process is divided into four sub phases.

Before the actual work process begins, a certain time for preliminary organizational work is necessary to create the right conditions. This includes, for example, solving administrative problems, becoming familiar with scientific guidelines or defining the conclusive project plan. This phase is called the 'Project Starting Phase' of the diploma thesis and requires about two weeks.

The 'Introduction Phase' aims to get a deeper insight into basic Project Management. The focus lies on the understanding of a general Project Management process in the automotive industry. This helps to obtain a closer view of different processes and approaches in specific projects at MSF that are defined in the internal process guideline for product development, called 'Magna Steyr Development System' (MSDS). [16] The planned duration is about six weeks.

The main investigation phase is called 'Development Phase' which takes the most time. This phase is designed by the frame of the M.O.S.T. - analysis [2.1 Orientation on the M.O.S.T. - analysis] to guarantee an efficient and target oriented workflow.

- The first step, 'Definition of Project's Mission' defines the actual mission regarding what MSF wants to achieve with the diploma thesis's results. It demonstrates the purpose of a successful project start in the form of a promise to the customers. [17]

- The second step 'Investigation of Objectives' is crucial to finding the objectives which will steer the investigation. Based on the arguments of experienced employees, the most important success factors have to be found. These success factors, which drive the project start-up phase into fast and successful results. The method of concentrating on the most critical factors is based on the assessment phase, adapted from Haberfellner's 'problem – solving - cycle'. [18] After the critical success factors are

---

[16] Cf. Weyers (2010)

[17] Cf. Gabler Wirtschaftslexikon: Mission (online), access: 11.2012

[18] Cf. Haberfellner et al (2002), page 109ff.

identified, they will be classified and analyzed. The analysis results provide the conditions for formulating the objectives of the diploma thesis.

- The third step is called 'Investigation of Strategies'. The strategies are developed from the objectives that have been formulated. The strategies represent the implementation of long-term targets. The strategies give a deeper insight into why a success factor is necessary and do not investigate possible solutions.

- The fourth step deals with the investigation of coordinated actions that will solve the strategies. This is called 'Investigation of Tactics'. Therefore the creation of tactics is split in two parts. The first part, 'Formulation of Rough Tactics' is applied to find action frames in order to realize the specific strategies. The second part, 'Formulation of Detailed Tactics' specifies the rough tactics and develops a detailed sequence of action steps in order to solve every single success factor.

- The last step is called 'Design of a Methodic Structure for the Project Start-up'. Its goal is to compile a detailed comprehension-model of how each of the detailed tactics have to be treated regarding their chronology as well their relationships to each other. The result of this model is a guideline helping MSF with further investigations to find special methods and tools for implementations of their own Project Management process.

The final 'Documentation Phase' should be used to elaborate on the written documentation of the diploma thesis.

The following figure shows all chronological steps of the diploma thesis process [Figure 5: Diploma thesis' schedule].
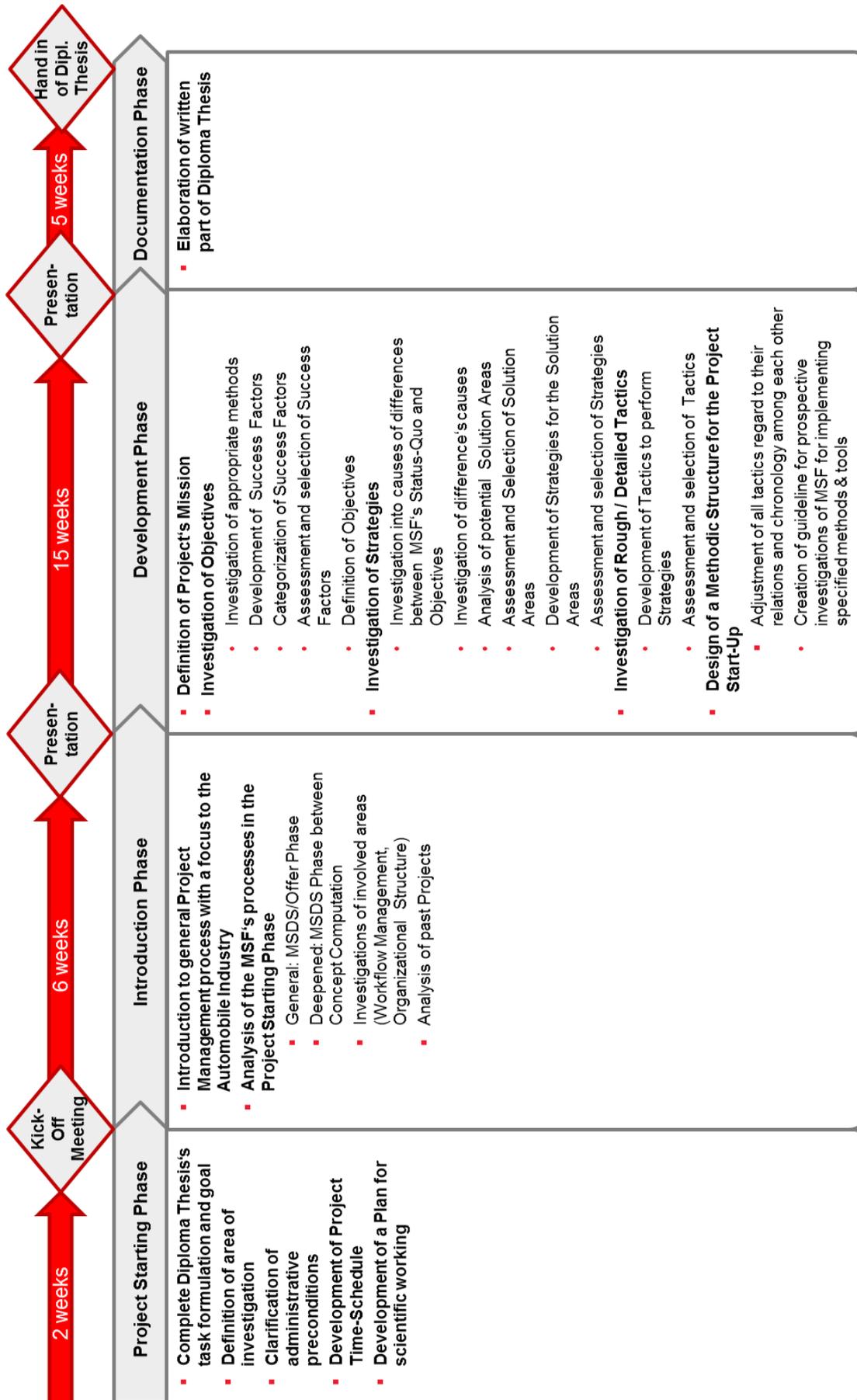
Figure 5: Diploma thesis' schedule

2.4 Approach to the problem - solving - cycle

At this point, the problem - solving - cycle has to be explained because this method is applied in every investigation stage in the 'Development Phase of the Project Starting-Phase'.

The problem - solving - cycle is based on the Deweyschen problem - solving - logic. It forms a micro - logic that helps to deal with problems that occur at any stage of a project phase. This cycle leads from a problem to its solution by working through clearly structured steps. [19]

The basic model is illustrated in the following figure [Figure 6: Problem - solving - cycle]:
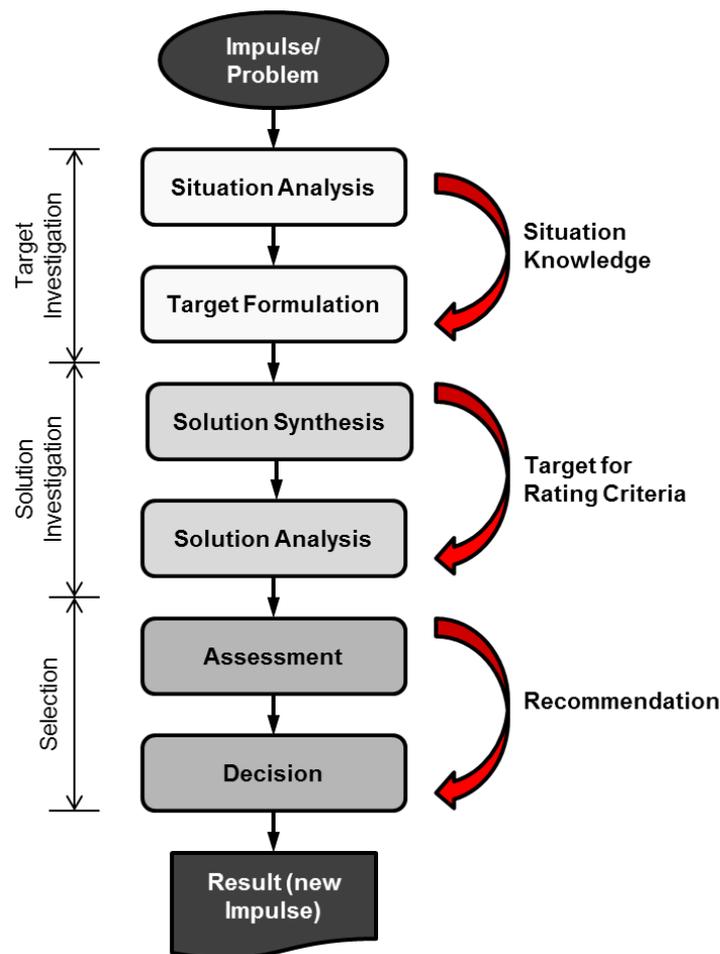
Figure 6: Problem - solving - cycle [20]

---

[19] Cf. Haberfellner et al (2002), page 74

[20] Cf. Haberfellner et al (2002), page 48

This model aims to find an objective solution without emotional influence. At the beginning, it is necessary to start with a situation analysis in any project phase to investigate the understanding of the problem. The next step is to synthesize different solution concepts. In the following analysis, the concepts can be observed and deficits can be eliminated. Assessment of possible solutions avoids a hasty decision. The final assessment provides a satisfying solution decision. [21]

The phases included in the problem - solving - cycle are described as follows: [22]

- **Impulse / problem:** The impulse (problem) can be understood as the activator that initiates the whole process. The impulse can have its origin in an actual problem. But it also can be an outcome of a former step within a project process and a new solution of the next project phase has to be found.

- **Situation analysis:** The reason for the situation analysis is to become familiar with the initial situation and the setting of task. The goal is to create a base for concrete objectives. The results are qualitative and / or quantitative information, which convey a better understanding of the problem. It can be differentiated between four characteristic approaches (system-oriented treatment, cause-oriented treatment, solution-oriented treatment, future-oriented treatment) of situation analysis. They are connected to each other or can even be applied simultaneously.

- **Target formulation:** The target formulation has the purpose of adjusting the view of objectives, systematical structuring, checking for its completeness and finally sticking to the results. It is helpful to adhere to some basic rules:

  o The targets have to be solution-neutral. This means, it is necessary to describe the functions and reasons of the solution and not the solution itself.

  o The targets have to include all requirements that are needed.

  o The targets have to be precise and complete.

  o The targets have to be realistic.

  To prioritize the targets by their importance, the classifications can be differentiated between 'Must', 'Should' or 'Wish Targets'. 'Must Targets' are such targets, which

---

[21] Cf. Specker (2005), page 190

[22] Cf. Haberfellner et al (2002), page 47ff.

have to be fulfilled. 'Should' and 'Wish Targets' are such objectives that should preferably be accomplished. 'Should Targets' have a higher priority than 'Wish Targets'.

- **Solution synthesis:** This is the constructive, creative part of the problem - solving - cycle. The purpose is to develop different solution variants that are in accordance with the level of concretization of the actual project phase. This step is based on the situation analysis and the target formulation.

- **Solution analysis:** The analysis of the solution is the critical phase. It verifies whether a concept equates or has failings in its requirements. It is still acceptable to change a solution at this stage of development. The effort of the analysis increases with increased concretion of the investigation. On one hand, this analysis is used to select roughly different concepts. On the other hand, it gives the impetus to optimize the solution concept purposefully. All variants are eliminated once they do not achieve the must targets.

- **Assessment:** The reason for assessing the solution is to compare different solution variants to find, in a systematic way, the most suitable. This step is used in the case of different complex concepts that do not obviously show the optimal solution. The assessment is based on the concepts of the 'should' and 'wish' targets that were generated in the target formulation. The features, requirements and consequences are compiled by taking into account the synthesis and analysis results. Different methods and techniques exist that will help in this assessment phase. It has to be mentioned that these techniques do not replace the final decision. They just make the assessment transparent to structure decision-relevant aspects and increase the quality of the final decision.

- **Decision:** The solution concept is selected in this step. The decision is evolved from the assessment results.

- **Result (new stimulus):** The result of the problem - solving - cycle is a decision on the most suitable solution. This one can be used as a stimulus for the next project phase or even as the final outcome of the project. Of course it can also be that no satisfying result can be found or cannot be practically applied because of inadequate capacity of people, materials or funds in the required time. In this case, the following actions are possible:

- o The system investigation is stopped and the current status quo does not get changed or receives just minor changes.

- o The complexity or numbers of targets are reduced.

- o It is necessary to get back to a higher system level to solve the problems that are occurring, with a different concept.

- o The problem is described in a new way.

3 Development of the optimized project start-up phase

This chapter describes the actual investigation steps with the goal of designing a concept for a standardized start-up phase for MSF's product development projects. The first part gives an insight into the general situation in the automotive industry and its trends. It also describes why an organized project start-up plays such an important role for a successful project realization. The definition of the project start-up phase is clarified in the next step. The main part focuses on the investigation required to design a start-up concept. According to the M.O.S.T. - analysis, the mission, objectives, strategies and tactics are generated as the condition to create the final methodic structure for MSF's project start-up phase.

3.1 Impact on project management by automotive industry

The first chapter gives an insight into the global situation in the automotive industry and its suppliers. This serves to give an understandable orientation of the importance of Project Management and its future challenges. The last part describes the PM process and gives an insight into the definition phase which is relevant to this diploma thesis.

3.1.1 Trends in the automotive industry and its cooperation

The automotive industry has developed into one of the most important economic sectors worldwide over the past few decades. In 2008, nine million employees produced nearly 57 million cars and contributed about 15% of the world gross national product. A look at Germany shows that the automotive industry plays a crucial part in the economy with a turnover of almost 284 billion Euros and 750,000 employees. [23]

Globalization has continued to impact the automotive industry. Dramatic changes in the concentration of movement within the Original Equipment Manufacturer (OEM) have also occurred over the past few decades. While in the year 1964, 52 independent producers existed worldwide the amount has reduced to a dozen global acting companies today. It has to be considered that in newly industrialized countries, such as China or India, new OEMs have been established but their efforts to operate on the international market have not yet been very successful. [24]

With the beginning of the economic crisis in 2008, the automotive industry's struggle of survival has intensified. Experts predict that the OEM's future will need an increasing number of partnerships that will require new cooperation models. This cooperation and outsourcing is

---

[23] Cf. VDA (2009), page 1

[24] Cf. Hab / Wagner (2010), page 3

necessary to distribute costs for research and development. Another reason is to be more flexible in production capacities. Synergies are also possible in purchasing, production sharing or the realization of scale effects, for example the use of platforms and modules. [25]

The economic crisis also hit the suppliers of the OEMs hard. Between 2008 and 2009, around a dozen automotive related companies had to go into insolvency in Germany. The profits of almost all suppliers dropped into negative. One significant consequence was that an increasing amount of supplier cooperation was carried out. Experts prognosticate, that the business volume and results will not return to 2007 levels before 2014. But they also predict that innovation-oriented companies with effective business strategies will strengthen their position and will start with an advantage in making their way out of the crisis. The suppliers profit increasingly from the outsourcing of the OEMs and their resulting high share of the creation of value. [26]

An analysis of the automotive industry's development shows that since the saturation of distribution demand in the *Triade* (EU, North America and industrialized East Asia) [27] and the growing of the *BRIC*-states (Brazil, Russia, India and China) [28], the automotive industry has become more complex. [29]

Over the next few years, analysts anticipate a disproportionate growth. This growth depends on the strengthening of the economic markets in the newly industrialized countries and the parallel increase of the population's purchasing power and their demand on means of transportation. On the other hand, the *Triade* records decreasing or stagnant sale figures. The following figure visualizes the change of vehicle sales figures in the time-period between 2007 and 2019 in the Triade as well as in the BRIC-states [Figure 7: Worldwide growth]: [30]

---

[25] Cf. Hab / Wagner (2010), page 3

[26] Cf. VDA / Wyman (2009), page 1

[27] Cf. Gabler Wirtschaftslexikon: Triade (online), access: 11.2012

[28] Cf. Gabler Wirtschaftslexikon: BRIC (online), access: 11.2012

[29] Cf. VDA / Wyman (2009), page 1

[30] Cf. Hab / Wagner (2010), page 7
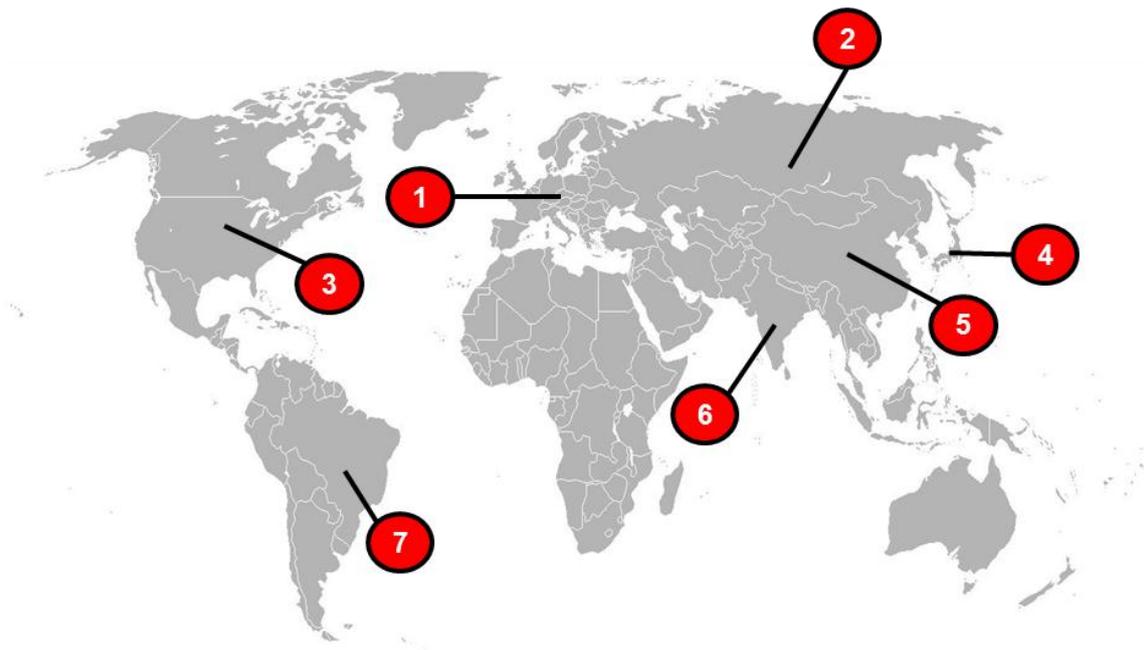
1) West-Europe (- 0.1%*)

   2007: 16.9 Million **
   2019: 16.6 Million **

2) Russia (+3.3% *)

   2007: 2.6 Million **
   2019: 4.5 Million **

3) North-America (+ 0.8% *)

   2007: 19.0 Million **
   2019: 21.0 Million **

4) Japan (- 1.3% *)

   2007: 5.2 Million **
   2019: 4.5 Million **

5) China (+ 6.0% *)

   2007: 8.0 Million **
   2019: 16.2 Million **

6) India (+ 7.9%*)

   2007: 1.7 Million **
   2019: 4.3 Million **

7) Brazil (+ 3.1%*)

   2007: 2.4 Million **
   2019: 3.4 Million **

* Yearly relative growth

** Passenger car and light utility vehicle

Figure 7: Worldwide growth [31]

3.1.2 Project Management in the automotive industry

The trends in the automotive industry [3.1.1 Trends in the automotive industry and its cooperation] cause high competitive pressure. The need to respond quickly to changing customer demands poses difficulties for the automotive industry if they want to be early on the market. These requirements need effective and more efficient processes during the product development phase. [32]

In accordance to Hab and Wagner, the requirements of the procedure or rather the systematic of Project Management can be compressed to equal factors independent from

---

[31] Cf. Hab / Wagner (2010), page 7

[32] Cf. Hab / Wagner (2010), page 26ff.

project size and project time. The corresponding development processes of different producers or system-suppliers pass uniform regularities. This leads to comparable phases and milestones with appropriate outcomes. For this reason, a standard model is defined to describe a general Project Management process [Figure 8: PM process in automotive industry] published by VDA. [33]
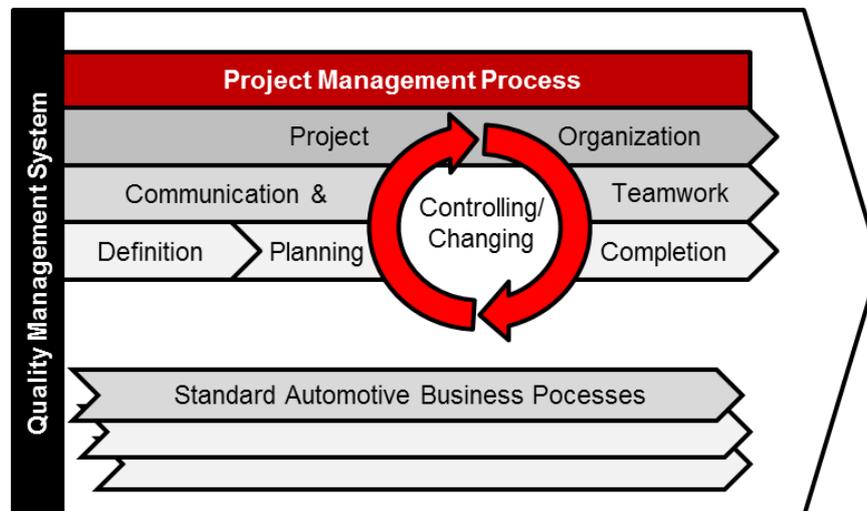
Figure 8: PM process in automotive industry [34]

Every project can be structured into the phases: 'Definition', 'Planning', 'Controlling / Changes' and 'Completion'. Parallel to these phases, management processes such as 'Project Organization', 'Communication' and 'Teamwork' have to be considered. [35]

PM has some intersection with Quality Management (QM). Several PM methods have already been introduced in automotive companies according to OEM's required QM processes, described in VDA 6, QS 9000 with APQP and ISO 16949. These conditions have been introduced because of the need of quality certification. This leads to a clear differentiation between Quality Management and Project Management being difficult but necessary. Quality Management systems generally address all business processes and thus also create a base for Project Management processes. [36]

In the core business of the automotive industry and its suppliers, Project Management plans and controls all operative actions of every development process to guarantee an achievement of all project targets under limited resources, costs and timeframes. The

---

[33] Cf. Hab / Wagner (2010), page 26f.

[34] Cf. Hab / Wagner (2010), page 27

[35] Cf. Wolf / Mlekusch / Hab (2006), page 6

[36] Cf. Hab / Wagner (2010), page 27

management tasks answer the following questions: *Who?* makes *What?* until *When?* and *Where?* The technical content, including all required action steps, is defined in the development process. [37]

VDA defines a model for a standardized automotive development process. It describes standardized working tasks and their technical procedures. Project Management accomplishes the necessary planning, controlling and changing steps for every development step [Figure 9: PM and development process]. This procedure requires structured pre and post activities that are determined in the automotive industry as the 'Definition' and 'Completion' phase. [38]

The aim of the 'Conception' is to develop a reasonable product and process plan that compiles economic, technical and organizational matters. At the end of 'Technical Development and Verification', the final product concept and details for the serial maturity are committed to. It includes the verification of the product specific requirements as well as evidence of the manufacturing and tryout of prototypes. The 'Planning and Verification of Production Processes' phase is engaged with the complete investigation of all production processes. The realization of the production processes has to be proved regarding specific requirements of the product or processes. The 'Customer approval of Products' deals with the user's satisfaction of the product and its right use. Thus deviations away from product or process should be determined. 'Procurement of Production Resources' are needed to guarantee the existence of all required resources in due time. It is also important to keep customer's requirements for the product and avoid deviations throughout the whole 'Production' phase. The 'Continuous Improvement Process' takes place during the entire project process and involves all business divisions. It analyses project-related business processes to find improvements and finally to implement them. [40] [41]

---

[37] Cf. Hab / Wagner (2010), page 27f.

[38] Cf. Hab / Wagner (2010), page 28

[39] Cf. VDA (2003), page 1

[40] Cf. VDA (1998), page 15f.

[41] Cf. Friedemann (2010), page 49
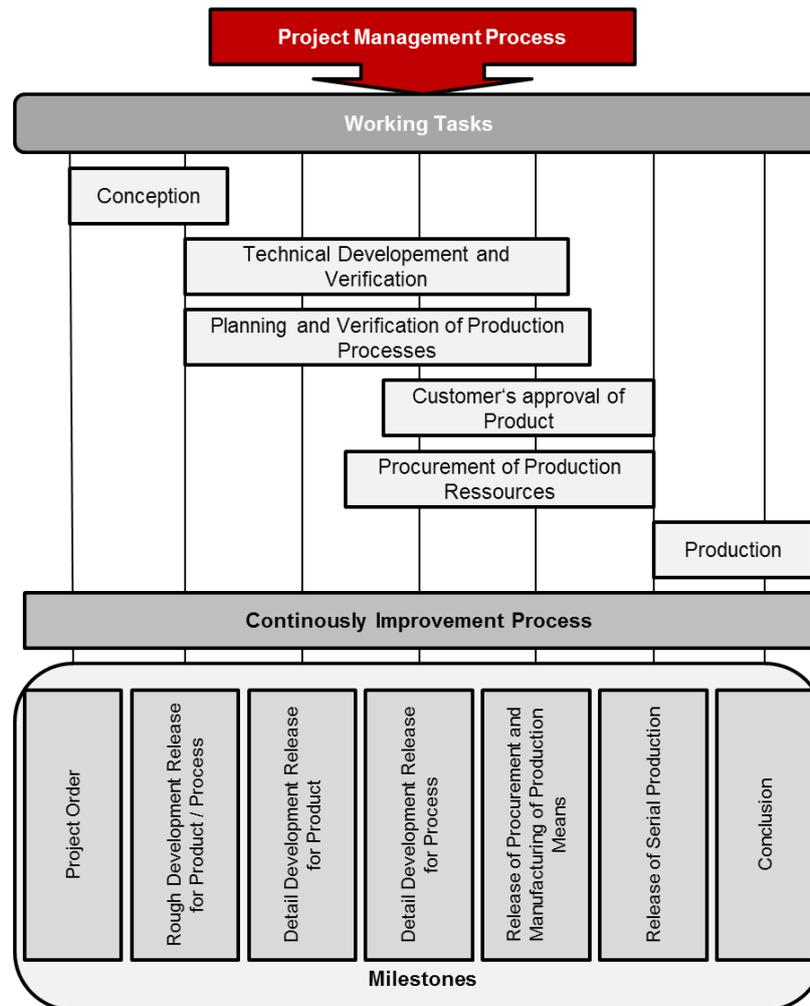
Figure 9: PM and development process [42]

3.1.3 Inspections of the Project Management's definition phase

Hab and Wagner found that the most critical stage of development during a project in the automotive industry is at the beginning. The early stages determine how methodically and purposefully a project will be processed. [43]

As already described in chapter 3.1.2 [3.1.2 Project Management in the automotive industry], a project is based on a uniform sequence of phases. Even though these phases of the project life cycle differ a lot according to different types of projects, a set of similar characterizations can be detected: [44]

---

[42] Cf. Hab / Wagner (2010), page 24

[43] Cf. Hab / Wagner (2010), page 62

[44] Cf. Zimmermann / Stark / Rieck (2010), page 5

- The uncertainty of whether a project will be finished successfully is greatest at the beginning of every project. As a project progresses, certainty increases that the project will reach a proper, on time and cost-effective completion.

- The required resources and associated costs are low at the beginning but rise rapidly after the project starts. As the project progresses, the costs begin to decline.

- The possibility of stakeholders being able to influence project tasks or important characteristics is high at the beginning. Although this decreases exponentially throughout the project. The expenses related to changing a project rise within progressive sequence.

These facts show how important a proper project start is to obtain effective progress. Also in different literature it can be proved that the start is the most important phase. The project start-up phase is called 'Project Definition Phase' by the VDA and is described by VDA edition 4.3 in 1998. [45]

MSF cooperates with external companies related to the automotive industry in many projects. This causes a high complexity to organize the project life cycles. These tasks make it necessary to investigate an effective concept alternative to create proper conditions for the project start, which guarantees an efficient workflow during the project.

The project definition serves to reduce this aforementioned complexity of planning tasks by achieving: [46]

- Reduction of uncertainty

- Increasing efficiency

- Understanding the targets and meeting the requirements of the customer

- Create preconditions for the project realization and control

The quality of the project planning and coordination in the project definition phase has immense influence of the achievement of costs, time and quality targets.

This thesis is explained by the following example. It describes regulations, development and the control of costs during a complete project life cycle. At the beginning of a project, there

---

[45] Cf. VDA (1998), page 19f.

[46] Cf. Kerzner (2008), page 387

are only a few ideas for the realization available and the prospective costs are still highly open to influence. With increasing project development, more decisions are defined. The decisions can be concerning the product design prospectively, specification for realization processes or definitions of milestones. This causes a decreasing influence on the future costs. The correlations of costs, knowledge and influence that occur to the project life cycle are illustrated in the following figure [Figure 10: Characterization of project life cycle]: [47]
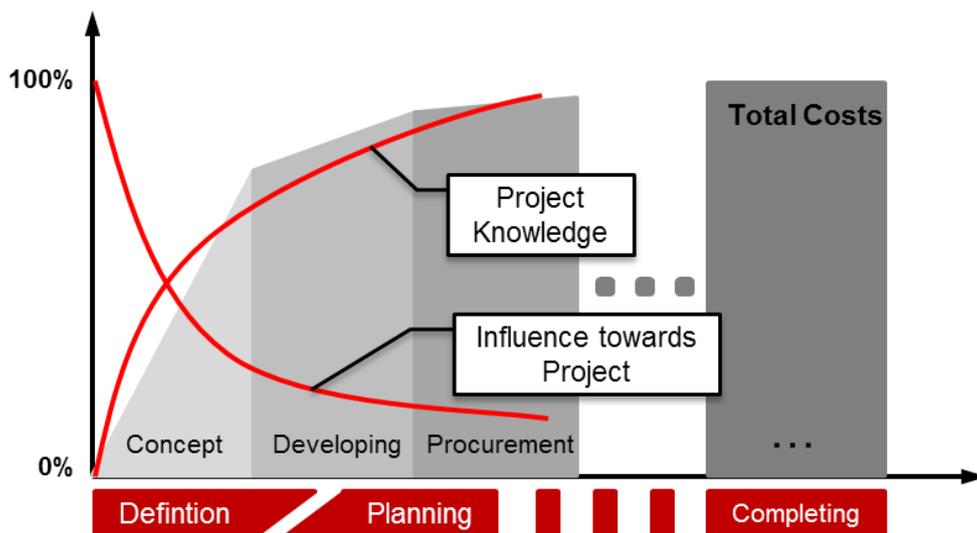
Figure 10: Characterization of project life cycle [48]

It can be suggested that a high amount of effort put into planning in early project phases causes a successful project result in the most cases. It is possible to reduce the effort significantly for the realization. The total project runtime can be reduced thus an earlier product release can be managed. An appropriate intensity and quality for the planning phase positively influences the complete project life cycle, which means the customer requests can be better achieved too. [48]

The planning specification has to be realistic during the project definition. This alleviates the necessity to control the realization results later on. The following required planning specifications of the project definition phase have to be included in every project: [50]

- Volume and quality of working performance

---

[47] Cf. Bea / Scheurer / Hesselmann (2011), page129

[48] Cf. Bea / Scheurer / Hesselmann (2011), page 129f.

[49] Cf. Hab / Wagner (2010), page 66

[50] Cf. Bea / Scheurer / Hesselmann (2011), page 131

- Dates when the working performance has to be finished

- Necessary resources

- Single steps of project sequence

Summarized, it has to be mentioned that MSF's project definition phase has to include the clarification of project targets, strategies, structures, responsibilities, and cooperation in the project. A clear objective formulation regarding product results, quality, time limits and costs helps all people involved to work in a target-oriented manner and avoids concentrating on unimportant or even the wrong tasks. A general strategy for every project should be to inform the project team, customer and partners about the status of the targets. This supports the motivation of all persons involved through information transparency that makes the purpose and sense of the project clear. Structures, like milestones, product or facility planning have to be considered to guarantee a common performance of the project team and its partners. The agreement around responsibilities and information flow are described in an organigram including necessary functions or rules of behavior to give the basis for frictionless and efficient project realization in cooperation.

MSF describes the project definition phase as 'project start-up phase'. This internal name is applied in this diploma thesis too

3.2 Formulation of the mission

The first step of the M.O.S.T. - analysis is the definition of the mission. The mission describes the basic task of a business. It is formulated in a simple way and represents the identity and personality of an organization. The mission's target is to illustrate why customers should invest in this organization and why employees should support the project development with their enthusiasm. [51]

The mission for the diploma thesis is verbalized in accordance with MSF's vision to implement an optimized project start-up and thus achieve an efficient and effective product development success. It is defined together with input from Dipl-Ing. Weyers: **'Magna Steyr - the most successful automotive industry supplier - will be capable to succeed in complex projects in the field of technological development at the highest functional level, cost-efficient and time-saving with a focus on customer satisfaction.'**

---

[51] Cf. Kert / Asum (2008), page 219f.

3.3 Investigation of objectives

The chance to investigate a new concept for the MSF project start-up phase has been used without knowing exactly what MSF's actual development process is. This fact can lead to a risk, applying an investigation concept that is not practice-oriented enough. But the advantage is an investigation without any prejudice or old standards. To avoid the risks, it is crucial to generate the final objectives in multiple steps. The target is to keep on focusing on a solution that is closely related to 'real' chances that occur as well as to problems that occur during the project start.

It is problematic to identify objectives by analyzing the actual internal procedure of the project start. The reason is that to date, no common standard has been introduced for the start-up phase in MSF. For this reason, the first action has to be the identification of objectives that guarantee an efficient, as well an effective start.

The investigation follows the target-oriented approach and uses the problem - solving - cycle [2.4 Approach to the problem - solving - cycle] to achieve the best suited outcome on the objective formulations. This principle is assumed as the most efficient because of the unknown current situation and processes at Magna Steyr.

The exposition of the analysis is systematically developed in three steps according to Haberfellner et al. This process includes: [52]

- **Data collection:** Information is collected about demands, problems about the past, present, or future situation.

- **Data preparation:** The information is analyzed regarding its context in the system and the relation to each other.

- **Data appraisal:** The information is evaluated and conclusions are formulated.

---

[52] Cf. Haberfellner et al (2002), page 123

3.3.1 Exploration of success and failure factors

The focus in this chapter is to investigate goals for future recommendations in order to be capable to apply best performance actions for an efficient project start. First of all, success factors have to be identified. This happens during interviews with experienced MSF employees. The next step is to filter the success factors. This action will help to analyze critical factors that have the highest impact on the project start-up phase. Finally, the goal is to identify objectives, which give opportunities to assess all actions developed that will steer the starting phase in the right direction.

A large amount of effort spent on exploration of success factors is essential for the success of the whole diploma thesis because the existence of success factors promote a successful project start. This fact does not have to be fundamental. A project start does not necessarily fail if a success factor is not considered but its risk for a less efficient start increases. It is not just enough to think about how projects have to be designed successfully. Furthermore, how failure factors can negatively influence a project must also be investigated. [53]

3.3.1.1 Theoretical approach to data collection

The empiric research explores different ways of receiving information. Important methods are quantitative and qualitative research. [54]

The goal of quantitative research is a description about an object's behavior in the form of models, illustrations of relationships, or characteristics in a proper format. It helps to make its behavior more predictable. For this reason it is suggested that a high number of representative samples be collected. Special methods that are applied include mail questionnaires or quantitative interviews that manage to quantify the characteristics. The measured results are set in relation to each other or with different variables. The outcome is generalized to its total quantity. It often helps to check a hypothesis against the collected data too. To create equal conditions for the synthesis of measurements in a study, the quantitative methods are completely standardized and structured. This means every interviewee is questioned under the same conditions (same questions, same sequence, and same evaluation). This guarantees a simple comparison of all results. [55]

The qualitative research offers much higher flexibility and openness. The methods, such as qualitative interviews or discussions, are free and explorative. There is just a rough guideline

---

[53] Cf. Nawrath (online), access: 08.2012

[54] Cf. Uni Karlsruhe (online), access: 08.2012

[55] Cf. Uni Karlsruhe (online), access: 08.2012

for the questioning. Standardizations rarely exist, which means that there is no chronology and the questions' composition can be individually generated and the possible answers are not restricted. The advantage is a high content validity and a deeper information content of the results. On the other hand no representative or statistic conclusions are possible. The creation of samples is developed using theoretical points of view. The samples come from a small group of typical representatives. An explicative data analysis leads to an explanation of behavior by concentration and interpretation of the data. The qualitative methods are explorative and generated by hypotheses. The creation of theory happens step by step and develops further during the research. The goal of qualitative research is to indicate reality according to the subjective view of relevant interviewees and to find potential reasons to empathize with the behavior and also to understand it.

Preconditions of the research methods

To decide which method is suitable for the data collection, the preconditions of the quantitative and qualitative research have to be clear.

The following general requirements are necessary for the quantitative research: [56]

- The objective of the investigation has to be known to such a detailed level that it is possible to create hypothesizes about possible relations or to build theoretical models to quantify familiar aspects.

- During the development of quantifiable research methods, like a questionnaire, it is important to have sufficient knowledge about the content and assessment criteria.

- A high amount of samples, ideally by random selection, is necessary. Otherwise a quote sampling method has to be applied to guarantee a representative investigation.

- Knowledge has to exist about the structure of testing principles.

Also the qualitative research needs a fulfillment of requirements: [57]

- There is no common opinion about the amount of samples that are acceptable in the literature. The number varies between 20 and 200 samples. With a certain

---

[56] Cf. Uni Karlsruhe (online), access: 08.2012

[57] Cf. Uni Karlsruhe (online), access: 08.2012

number of samples participating, a theoretical saturation occurs depending on the problem. This means that no significant profit of knowledge can be generated with additional samples. In general the number of samples is precisely lower than in quantitative research.

- The mixture of samples is adapted to the theoretical considerations and the pertaining problem. It must include typical representatives and should be composed heterogeneously. This principle is called Theoretical Sampling.

Characterization of the research methods:

The quantitative as well as the qualitative research have different fields of applications according to the desired purpose. It is crucial to compare the advantages Figure 11: Advantages of research methods] and disadvantages [Figure 12: Disadvantages of research methods] of selecting the proper investigation method.

Advantages

Quantitative Research	Qualitative Research
The results are exactly quantifiable.	The method is flexible and able to adapt to the object of investigation.
The identification of statistic relations is possible.	It is possible to discover new circumstances through the openness of the method.
Statistical representative results are available because of the opportunity to collect a high amount of samples.	The outcome is more complete and shows the truth opinion of the interviewees because of the subjective view.
Low costs and a low expenditure of time are required.	The focus of the sample is steered by the interviewees because it allows a direction towards important circumstances related by their own opinion.
A high validity is granted because of the high amount of samples.	It is possible to receive more detailed background information and eliminate lack of clarity because of the individual interaction.
The results give a high objectiveness.	A high validity exists because of the predetermined proceeding.
The results are comparable to each other	Deep information content is offered because of the open interview.
	A high subjectivity of the outcome exists.

Figure 11: Advantages of research methods [58]

---

[58] Cf. Uni Karlsruhe (online), access: 08.2012

Disadvantages

Quantitative Research	Qualitative Research
There is no flexibility in the research because of the standardization of the research situation.	These methods are expensive and require a high expenditure of time.
The investigation of reasons or personal attitude is avoided.	The quality of the outcome depends on the interviewee.
No proposal for improvements can be investigated.	The requirement on the interviewee is high.
	The analysis is complex.
	It is not possible to receive empiric measurements.

Figure 12: Disadvantages of research methods[59]

3.3.1.2 Data collection by employee - enquiry

A standardized process of how to manage a project starting phase does not exist at MSF. Thus, the most suitable method of receiving a status-quo is required to detect important factors that influence this start - up phase.

An effective tool to investigate these success factors is an interview with MSF's employees. The interview partners provide a great experience with the project definition and project planning. The interview is divided in three sections. The qualitative research as well as the quantitative research method is applied. Details of the interview sequence and reasons for the application of the different research methods are described in the following:

- The first part serves for obtaining general information about the interview partners. With this information, an evaluation is possible of whether the experience of every single interview partner is sufficient enough for a further investigation. Furthermore, it is intended that information about past projects and its processes for a benchmarking will be obtained later on. The qualitative research for interviews is chosen because it

---

[59] Cf. Uni Karlsruhe (online), access: 08.2012

is not predictable how deep their knowledge and experience is with past project processes. This research method gives them the chance to explain individually their own subjective experiences.

- The second part is the identification of success and failure factors. Each of them has to be assessed regarding their importance and the degree they have been implemented in former projects. This part has the structure of a quantitative interview. The reason for using this method is relative low expenditure of time for the interviews and the results are easily quantifiable and also comparable with each other.

- The third part gives the interviewee the chance to talk about further comments or criticisms. The qualitative research method is used again to adapt the information depth to the experiences of each interviewee. The method also provides a flexible approach to support the subjective circumstances of the interviewees.

Two groups of MSF's employees are interviewed. One group has worked in a different company related to the automotive industry in the past and obtained project experience there. The other group has obtained their experience within MSF. It is also planned to interview people working in different business divisions and positions. The interview is prepared as a direct conversation. If some interviewees are not able to take part in an interview meeting, they have the chance to answer a specially formatted online-questionnaire at any computer and send it back.

The original questionnaire for employees with project experience in MSF and in other companies can be seen in the appendix [A-1 Original interview guide].

A total of 19 employees have been interviewed. Six persons have experience in different companies and the others within MSF. The interviewees come from different business divisions such as International Project Management, development, Distribution and Marketing and so on. A total of 187 success and failure factors are listed. The interviewees' project background in different companies generated 32 success factors and 26 failure factors. The group of interviewees, who have experience with MSF's project starting phase, listed 71 success factors and 58 failure factors.

3.3.2 Reduction of success and failure factors

In total 187 success and failure factors were generated. A first study of these factors shows that some are chosen several times, have different priorities or even do not make sense in terms of the project starting phase.

The hypothesis is formulated that some success as well as failure factors are more important for the project start-up phase than others regarding the first overview study of all factors. The next step's goal is to reduce the number of less important factors and to select the most important ones.

For this reason a self developed 4 - stage - reduction process [Figure 13: 4 - stage - reduction process] is used. The outcome is a reduction and pooling of 187 success and failure factors to 30 success factors, which will be explained in detail.

187 success & failure factors

- Selection of the most important success & failure factors by modified risk – matrix

- Pooling of the most important success & failure actors from experience within MSF' project starting-phase and experience in external companies

- Reformulate failure factors to success factors
  → Pooling of success & failure factors to uniform success factors

- Reduction of illogical success factors using discussions with experienced Project Managers

30 critical success factors

Figure 13: 4 - stage - reduction process

3.3.2.1 Selection of important factors by modified risk - matrix

The first step in reducing the success and failure factors is the selection of the most important factors by the application of modified risk - matrix.

The original use for the risk - matrix is supposed to illustrate risk evaluations. The axis describes the impact on a risk and the appearance possibility of the risk. The scales of the axis are flexible to allow an adaption for specific purposes. To increase a simple conclusion and promote the communication of specific risks, the matrix is divided in three sectors, which can be designed individually. The sections are defined as a passable area (green color), a section that should keep as low as possible (yellow color) and a critical area, which is not exactable. The danger increases from the lower left (green) to the upper right (red).[60]

The ability to count the factors with similar meaning and to evaluate the factors by their priority, as a result of the interview, gives the chance to select the most important success and failure factors.

---

[60] Risikomanager (online), access: 12.2012

A basic step is to rename all factors with analog meanings to an equal designation. It gives the chance to add the equal factors and finally to evaluate them on the number of nominations. Another option to assess the factors is supported by the priorities given to every factor. In the case of several factors having the same name, the actual priority is calculated by the arithmetical middle. The mathematical formula is defined [Equation 1: Arithmetic average]:

$$piority(new) = \frac{\sum priority(n)}{n}$$

Equation 1: Arithmetic average [61]

All renamed success as well as failure factors including the number of nominations and the average priority is sorted into a list, which can be seen in the appendix [1A-2 Raw data from interviewees with MSF project experience *and* A-3 Raw data from interviewees with external company's project experience].

The method used to select the most important factors is assessment using a modified risk - matrix. The original risk - matrix is an effective tool for illustrating the importance of Risk Management strategies. [62] Thus the context of this tool is taken but modified for this special purpose. The advantage of being able to illustrate important (in original context: risky) factors is transferred into this modified matrix.

MS Excel's point diagram is used to evaluate all success and failure factors. The Y-axis shows the priorities of each factor and extends from one with lowest priority to six with the highest priority. The X-axis displays the number of nominations. The level of importance of every factor increasing from the lower left to the upper right.

The first figure [Figure 14: Modified risk - matrix - success factors (MSF)] shows the graphical analysis of all success factors from interviewees with project start-up experience within MSF who participated in the interview.

---

[61] Cf. Bartsch (2004), page 673

[62] Cf. Romeike / Hager (2009), page 145
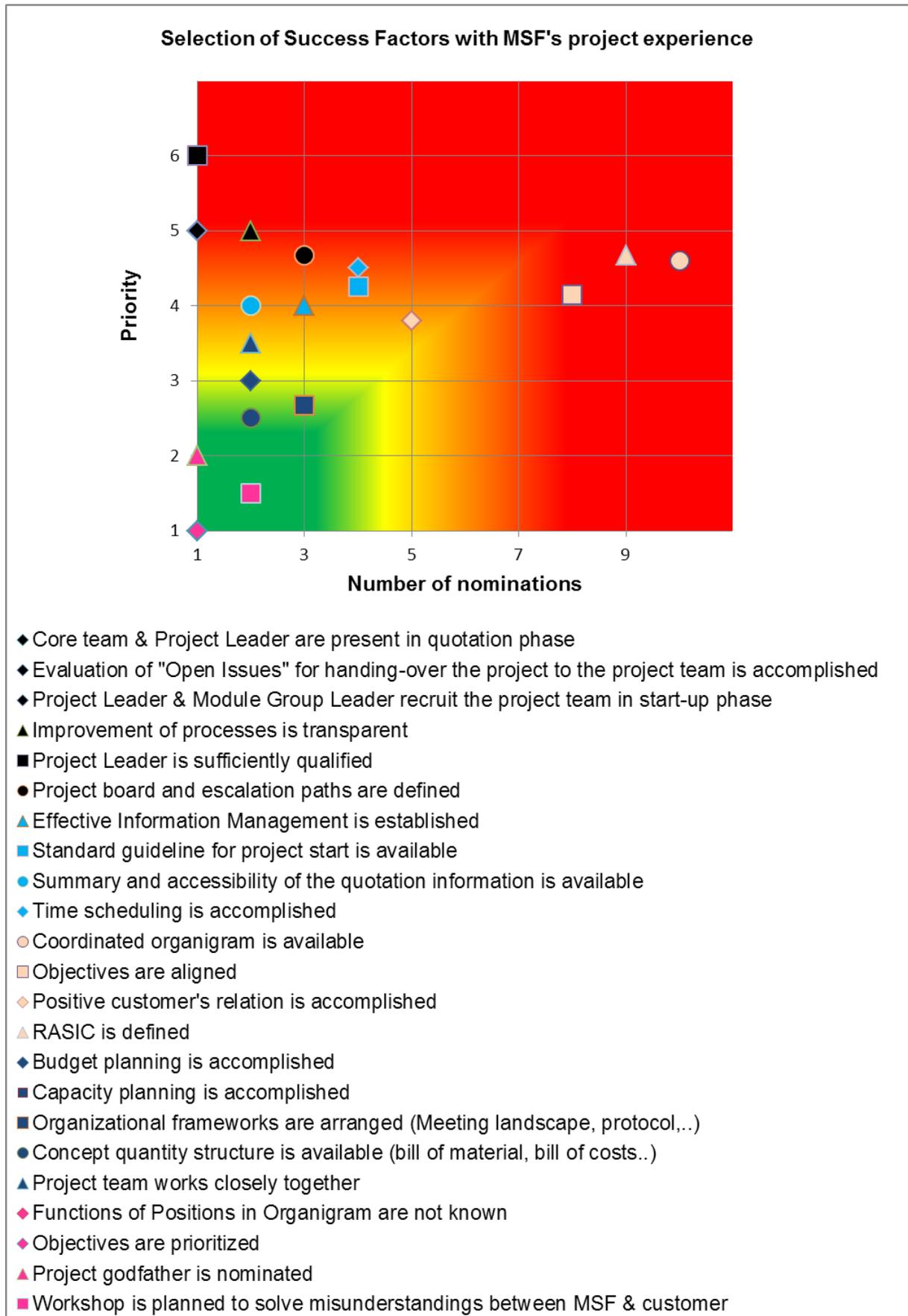
Figure 14: Modified risk - matrix - success factors (MSF)

This graphical analysis [Figure 15: Modified risk - matrix - failure factors (MSF)] documents the results of all failure factors generated by interviewees with project start-up experience within MSF.

Selection of Failure Factors with MSF's project experience

- ■ Contracts are not properly defined
- ● Objectives are insuffienctly aligned
- ▲ Project team is deficiently functional qualities
- ◆ Summary and accessibility of the quotation information is not available
- ◆ Capacity planning is insufficiently accomplished
- ● Coordinated Organigram is not available
- ● Project team works in different places
- ▲ RASIC is not defined
- ■ Standard guideline for project start is not available
- ◇ Customer relationship is poor
- □ Budget planning is unaccomplished
- □ No common knowledge about tools & methods between MSF & customer
- ■ Too many correction loops occur
- △ Functions of Organigram are not known
- ● Time scheduling is unaccomplished
- ● Effective Information Management is not established
- ◆ Project leader is insufficiently qualified
- ▲ Project's committee and escalation paths are not defined
- ■ Team is changed after quotation phase
- ■ Boundary between acquisition & project team exists
- ■ Burden on employees is too high
- ■ Project documentation is not applicable
- ■ Supplier is changed

Figure 15: Modified risk - matrix - failure factors (MSF)

This graphical analysis [Figure 16: Modified risk - matrix - success factors (external companies)] documents the results of all success factors from interviewees with project start-up experience in external companies.
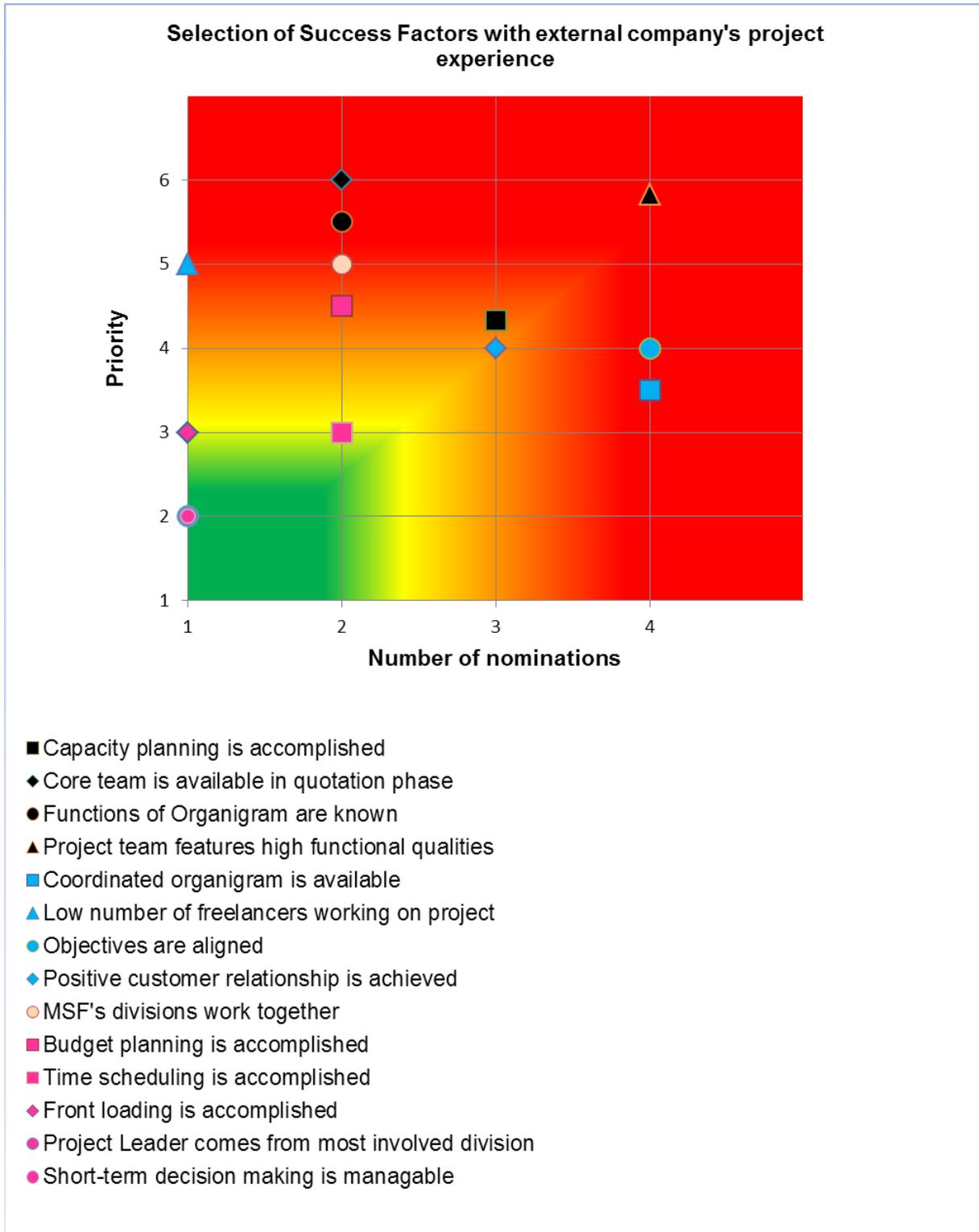
Figure 16: Modified risk - matrix - success factors (external companies)

The last figure [Figure 17: Modified risk - matrix - failure factors (external companies)] shows all failure factors from interviewees with external experience in the project start-up.
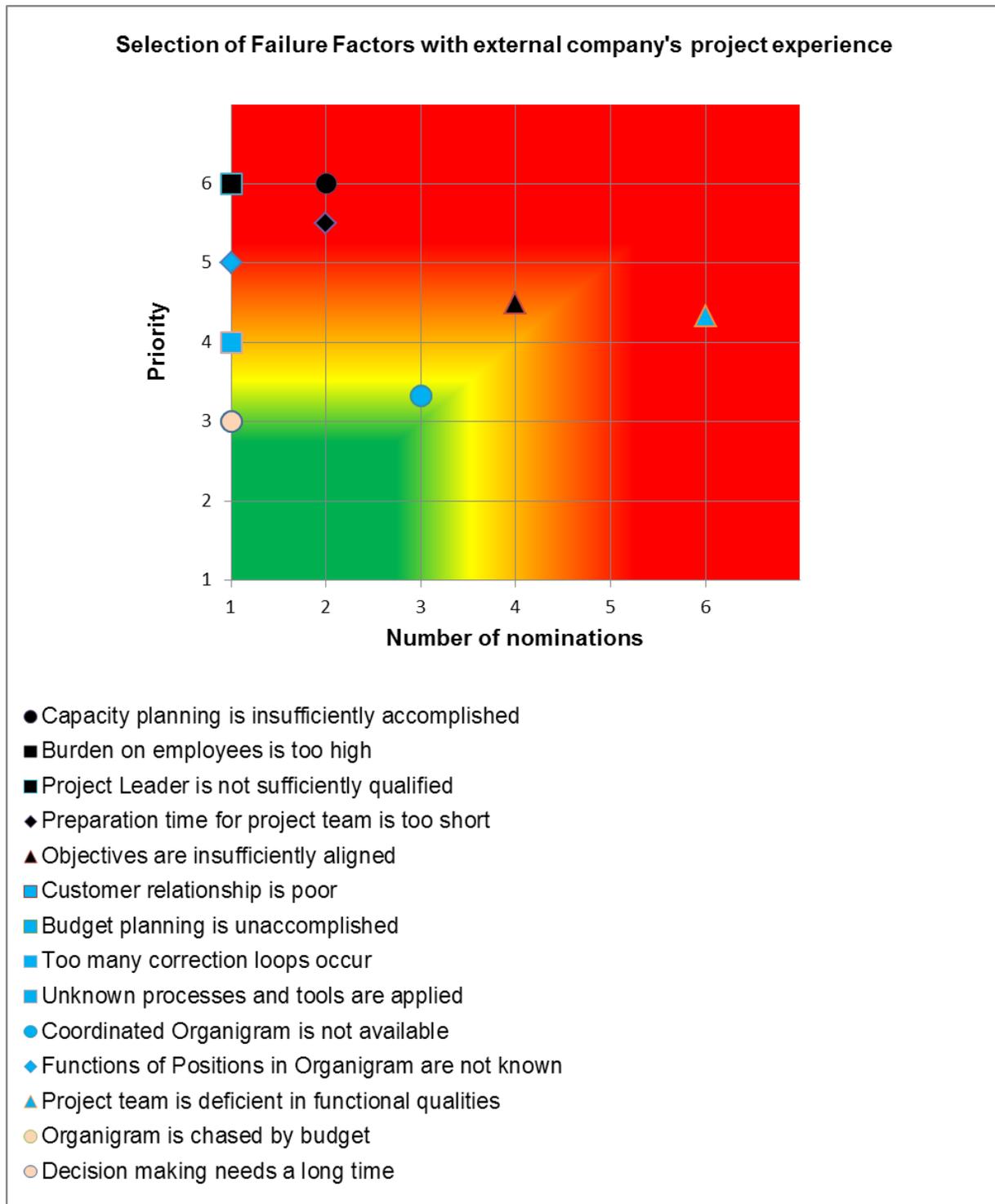
Figure 17: Modified risk - matrix - failure factors (external companies)

The interpretation of the modified risk - matrix works similar to the original risk - matrix, where commonly the red sector illustrates the most critical risks. [63] The called critical sector with the most important factors is illustrated also with a red color. The importance of the green area is relatively low and can be disregarded. For each factor in the yellow area, it has to be decided whether it is worth selecting it for discussion with experienced Project Leaders at MSF.

At this point it has to be mentioned that the colors shown in the modified risk - matrixes are just schematically illustrated. This means MS Excel does not provide a correct color allocation with different scales.

However it is possible to detect mathematically, which success and failure factors have to be chosen and implemented into the red section-conditions of the modified risk - matrix. At least one of the following conditions has to be fulfilled [Equation 2: Priority condition *and* Equation 3: Nomination condition]:

Condition for specific factor's priority:

$$Priority(\ Factor_i\ ) \geq 3$$

Equation 2: Priority condition

Condition for specific factor's number of nominations:

$$Number\_of\_nominations(\ Factor_i\ ) \geq \frac{Number\_of\_nomination_{MAX}}{2}$$

Equation 3: Nomination condition

All factors that do not fulfill the formulated conditions, but are close to it, are handled like they would be located in the yellow sector.

3.3.2.2 Pooling of similar factors

One result of the interview is that just six interviewees have project-starting experience at external companies. This low amount of samples is statistically not representative for creating meaningful research.

The fact that there have been just six interviewees, who came from different companies and also worked in different divisions, leads to the consequence of having to combine both groups of success factors. All important success factors are pooled together from the

---

[63] Cf. Risiko Manager (online), access: 09.2012

interviewees with experience from external companies and experience within MSF. The same is done with the failure factors. The combination of the factors increases the statistical representation. [64]

3.3.2.3 Reformulation of failure factors

A comparison between all selected success and failure factors shows that 69% of the total failure factors can be clearly seen as negatively formulated success factors. The consequential question is: What causes the remaining 31% of the failure factors? Do they really evoke a delay of the project start? Or can these negatively formulated failure factors promote a success for the project start too?

One important reason for the remaining 31% of failure factors is the independent character of the questionnaire samples. For that important fact a method has to prove if it is possible to reformulate the remaining failure factors into success factors. A workshop with experienced Project Managers is organized to discuss this problem within a small group. The concordant result is that all unexpended failure factors lead in their opposite meaning to a success for the project start.

This outcome leads to another reduction of the total amount of factors because of the possibility of pooling some of the newly formulated success factors with other factors with similar meaning.

It has to be pointed out that this reformulation is an outcome of this specific case. It cannot be assumed that every failure factor is in general a negatively formulated success factor. Evidence has to be proven in every single circumstance.

3.3.2.4 Reduction of illogical success factors

The last step is to check the logic of each remaining success factor. The goal is to eliminate or change illogical factors. Together with experienced Project Managers all remaining factors' logic are proven by asking the following questions:

- Is the meaning of every factor clear?

- Is every factor understandable?

- Does every factor only describe a single attribute?

- Does every factor make sense in the context of a project start?

---

[64] Cf. Werner (online), access: 10.2012

Several factors receive changes in their definition. The factor 'Correction loops have to be avoided' is completely eliminated because of its triviality.

3.3.3 Selection and description of critical success factors

All 30 finally selected success factors are shown in the following list. A short description helps to make the content of all success factors more clear. The list has no assessments or classifications.

The factors are highlighted by an underline at the beginning. This highlight makes it obvious that all further investigations refer to these success factors. The factors can be seen as the root of all following development steps and will recur in the objectives, strategies and tactics investigations. Some factors are described with 'maturity level depending'. The sense behind it is that their definition detail depends on the progress of product development called the 'maturity level'. The following list shows the most critical success factors and gives a short explanation regarding their meanings:

_Team connections within the organigram are clear

> The roles descriptions (tasks, competences, responsibilities) for all positions within the organigram are defined.

_Positive customer relationship exists

> The team works in a customer-focused manner to provide the customer's satisfaction within the project.

_ Occurrence of the team as a 'Unit'

> The project employees act and react as a cohesive team.

_ Proportionate burden on the project team exists

> The project demands are challenging for the team but achievable.

_ Consolidated budget planning is performed

> Budget planning is carried out - maturity level depending - and confirmed by taking into account all areas involved.

_ Coordinated capacity planning is performed

The capacity planning is carried out - maturity level depending - and confirmed by taking into account all areas involved.

_Core team & Project Manager are present in acquisition phase

The core team and the Project Manager are integrated during the acquisition phase.

_Consolidated organigram is present

The organigram structure, including all necessary descriptions of roles, are defined and confirmed by taking into account all areas involved.

_Organizational environment (meeting landscape, protocols, tools...) is available

The project team has access to all necessary organizational frameworks, such as meeting landscape, protocols and tools.

_Consolidated RASIC exists

The RASIC is defined and confirmed by taking into account all areas involved.

_Coordinated time-schedule is performed

The time-schedule is performed - maturity level depending - and confirmed by taking into account all involved areas.

_Necessary project targets are arranged

The project targets are - maturity level depending - matched and confirmed by taking into account all areas involved.

_Continuous project documentation is prepared

The project documentation is continuously prepared in a clear and detailed manner.

_Acquisition information is replenished and accessible

All relevant information from the acquisition phase is clearly replenished and available for the project team.

_Standard procedure for the start-up phase is present

A guide for a standardized approach for the project start-up phase exists and is adaptable for specific project needs.

_Effective Information Management is established

The flow of information that is relevant to the project is continuous and effective.

_Stakeholder - analysis is performed

Strategies for all of the projects' important stakeholders are described in terms of their expectations and influences.

_Concerted transfer of acquisition's open-issues into the project is performed

All 'Open Issues' from the acquisition phase are identified and evaluated at the project start.

_Subdivision of the risks to the project start is performed

Possible risks are classified to efficiently counteract an unwanted situation.

_Start workshop between MSF and customer is performed

A start workshop between MSF and the customer is performed to obtain a common view and coordinated approach to the project.

_Sufficient period of vocational adjustment for the project team is available

All project employees have a sufficient period of vocational adjustment before they start working in the project.

_A common understanding of project realization tools and methods between MSF and the customer is present

All necessary tools and methods are known and understood by MSF as well as by the customer.

_Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

The Project Manager and Module Group Leaders nominate the project team in the starting phase.

_MSF permanent salaried staff work in the project team

MSF's permanent salaried staff work predominantly on the project instead of temporary workers.

_Project Manager exists

The Project Manager is identified and ready to lead the project team.

_All roles in organigram are staffed

Every required position in the organigram is staffed with an actual person.

_Escalation and board landscapes are present

Project specific ways for escalating conflicts as well as a customer committed board landscape is established.

_Project team is located closely together

There is a collective place available, which enables the project team to work close to one another.

_Project team is trained in new tools, methods and processes

The project team is trained and able to use newly implemented tools, methods and processes so that they are able to use them correctly in the project.

_Details for all engineering employees' competences are present

The competences of all engineering employees are documented uniformly in an evaluation structure.

3.3.4 Integration of critical success factors into Project Management

An unstructured implementation of a package of different actions cannot assure an increase in effectiveness and efficiency in a project phase. To avoid this risk, a complete Project Management implementation (and its elements) is crucial. It guarantees that the requirements for the design and optimization of a Project Management process are treated holistically and not only focused on single tools. [65]

The following chapters describe the integration of Project Management into the encompassing Business Management process.

3.3.4.1 Influences and impacts on projects success

The precondition for justifying processes is to find standardized attributes. These traits must offer a general predication for measuring the success of different events.

Martin Barnes developed a concept for the justification of a project's results in the 1960s. It shows the balance required to fulfill the target of quality within the right amount of time and planned costs. This model is called the 'golden triangle' and is shown in the following figure [Figure 18: Golden triangle]. [66]
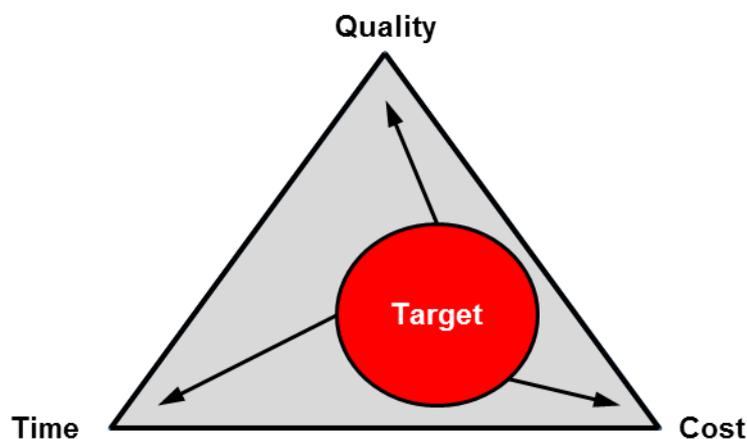
Figure 18: Golden triangle [67]

Different studies have shown that Barnes hypothesis was not sufficient enough to describe the complexity of project influences. In 1988, de Wit differentiated the project's success as the sum of Project Management success and product success. This thesis continues to be

---

[65] Cf. Hab / Wagner (2010), page 17

[66] Cf. Turner et la, (2010), page 3

[67] Cf. Buchenau / Koch / Schüttler (2011), page 11

valid. The Project Management success is controlled by the project stakeholder satisfaction and Project Management process: [68]

- **Project stakeholder satisfaction:** The project stakeholder satisfaction describes the project's impact and satisfaction towards internal as well external stakeholders.

- **Quality of project management process:** The quality of the Project Management process describes the effectiveness and efficiency of the Project Management process.

The following model shows the modified golden triangle with parameters describing the Project Management success [Figure 19: Modified golden triangle [6]]:
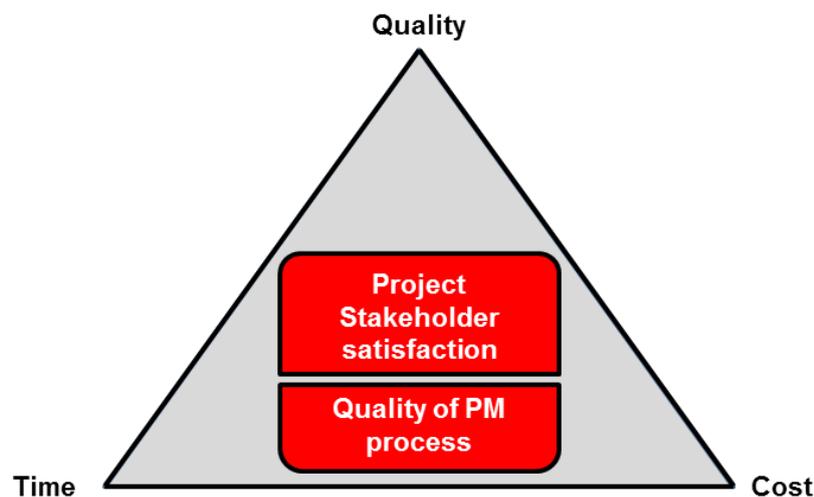
Figure 19: Modified golden triangle [69]

3.3.4.2 The key factors that influence projects

The modified golden triangle shows that a change of the PM process and the project stakeholder satisfaction is a very efficient lever to control quality, cost and time consumption. High quality, low cost and low time consumption are of course great attractive factors for customer satisfaction and would also fulfill the defined mission. It is not sufficient to concentrate on these parameters separately. [70]

The management pioneer Perter-Drucker realized that the most important key factors for every successful business-process model are: structure, process and strategy. These keys

---

[68] Cf. Walker, Rowlinson, (2008), page 178ff.

[69] Cf. Remenyi, Dan (2005), page 159

[70] Cf. Remenyi, Dan (2005), page 159f.

are called "Hard Facts", characterized as rational and measureable. They have been applied to control Management processes since decades. [71] He described the relation of these three facts: "[…] structure follows process follows strategy […]" [72]. Thus organizational structures deduce by value-adding processes and they are oriented to the strategy of a company. Gerhard Hab and Reinhard Wagner added to these hard facts a fourth element: 'culture'. The four facts are specified for Project Management. They justify that the project work is in deep connection to people - within a company as well as over the company's boundaries. This interaction with people requires the specific additional soft fact. [73]

The KI^4 - success - model illustrates the central elements of a successful Project Management process in the automotive industry. It also includes the needs of the market that are highly influenced by stakeholders. Thus the KI^4 - success - model combines all elements of the modified golden triangle. The model describes the relation of the PM process considering market requirements and strategic conditions, the value creating process, the organizational structures and cultural influence. [74] This model [Figure 20: KI^4 - success - model] delivers the basis for further detailed analysis of success factors.
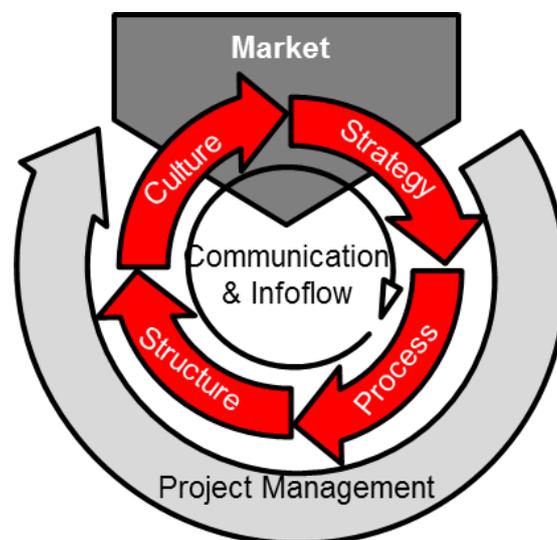
Figure 20: KI^4 - success - model [75]

---

[71] Cf. Coach-academy (online), access: 10.2012

[72] Cf. Hab / Wagner (2010), page 17

[73] Cf. Hab, / Wagner (2010), page 17

[74] Cf. Hab / Wagner (2010), page 18

[75] Cf. Hab / Wagner (2012), page 18

The components of the KI[4] - success - model are described as follows:

- **Market:** The market is an actual or nominal place where forces of demand and supply operate. The demand and supply exchange connects provider and consumer. Markets include mechanisms or means for determining price of the traded item, information about price and product, facilitating deals and transactions, and effecting distribution. [76]

- **Culture:** The culture of company is defined by the collectivity of developed and accepted social values and standards manifested over the time. They influence the sense, think and behavior pattern and steer the acting as well as the decisions of the company's employees. [77]

- **Strategy:** The strategy is a broad description of how the project will set out to achieve its objectives. A strategy is a direction rather than a specific task. [78]

- **Process:** The process is a sequence of logical connected (project) activities that create a performance. [79]

- **Structure:** The structure describes the hierarchy of a process and shows how its system elements and their relations to each other are connected. These elements are necessary to prove the achievement of specific process targets. Structures can indicate the frameworks of results, like cost structure, target structures or organizational structures. [80]

3.3.4.3 Classification of success factors

After finding the appropriate key factors that allow the classification of success factors in respect to an efficient and effective project start, the critical success factors can be classified. This is necessary in order to define the smallest elements of the modified golden triangle. Some success factors cannot be clearly allocated to one single key factor. After a discussion with an MSF Project Manager the most suitable classification for each success factor is found. All success factors are attributed to their key factor according the KI[4] - success - model.

---

[76] Cf. Dillerup / Stoi (2011), page 193

[77] Cf. Bea / Scheurer / Hesselmann (2011), page: 85

[78] Cf. Mike (online), access: 05.2012

[79] Cf. Dillerup / Stoi (2011), page 484

[80] Cf. Abramovicz (2009), page 5

Culture:

- Team connections within the organigram is clear

- Proportionate burden on the project team exists

- Occurrence of the team as a 'Unit'

- Positive customer relationship exists

Strategy:

- MSF salaried staff work in the project team

- Escalation and board landscapes are present

- Project team is located closely together

- Details for all engineering employees' competences are present

- Sufficient period of vocational adjustment for the project team is available

- Project team is trained in new tools, methods and processes

Process:

- Standard procedure for the start-up phase is present

- Acquisition information is replenished and accessible

- A common understanding of project realization tools and methods between MSF and the customer is present

- Concerted transfer of acquisition's open-issues into the project is performed

- Stakeholder - analysis is performed

- Subdivision of the risks to the project start is performed

- Effective Information Management is established

- Start Workshop between MSF and customer is performed

- Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

Structure:

- Core team & Project Manager are present in acquisition phase

- Necessary project targets are arranged

- Consolidated RASIC exists

- Coordinated time-schedule is performed

- Consolidated organigram is present

- Organizational environment (meeting landscape, protocols, tools...) is available

- Consolidated budget planning is performed

- Continuous project documentation is prepared

- Comprehensive capacity planning is performed

- All roles in organigram are staffed

- Project Manager exists

3.3.5 Analysis of critical success factors

The previous explorations result in a classified but unstructured list of success factors. It is obvious that the implementation of these factors into a real project start requires a specific sequence which is not known yet. This fact refers to a necessary investigation of the correlation between the factors. The existence of a total of 30 success factors presents the task of analyzing an enormous number of ways to describe all relations between the factors. This complexity is no longer controllable without specific tools. The following chapters explain a method of how to solve this complexity.

3.3.5.1 Dealing with complexity

Complexity is the characterization of a system that results from the number and variety of system elements, their connections and interdependencies among themselves as well as variability of these elements. With the transfer of this general system theory and cybernetics based definition into the business context, it can immediately be recognized that complexity

is a ubiquitous accompaniment of economic activity. The activities required to steer a project with dynamic customer demands and highly connected varieties of business process elements are difficult to manage. All modes of actions are hardly predictable. [81]

A useful method of raising the information value of preprocessed quantities of data and verbal descriptions is to use specific design techniques. One concrete technique is applied later on. All the data can be arranged and visualized coherently and complex circumstances can be clarified. Thus, further assessments of the data will be less demanding and the quality of communication will be improved. [82]

Specific Design Techniques are used for different problems. They are suited for the illustration of static issues and theoretical conceptions, like structures of organizational units and physical objects, or the illustration of dynamic issues like sequences in organizations, information, material, budget or transformation flow. [83]

The graphic design of circumstances and theoretical concepts offers a high level of creative space. It differs between graphical and tabular design techniques. A table allows two dimensional indications. They are represented in a row and column. Also three dimensional illustrations are possible by application of perspective design. [84]

The Matrix is a special and multifaceted tabular form to illustrate data. It is suitable for presenting connections, cross-linking, effects and other causal relations. One limitation has to be considered: the matrix only allows single-level relations. [85]

3.3.5.2 Analysis of success factors' relations

Because of the existence of 30 success factors and their cross-linked relation the complexity reaches a level, which makes it impossible to evaluate without tools. As already mentioned, a suitable method for dealing with this kind of problem is the use of a matrix.

The advantage of a matrix is the simple transformation of verbal relations into algebraic operations. To transform verbal relations into a matrix-system, it is necessary to use a quadratic matrix. A quadratic matrix is a square system of numbers. The dimension of a matrix is given by its amount of rows, which is described with 'i', and its amount of columns,

---

[81] Cf. Blockus (2010), page 1f.

[82] Cf. Haberfellner et al (2002), page 454

[83] Cf. Haberfellner et al (2002), page 454

[84] Cf. Haberfellner et al (2002), page 454

[85] Cf. Haberfellner et al (2002), page 454

which is described with '*j*'. The expression '*i* x *j*' shows a matrix, which is illustrated in the following figure [Figure 21: Matrix].

$$M = \begin{bmatrix} m_{11} & m_{12} & ... & m_{1j} \\ m_{21} & m_{22} & ... & m_{2j} \\ ... & ... & ... & ... \\ m_{i1} & m_{i2} & ... & m_{ij} \end{bmatrix}$$

Figure 21: Matrix [86]

Matrixes allow the coding of a pairwise relation within different actors. In the first step, actors have to be chosen, such as 'A', 'B', 'C'. The sequential arrangement of rows and columns must be kept equal.

It is possible to transfer a verbal meaning to each term 'm_{ij}' and define this verbal meaning into a mathematical expression. For example, '$m_{ij}=1$' represents actor x has oriented relation to actor y and '$m_{ij}=0$' represents actor x has no relation to actor y. The following figures [Figure 22: Actors' relation *and* Figure 23: Matrix - actor] show an example of how to code the verbal meaning of the relation 'A', 'B' and 'C' into a mathematical expression, illustrated by a '3x3 - matrix'.

$$M_{3,3} = \begin{bmatrix} & A & B & C \\ A & 0 & 1 & 1 \\ B & 0 & 0 & 1 \\ C & 1 & 0 & 0 \end{bmatrix}$$
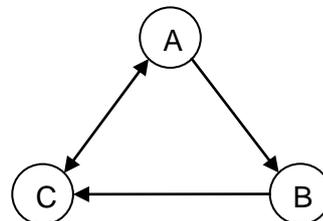
Figure 23: Matrix - actor   **Figure 22: Actors' relation**

Because a matrix fits to describe relations mathematically; a suitable tool to use in practice is the cross - impact - matrix.

"The Cross Impact Analysis is based on the result of the Variable's Checklist: describing the […]" [87] elements of a project start-up. "The Cross Impact Analysis reflects the 'genetic reservoir' of a system including its latent possibilities. The objective of this tool is to discuss the direct influence of the relevant variables characterizing the present system. The cross impact analysis enables the characterization of the selected variables according to their

---

[86] Cf. Bartsch (2004), page 190

[87] Mepss (online), access: 02.11.2012

mutual influence […]. Application of this tool fosters an efficient and straightforward discussion about driving and stabilizing issues that determine the current system. The discussion should take place amongst the participants. The different stakeholders' views will provide a solid basis for building a common vision." [88]

The goal of the specific analysis is to relate every factor to every other one. There exist three possibilities to show their impact on each other:

- factor 'X' delivers factor 'Y' an input.

- factor 'Y' delivers factor 'X' an input.

- factor 'X' has no direct relation to factor 'Y'.

The practical application codes the connections of the success factors by the term '0', '1' and '2' into the cross - impact - matrix. The following example the procedure: Chronological relations between 'A' and 'B' are analyzed according to 'Figure 25: Cross - impact - matrix - one direction'.

- 'A' *(placed in the row)* has to be performed before 'B' *(placed in the column)*: Indication by Relation-Term '2' in the cross - impact - matrix.

- 'C' (placed in the column) has to be performed before 'B' *(placed in the row)*: Indication by Relation-Term '0' in the cross - impact - matrix.

- 'A' has no direct relation to 'B': Indication by Relation-Term '1' in the cross - impact - matrix.

In difference to the matrix example 'Figure 22: Actors' relation' that allowed feedback between two batched elements where actor 'A' and 'C' are in mutual relation to each other, the classical cross - impact - matrix just allows systems with one connection in one direction. It is due to the fact that the matrix is reflected on the diagonal. The following figures show how the cross - impact - matrix has to be coded to explain the actors' relation in one direction [Figure 25: Cross - impact - matrix - one direction *and* Figure 24: Actor's relation - one direction].

---

[88] Mepss (online), access: 11.2012

	A	B	C
A		2	1
B	0		0
C	1	2	

Figure 25: Cross - impact - matrix - one direction
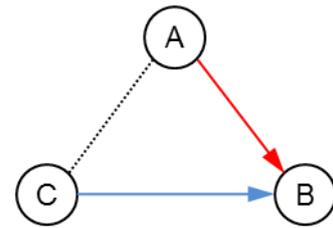
Figure 24: Actor's relation - one direction

Of course the procedure to analyze success factor relation depends on subjective knowledge and experience. To guarantee a result that offers a significant conclusiveness, it is necessary to precede the analysis with a group performance. A workshop is started with stakeholders who are closely related with Project Management and also can call on a large amount of experience. The invited members are Dr. Holzner (Head of Department: International Project Manager), Dipl.-Ing. Fritz (Project Manager), Dipl.-Ing. Gessl (Project Manager, division: acquisition) and Dipl.-Ing. Peter (Project Manager).

The existence of a 30 x 30 - matrix would require with the management of 900 relations. Fortunately MSF provides its own cross - impact - matrix tool that was developed in cooperation with Dipl.-Ing. Weyers in the past. It works on the MS Excel platform. The original application is supposed to investigate the necessary sequence of developing construction parts. This tool has the advantage that the matrix is reflected on the matrixdiagonal and only half of the matrix has to be filled out. The other half obtains its values automatically from the program. 'Figure 25: Cross - impact - matrix' illustrated the reflection by the red arrows. In accordance, all relations are eliminated, which compares the influence of a factor with itself, 30 relations are reduced. This leads to 435 relations that have to be discussed.

Following Figure [Figure 26: MSF's cross - impact - matrix] shows an extract of the MSF's cross - impact - matrix tool:

Success Factors' Relations

Question: How are the influences (in- / outputs) of the Success Factors?

2: Success Factor A (Row) has to be decided before Success Factor B (Column).
1: Success Factor A (Row) is independende from Success Factor B (Column).
0: Success Factor B (Column) has to be decided before Success Factor A (Row).

Summe	Gewichtungs-faktor	Leistungs-Nr	"Success Factor" (A)
			Culture
74	0,8023%	1	Team connections within the organigram are clear
74	0,8023%	2	Positive customer relationship exists
74	0,8023%	3	Occurrence of the team as a "Unit"
74	0,8023%	4	Proportionate burden on the project team exists
			Structure
74	0,8023%	15	Consolidated budget planning is performed
74	0,8023%	16	Coordinated capacity planning is performed
74	0,8023%	17	Core team & Project Manager are present in acquisition phase
74	0,8023%	18	Consolidated organigram is present
74	0,8023%	19	Organizational environment (meeting landscape, protocols, tools…) is available
74	0,8023%	20	Consolidated RASIC exists
74	0,8023%	21	Coordinated time-schedule is performed

Column headers (across top):

Culture
- Team connections within the organigram are clear — 2 / 1
- Positive customer relationship exists — 3 / 2
- Occurrence of the team as a "Unit" — 4 / 3
- Proportionate burden on the project team exists — 5 / 4

Structure
- Consolidated budget planning is performed — 17 / 15
- Coordinated capacity planning is performed — 18 / 16
- Core team & Project Manager are present in acquisition — 17

Figure 26: MSF's cross - impact - matrix

The workshop is held in two sessions. The first workshop task is to explain the meaning of all success factors to create a common and equal understanding between the members. It is agreed that an ideal project start without correction loops is assumed for the analysis. This fact implies all back couplings between success factors are not part of the ideal start-up process. The main task of comparing all factors requires the main effort. This is because an agreement between all members, in which way one success factor influences the others or if a relation between two factors exists, often needs intensive discussions. In many cases, the first opinions of the members towards factor relations are different. Discussions are held among the members until a common agreement on every relation is created.

The outcome of the cross - impact - analysis can be seen in appendix [1A-4 Analysis of success factors' relations by cross - impact- matrix].

3.3.5.3 Checking of success factors' relations

After the analysis is finished, it is necessary to check if all agreements made regarding the relations have the correct direction and no back loops have occurred. A tool which tests these conditions is needed for this task.

For this purpose, MS Project is used. The original task is to plan and control time depending on processes. A 'process' is a flexible term in MS Project. It can be defined as a single task within a working package, a comparison of tasks or even as its own project. All these processes are based on network planning techniques. A helpful feature of MS Project is a tool which warns in cases where a process's output directs back-loop into a further action. [89]

This principle is taken as an advantage for checking all success factors' relations. Every success factor is defined as its own process. MS Project provides the option to connect a specific process with a predecessor or a following process. For this test, all success factors are allocated their following process (following success factor). The followers can easily be taken from the result of the cross - impact - matrix. If the success factors in the rows are observed, all follower relations are coded with the term '2' in the cross - impact-matrix. In case the success factors in the columns are observed, all '0' have to be considered which describe the follower connection.

The result is the observation of three wrong connections that were generated during the workshop. After an analysis of these connections, the mistakes are obvious and can be corrected in the cross - impact - matrix and all back-loops are reworked.

---

[89] Cf. Microsoft - MS Project 2010 (online), access: 11.2012

3.3.5.4 Visualization of success factors' relations

The result of the corrected cross - impact analysis is worked out and describes each single relation of the success factors. The problem is that the whole system is still not conceivable. It is helpful to visualize the whole system. An additional advantage is that the illustration fosters communication with stakeholders that do not have a deep insight into the pre-investigations.

It is possible to take the result of the checking analysis in MS Project. This program offers a graphical representation of all processes (success factors) in the form of a network-plan-graphic. The factors are connected time wise and illustrate the relation directions with arrows. Following figure [Figure 27: MS Project - success factor relation visualization] shows the visualization in MS Project:
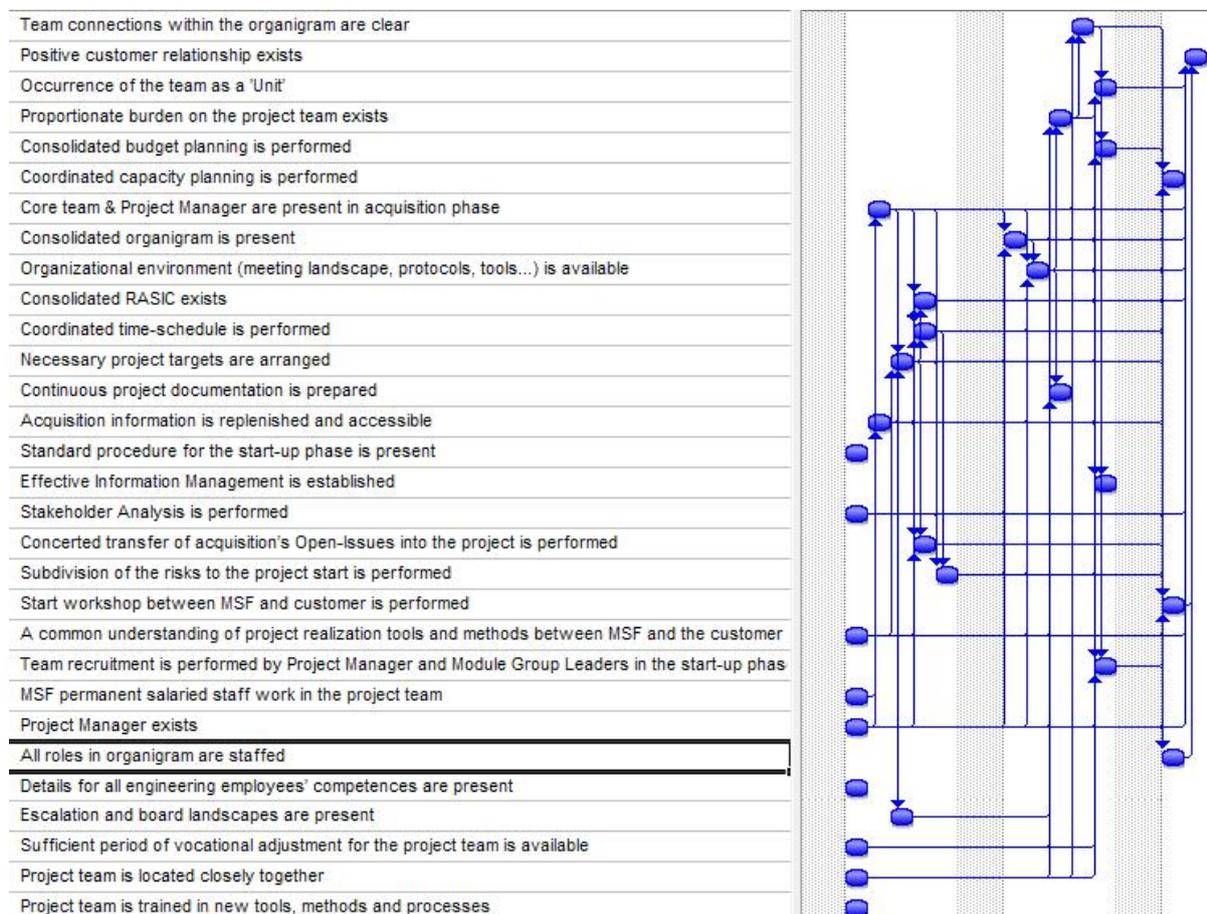
Figure 27: MS Project - success factor relation visualization

It is clear that this representation is not really expressive. It is too confusing which arrow connects which success factors and also the chronology is not obvious on the first view.

An improvement is only possible if the connections are charted manually. For this purpose MS Visio is applied.

MS Visio is a piece of software by Microsoft and is designed to generate graphical circumstances. Different frames, tools and symbols can be used. These elements are handled using drag & drop and keep their connections automatically even if elements are moved. Flow charts, business processes, diagrams, technical drawings can be visualized. The program features the integration of shapes into other Microsoft software. [90]

Based on MS Visio's visualization, the chronology of the critical success factors as well as their connection to each other is illustrated. The outcome shows the chronological sequence beginning from the left to the right side. The three independent factors, 'Standard procedure for the start-up phase is present', 'Details of all engineering employees' competences are present' and 'Project team is trained in new tools, methods and processes', are charted over the whole project start cycle. This expresses that these factors have to be present at every stage of the project start-up, independent of which different factor is present. All impacts, in-/output relations are visualized by arrows. Depending on the chronology, the arrows point in the right direction. Furthermore, the classification of the success factors to the Key factors of a PM process - 'culture', 'strategy', 'process' and 'structure' - are symbolized by different colors. The final result can be seen in the appendix. [A-5 Visualization of success factors' chronology and relations by MS Visio].

3.3.6 Formulation of the objectives

A successful project start-up can only be guaranteed if the strategy plan achieves the specific objective definition. The objectives are generated due to the initial situation and the need to achieve the defined mission.

A short recapitulation shows all steps are done so that the final objective can be formulated:

- Data collection of factors that lead to a successful or delayed project start-up by interviews of employees.

- Reduction of success and failure factors by four-stage reduction-method:

    o Selection of the most important success & failure factors by modified Risk - Matrix

---

[90] Cf. Microsoft - MS Visio 2010 (online), access: 11.2012

- o Pooling of the most important success & failure factors from experience within MSF' project starting phase and experience from external companies

- o Reformulation of failure factors to success factors and pooling of success & renamed failure factors to uniform success factors

- o Reduction of illogical success factors by discussion with experienced Project Managers

- Selection of the 30 most critical success factors and classification to the four key factors for PM processes

- Analyzing the relation of all critical success factors by application of cross - impact-matrix within a workshop

- Visualization of the relation and the resulting chronology of all critical success factors

Based on the critical success factors, the specific objectives can be defined:

- ➤ **All success factors have to be achieved by a standardized guideline, which implement the performance of adequate practical actions.**

- ➤ **The chronology of the actions depends on the sequence of the specific success factors.**

- ➤ **The necessary in- and outputs of the actions are related to the specific success factor relations.**

The following figure [Figure 28: Objective model] illustrates schematically the meaning of the objective. This illustration is the base for further graphical explanation of investigation step.
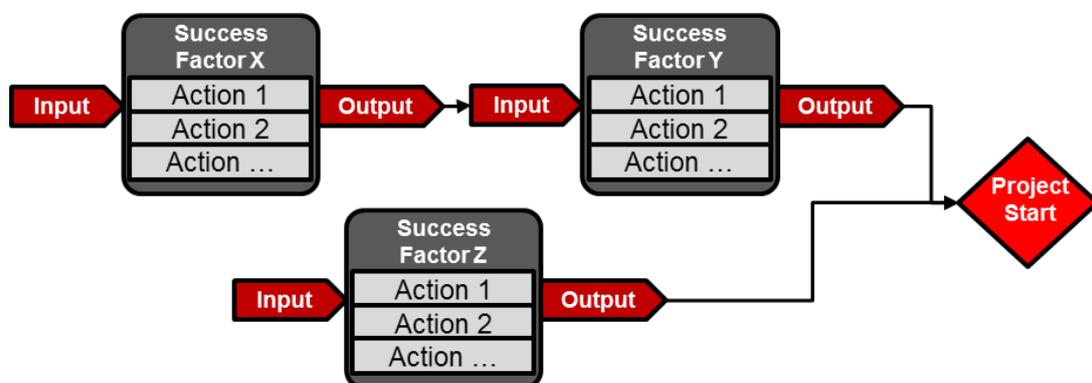
Figure 28: Objective model

3.4 Investigation of strategies

After the objectives of the project start are identified, the next step is to find strategies that allow investigation towards practical oriented targets. The next chapters give a summary of the theoretical background of strategy. Afterwards, the strategies for every critical success factor are introduced.

3.4.1 Theoretical approach to strategy

The term 'strategy' has its origin in the Greek. It is composed of the word 'stratos' that means 'army', and 'agein', which translation is 'leader'. 'Strategos' is the function of an army's general, whose task is to deal with general warfare and not with the details of commanding troops. [91]

The first concrete interpretation is sourced by Carl von Clausewitz in the 19th century and is characterized by use in military science. In the 20th Century, Neumann and Morgenstern transferred the term into business economics for the first time. [92]

So far, no common definition of the term 'strategy' can be found in the literature. Almost every author has its own opinion about this topic. A great amount of different business economics' definitions for 'strategy' exist. The differences between these definitions can be found first of all in the extent of the term. There are no common opinions of whether the process of the target design is part of the strategy or if the strategy is just limited to actions related to how a target should be managed. [93]

A detailed definition is given by Johnson, Scholes and Whittington. They define the strategy as follows:

"Strategy is the direction and scope of an organization over the long-term: which achieves advantage for the organization through its configuration of resources within a challenging environment, to meet the needs of markets and to fulfill stakeholder expectations" [94]

---

[91] Cf. Spengler (2009), page 34

[92] Cf. Grünberg (2009), page 10

[93] Cf. Grünberg (2009), page 10

[94] Johnson / Scholes / Whittington (2008), page 3

3.4.2 Formulation of strategies

The goal of this step is to define strategies for every critical success factor. It has to be considered that every factor is investigated separately. This also means that the total number of defined strategies for each success factor does not stand in relations to other factors.

Thus no common definition exists about strategy in literature, for this Thesis is applied an own interpretation of the term 'strategy' according to Johnson, Scholes and Whittington definition of strategy as a long term target. [95] It is cleared together with Dipl.-Ing. Firtz and Dipl.-Ing. Weyers that this interpretation is the best suited according to the M.O.S.T. - analysis

The goal is to investigate an independent and abstract view of what a success factor aims for. This kind of systematic thinking should counteract the danger of treating issues too detailed or unconsciously developing ideas for possible ways which specific actions could solve the formulated objectives. To avoid these approaches, the system is handled as a black box principle. This means that the specific success factor is handled as an input and each defined strategy describes the output (desired result / target) of the black box [Figure 29: Strategy model]. The content of the black box are specific actions that promote the strategy. These actions are investigated by specific tactics. It has to be considered that some strategies still have a short explanation of why they were formulated. This is not supposed to be a methodical approach to how they could be solved, rather it just helps to understand the importance of a strategy. The investigation results help to obtain a deeper understanding of the whole system of each success factor. [96]
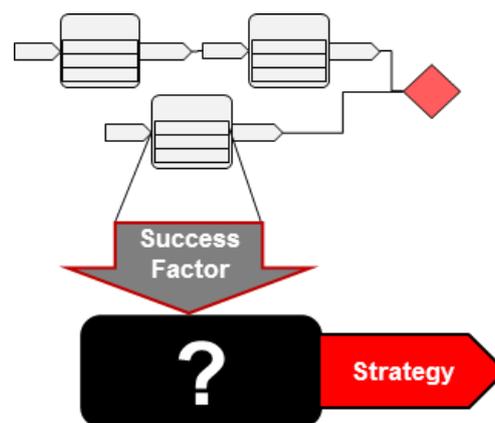
Figure 29: Strategy model

---

[95] Cf. Johnson / Scholes / Whittington (2008), page 3

[96] Cf. Haberfellner et al (2002), page 17

It is difficult to find abstract thesis or strategies to describe the need for each factor in literature or other publications. Therefore the strategies are mainly developed using subjective ideas. In most cases, discussions are held with MSF's employees who can call on experience in the specific area.

Finally, all strategies are evaluated and the most appropriate ones are selected (according to the problem - solving - cycle) during a group workshop with Project Managers at MSF.

The following list describes the strategies for the specific success factors:

_Team connections within the organigram are clear

> Every project employee has an understanding of the role functions for every position of the organigram in order to reach efficient team collaboration.

_Proportionate burden on the project team exists

> The project team is not overloaded so that they have time for creative thinking and to guarantee no reduction in the quality of work as a result of work-related exhaustion. Besides the work results, physical as well as mental health is positively influenced by a proportionate burden. On the other hand, a balanced demand between good work results and a challenge to the project is required to give the impetus of raising the performance of the project team.

_Occurrence of the team as a 'Unit'

> The project team feels like a closed unit in order to be able to act "together" against external resistance and assert itself. In addition, a working team relationship promotes the communication within the team and the de-escalation of internal problems.

_Positive customer relationship exists

> A positive customer relationship implies an efficient cooperation with the customer. Furthermore, when problems arise, processes can be fixed with the customer in a less complicated manner. It also can be mentioned that the sense of a Win-Win-situation of both sides will be strengthened.

_MSF permanent salaried staff work in the project team

It is preferential for permanent employees to work in the project team because they are experienced in MSF's culture, strategy, process and structure; which lead to an efficient work process. They also need a shorter period of vocational adjustment than inexperienced employees from external sources.

_Escalation and board landscapes are present

Defined routes for escalation steer a controlled process for generating fast solutions for threatened or problems that already exist. The board landscape is able to authorize decisions that exceed the competences of the team members or in the case where no common solution can be found.

_Project team is located closely together

The closeness of the project's working space promotes communication within the team. It becomes easier to speak spontaneously about questions or issues. In addition, a closed location for team members supports the team spirit and the working efficiency in the project.

_Details for all engineering employees' competences are present

Different duties, as well as different basic conditions, require employees with specific abilities. To be capable of finding the right employee for a position, the abilities that are required can be assessed by the help of a competence evaluation for every employee.

_Sufficient period of vocational adjustment for the project team is available

Every employee is offered a sufficient period of vocational adjustment. Therefore they get enough time to get familiar with project tasks and the special working environment. This adjustment time guarantees an efficient work procedure for every employee.

_Project team is trained in new tools, methods and processes

Project employees are trained in tools, methods and processes. This guarantees the application of them at the right time and in the right project phase for a specific task.

_Standard procedure for the start-up phase is present

The standardized procedure serves as an effective and efficient project start because the structure and chronology of all important activities have already been defined. The standard process offers sufficient possibilities for adaptation for specific project requirements if necessary. It is also easier to implement experience from past project starts in a standard procedure to gain benefits for future projects. Furthermore it justifies certain decisions to the customer.

_Acquisition information is replenished and accessible

All necessary information from the acquisition phase is available to the project team to promote quick adjustments to the project. In addition, the existing information helps the control of project targets.

_A common understanding of project realization tools and methods between MSF and the customer is present

A common understanding of tools and methods promotes a common and coordinated application of those tools and methods. It helps to avoid duplication of work at MSF and the customer side to achieve an efficient work process. A uniform understanding provides better transparency of the working processes and strengthens the trust between MSF and the customer.

_Concerted transfer of acquisition's open-issues into the project is performed

All open-issues are identified and evaluated to prepare the project team for risks and incomplete process planning. As the result acquisition planning and coordination rarely provide the final requirements or detailed activities for the project realization.

_Stakeholder - analysis is performed

The stakeholder Analysis is carried out to show a consistent and clearly arranged representation of the relevant project stakeholder and to increase their focus. This helps to create a process strategy with an orientation towards the relevant stakeholders. This analysis is also a helpful additional tool to improve the dialogue between MSF's top management, project management and customer.

_Subdivision of the risks to the project start is performed

The possible risks are identified in order to be able to react efficiently with actions.

_Effective Information Management is established

An operating Information Management process is built to guarantee a fast exchange of information within the project team as well as to the partners and customers, which leads to an efficient work process.

_Start workshop between MSF and customer is performed

The start workshop will introduce the project team to the customer and clears the way for the official project start.

_Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

As the Project Manager and Module Group Leaders have the best knowledge of the project requirements, they are therefore able to assess the necessary competences of an optimal project team.

_Core team & Project Manager are present in acquisition phase

The acquisition team is able to optimally prepare the acquisition with the help of the Core Team and Project Manager according to a project-oriented quotation. Because the Core Team and Project Manager are integrated in the acquisition phase, their knowledge does not begin from "zero". Furthermore, the Core Team and the Project Manager are already able to realize certain preparations for the official project start.

_Necessary project targets are arranged

Coordinated targets are considered as a requirement what activities have to be done and therefore are crucial for an effective project start. With a mutual commitment to the targets between MSF and the customer, it is possible to perform a satisfying project result for both parties. Finally the defined targets serve for the control of the work results.

_Consolidated RASIC exists

The RASIC is provided to guarantee structured and controlled work performance within the Project Team and partners.

_Coordinated time-schedule is performed

The committed time-schedule exists because it is a requirement to realize all working steps within the team as well as with the partners. Finally the defined time-schedule serves to control the workflow.

_Consolidated organigram is present

The specific organigram coordinates the project team because it indicates the structure and hierarchies in the team and its partners. It is guaranteed that the organigram is used as well.

_Organizational environment (meeting landscape, protocols, tools...) is available

A predetermined organizational framework allows an efficient implementation of many working-processes.

_Consolidated budget planning is performed

The budget planning exists because it is a requirement to achieve a profitable result at the end of the project and also to plan the specific working steps. Besides, the budget planning is needed to control the project results.

_Continuous project documentation is prepared

The project documentation serves as a 'Reference Book' to document the results of certain working processes or which the decisions were taken. It is an important tool for internal and external communication. Besides, it helps later on with 'Lessons Learned' workshops. The project documentation serves also to control work processes.

_Coordinated capacity planning is performed

Capacity planning is performed because it is an important requirement to mobilize resources so that work processes are realized on schedule. It is helpful because the capacity planning shows resource bottlenecks at an early stage. To guarantee the planned resources within MSF as well as with external partners, a commitment from every party is exacted. The capacity planning serves to control working processes later on.

_All roles in organigram are staffed

All positions in the organigram are filled and the complete project team is defined as a condition for an effective and efficient work process.

_Project Manager exists

The Project Manager is defined as the head of the Project Team. This requires technical and social competences as well as leadership qualities. These qualities are responsible for leading the Team effectively.

3.5 Investigation of tactics

The next step is to develop tactics which are necessary to put the critical success factors and its strategies into real action steps. So far all strategies are formulated in more abstract ways and describe the urgency of each success factor. The goal of the tactics is the demand of a chronological guideline with the result that each success factor will be performed. It has to be mentioned that the investigated tactics are a model, describing step by step which actions in general have to be done. The guideline does not describe which tools or specific methods are needed to fulfill the tactics into the practical MSF project process.

In this investigation, Haberfellner's approach of 'System hierarchical Thinking' is applied. It is comparable with a zoom-objective. It means that the final result will be reached by different steps with increasing details. This method offers one applied thinking direction. [97]

The hierarchical system targets in the depth and formulates the following question: Of which elements are a system, subsystem and so on composed? Every kind of that hierarchical element can be explored environmentally, effect and structure oriented as an own system. [98]

According to this definition, the investigation of tactics is applied in two steps. The first step indicates the rough tactics and defines which action fields have to be considered. In the next step, each rough tactic is described in detail, what exact actions must be accomplished to achieve the defined objectives.

3.5.1 Theoretical approach to tactics

The original word 'tactic' has its origin in Greek, called 'taktiko' and means 'orderly'. [99]

The historical meaning of the word tactic comes from the historical warfare. It describes the potential of soldiers to their learned fighting skills as well as the ability to succeed in unpredictable situations. [100]

Nowadays, the Brockhaus encyclopedia defines tactics as follows:

Tactics are particular considerations in terms of practicality and successful procedures as well as calculated, purposive acting. [101]

---

[97] Cf. Haberfellner et al (2002), page 17

[98] Cf. Haberfellner et al (2002), page 17

[99] Cf. Grünberg (2009), page 11

[100] Cf. Grünberg (2009), page 11

[101] Cf. Brockhaus Enzyklopädie (2006), page 842

A more precise business economic definition of tactics is defined as follows:

"Tactics means by which a strategy is carried out; planned and ad hoc activities meant to deal with the demands of the moment, and to move from one milestone to other in pursuit of the overall goal(s). In an organization, strategy is decided by the board of directors, and tactics by the department heads for implementation by the junior officers and employees." [102]

3.5.2 Formulation of rough tactics

The first step of the tactic investigation is the development of rough tactics. These kinds of tactics have the goal of bringing the strategies into action. A direct solution-oriented approach is used for this investigation step. The rough tactics are supposed to describe elements that have to be performed to achieve each strategy. It covers a rough view of solutions, which means super-ordinated ways of action are investigated without explanation of how those ways are to be carried out. The following figure [Figure 30: Rough tactic model] shows the connections to the outcome of the objective and strategy investigations.
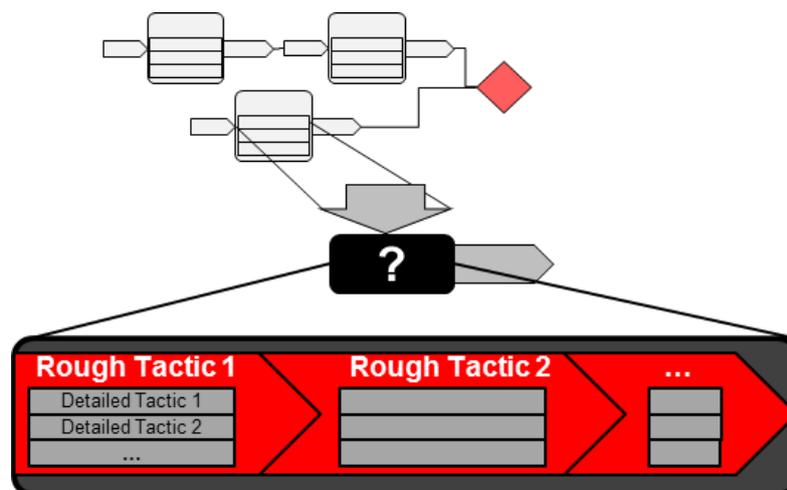
Figure 30: Rough tactic model

Again, the primary information sources are the experience of MSF's Project Managers. They are able to picture which general steps (tactics) are necessary to perform the specific strategy. The outcome has different detail levels. This results of two reasons. The first reason is that the success factors and the derived strategies have different complexity. For example the success factor 'Positive customer relationship exists' is much more complex than the success factor 'Project team is located closely together'. The second reason is that the rough

---

[102] Business dictionary (online), access: 11.2012

tactics are not explored in a common work shop. These are generated by discussions with employees and different employees have different knowledge. Thus no common detail of the rough tactics exists. But they are still general enough to investigate them more detailed by the detailed tactics.

Finally, all rough are evaluated and the most appropriate ones are selected in discussions with Dipl.-Ing. Fritz and Dipl.-Ing. Weyers (according to the problem - solving - cycle).

The following list describes the resulting rough tactics. It has to be considered that these one are not sorted. This is applied in the next investigation.

_Team connections within the organigram are clear

- Every project employee is required to provide his expertise on the project-specific structure of the project organigram.

- Every project employee is required to provide their expertise on the functions of the different project specific roles in the organigram.

- The interaction paths between the roles are clear.

- Each project team member has accepted the project-specific organigram structure and role functions.

_Proportionate burden on the project team exists

- Measureable target figures of an optimal workload are developed.

- Methods for the evaluation of an acceptable workload level are available.

- The work load is checked and, if necessary, corrected.

- Methods to control a claim of a high level of work engagement from the project team are available.

- Methods of preventive stress management are available.

_Occurrence of the team as a 'Unit'

- Target figures that measure the cohesion of the team are developed.

- Possibilities for evaluation of team cohesion are developed.

- A positive group dynamic is supported.

- The motivation of individuals is encouraged.

_Positive customer relationship exists

- Target figures that measure the customer relationship are developed.

- Methods for the evaluation of customer relationship are developed.

- MSF's behavior towards the customer is defined.

- An employee responsible for the control of the customer relationship is appointed.

- Direct contact between MSF and the customer is regulated.

- Institutionalization for interfaces between MSF and the customer are defined.

- Methods for maintaining the customer relationship are developed.

_MSF permanent salaried staff work in the project team

- Target figures of the amount of employees with MSF experience within the project are developed.

_Escalation and board landscapes are present

- Ways de-escalating difficult problems within the team are defined.

- The board have influence within the project team as well as over the entire project process

- Procedures are defined to enable the board effective working conditions

_Project team is located closely together

- The place, in which the project team works, is designed according optimal work efficiency.

_Details for all engineering employees' competences are present

- All required competences for the evaluation are defined.

- The process of how to document the competences of the employees is defined.

- The transmission of data is clear.

_Sufficient period of vocational adjustment for the project team is available

- Target figures for the minimum vocational adjustment of employees are developed according to specific tasks.

- The minimum vocational adjustment time is guaranteed.

_Project team is trained in new tools, methods and processes

- Unknown tools, methods and processes are listed.

- All project employees are trained in the specific knowledge necessary for the respective tools, methods and processes.

- The acceptance of the necessary expertise is confirmed by the project team.

_Standard procedure for the start-up phase is present

- A person responsible for the project start guideline is appointed.

- Necessary chronological working steps are provided.

- All necessary in- and outputs of working steps are described.

- The standard process is modifiable for extensions and improvements.

_Acquisition information is replenished and accessible

- It is defined which types of the necessary information from the acquisition phase are important.

- The procedure for the documentation of the information from the acquisition phase is defined

- The relevant acquisition information is passed on to the appropriate people.

- The offer data is kept up to date.

- The acquisition data is prepared for a future manipulation.

_A common understanding of project realization tools and methods between MSF and the customer is present

- The tools and methods that are necessary for a mutual understanding between MSF and the customer are listed.

- A common understanding of the tools and methods between MSF and the customer is ensured.

- The understanding of the tools and methods is confirmed by MSF and the customer.

_Concerted transfer of acquisition's open-issues into the project is performed

- A guideline is created, which describes the procedure for identifying and assessing Open Issues.

- The relevant people are informed about the Open Issues.

_Stakeholder - analysis is performed

- The standard procedure for the stakeholder - analysis is defined.

- Strategies for handling the relevant stakeholders are developed.

_Subdivision of the risks to the project start is performed

- The conditions for an efficient risk-analysis are defined.

- A standard procedure for the risk - analysis is defined.

- Distinct tactics are created in order to counteract the risks.

- The results of the risk - analysis are documented.

_Effective Information Management is established

- Relevant information is transmitted to corresponding persons.

- An effective exchange of data will be technically enabled

_Start Workshop between MSF and customer is performed

- A structured procedure for the Start Workshop is defined.

- The Start Workshop promotes the familiarization of the project team and its partners.

- The Start Workshop includes all relevant persons.

_Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

- A standard procedure of the team recruitment is defined.

- Project Manager and Module Group Leader select the team according to required competences.

_Core team & Project Manager are present in acquisition phase

- The core team and Project Manager is chosen based on the needs of the project in the acquisition phase.

- A standardized chronology to engage the individual members of the core team is defined.

- The core team and Project Manager are involved in the acquisition process.

_Necessary project targets are arranged

- A realistic procedure for the development of project targets is defined.

- The project targets are developed with MSF together with the customer.

- All persons involved accept the project targets.

- The project targets are prepared for future manipulation.

_Consolidated RASIC exists

- The RASIC is developed for all involved project employees and its partners.

_Concerted time-schedule is performed

- A realistic procedure to establish the time-schedule details is provided.

- The standardized time-schedule development is performed by MSF and all involved partners.

- All persons involved accept the time-schedule.

- The time-schedule is kept up to date.

- The time-schedule is prepared for a future manipulation.

_Consolidated organigram is present

- The structure of the organigram is defined.

- All roles on the organigram are described.

- All involved persons accept the organigram.

_Organizational environment (meeting landscape, protocols, tools...) is available

- The available organizational environment is clarified.

- Depending on the situation, a specific organizational environment is provided for the employees.

- The subject-specific knowledge, concerning the organizational environment, must be accepted by the project team members concerned.

_ Consolidated budget planning is performed

- A realistic approach to the elaboration of detail in the budget plan is provided.

- A procedure to establish budget planning is provided and worked out by MSF and its partners.

- All involved persons accept the results of the budget planning process.

- Budget planning is kept up to date.

- The budget plan has to be prepared for later manipulation.

_Continuous project documentation is prepared

- A clear standard for the documentation structure of data is available.

- Relevant information is filtered, ready to be documented.

- Information from the project documentation is made available to the relevant persons.

- The data is kept up to date.

- The project documentation is prepared for future manipulation.

_Coordinated capacity planning is performed

- A realistic approach to the development of capacity planning details is provided.

- A standardized procedure is defined for the capacity planning.

- All involved persons accept the capacity planning.

- The capacity planning is kept up to date.

- The capacity planning is prepared for future manipulation.

_All roles in organigram are staffed

- An actual person is designated to each role in the organigram.

- All involved persons accept the staffed organigram.

_Project Manager exists

- A Project Manager is defined, who adequately fulfills the project's expectations of skills.

- The Project Manager is informed about current processes and methods in Project Management.

3.5.3 Formulation of detailed tactics

The last step of the tactic investigation is the development of detailed tactics. This investigation is based on the rough tactics that have been formulated, which have been judged to have the best potential to achieve the strategies.

The goal is to define a detailed manual, which lists the steps that have to be completed to achieve a successful project start. The manual serves as a standard and describes the chronological sequence of required actions. It has to be advised that the outcome is the frame-work of actions and answers the question:

'What actions have to be done and when is the right time for them?' And not: 'How do the required actions have to be implemented in the process and which tools or methods should be used.'

In the first step, detailed tactics are created through analyzing each rough tactic without focusing on their relation to the other rough tactics or success factors. After all the actions have been investigated, to achieve each rough tactic, the logic to the chronology of the detailed tactics within the whole system (project start-up phase) must be checked. The total number of detailed tactics is very high because each of the 30 success factors has several strategies, which can be realized with different rough tactics and each rough tactic also implements several detailed tactics. The following figure [Figure 31: Detailed tactic model] shows the investigation step of detailed tactics in relation the previous investigations:
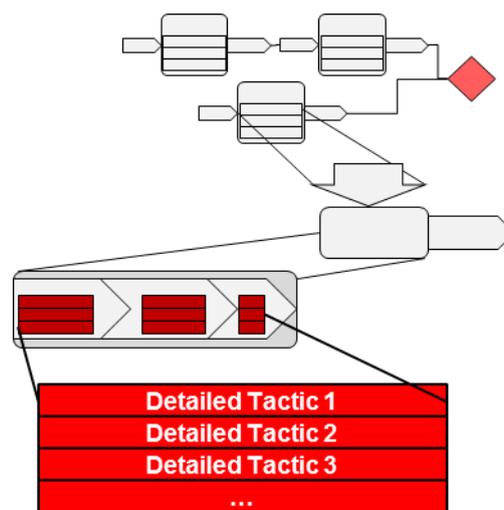
Figure 31: Detailed tactic model

To be able to manage this large number of detailed tactics, the visualization of the success factors relations [3.3.5.4 Visualization of success factors' relations] that has already been

performed, is used as a tool to help simplify the complexity. All detailed tactics are illustrated in squares under each specific success factor [Figure 32: Cut out of the detailed tactic analysis] by MS Visio. This guarantees an easy and complete overview of all detailed tactics, including their sequence and their connections to each other. The result is that some of the detailed tactics can be reduced or simplified. Because of the input - output relation, some required tactic outcomes are already fulfilled in a further action, which means that this result from a previous action can also be used by a different, following success factor. Furthermore, the visualization of the whole system makes it clear that some detailed tactics need additional inputs and new tactics have to be implemented in the right position. Also the sequence of several detailed tactics is changed in broad areas and the logic chronology to the rough tactics is no longer fulfilled in every case. However, this step guarantees a logic sequence of the detailed tactics according to the complete system.
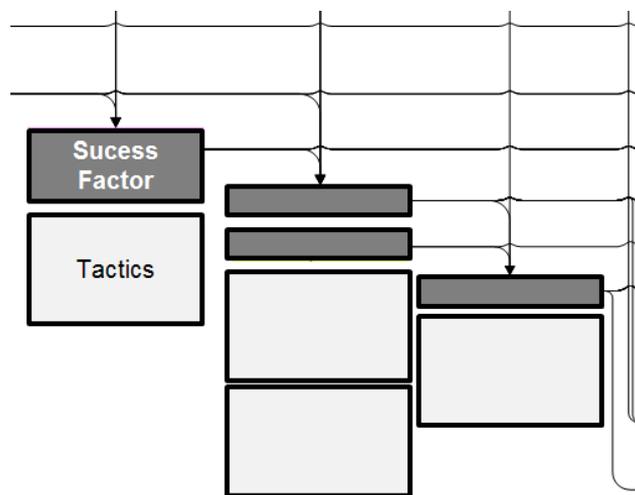
Figure 32: Cut out of the detailed tactic analysis

In contrast to the investigation of the objectives, strategies and rough tactics, the development of the crucial detailed tactics is almost solely applied by the use of literature research. The sub-actions that are necessary to connect the main tactics or to guarantee the preconditions are investigated using personal opinion with feedback from different MSF employees, who have specific experience in this field. It guarantees that all practical needs are solved by the newest scientific knowledge. The final formulated detailed tactics can be seen in the following list. The results of the analysis are already considered, which means the final sequence of detailed tactics is defined. It has to be mentioned that the following list still do not consider the sequence of the success factors. The final chronology of the complete system is described in the following chapter. *At this point has to be mentioned that only a list of all detailed factors is documented because a separate description of the total of 203 detailed tactics would explode the time limit.*

_Team connections within the organigram are clear

- A person responsible for the current project-specific organigram assumes responsibility for the position/role description.

- Every specific role within the organigram is based on the standardized role description. [103] [104]

- Every position is comprehensively described, is distinct and practical with commitment between MSF and the customer, based on "MSF'S - Standard Programm - Organisation und Rollenbeschreibung" [105]. [106]

- Ways of interaction between the roles in the organigram are defined.

- Activities are planned to equip every project employee with distinct knowledge about the organigram and its functions:

    o Detailed knowledge of the organigram structure.

    o Detailed knowledge of role descriptions concerning roles with direct interaction.

    o Basic knowledge of functions concerning roles with indirect interaction.

- The acceptance of the specific organigram structure, role descriptions and their ways of interaction are certified with a signature from MSF and the customer. [107]

_Proportionate burden on the project team exists

- Target values for the work load are determined on the basis of data on absenteeism, downtimes, work results and healthiness. [108]

- The actual workload of the project employees is evaluated regularly in the form of brief and quantitative questionnaires. [109]

---

[103] Cf. Appold (2003), page 57

[104] Cf. Weyers (2011), page 1ff.

[105] Cf. Weyers (2011), page 4ff.

[106] Cf. Appold (2003), page 58

[107] Cf. Appold (2003), page 60

[108] Cf. Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (online), access: 09.2012

- One person is defined, who is in charge of controlling the workload situation.

- The project team is able to work autonomously within tolerances according to limits such as time, costs, resources or quality. [110]

- The core team and the Project Manager participate in preventative stress management seminars.

- Training for all project employees is provided in order to raise their awareness of the issue of 'workload'.

- Each project employee is required to acquaint themselves the MSF's "burnout guide" including checklists.

- The key articles from the "burnout guide" will be displayed at a central location.

_Occurrence of the team as a 'Unit'

- Target values are determined for realizing positive team relations.

- The current team relationship is regularly determined and evaluated by all project employees by application of appropriate methods.

- Mutual values and standards are defined for how team members have act with each other. The following elements are always observed: [111]

    o Creation of transparency within the team.

    o Support of a direct dialogue.

    o Support of fairness and commitment.

- A person responsible for controlling the team relationship is defined.

- A workshop for getting to know each other and presenting the project content is organized for the entire project team. [112]

---

[109] Cf. Allgemeine Unfallversicherungsanstalt (2012), page 1ff.

[110] Cf. Reuter (2011), page 107

[111] Cf. Reuter (2011), page 112

[112] Cf. Reuter (2011), page 109f.

- Regular communication within the team is promoted. [113]

- A specific "team-corporate-identity" is created to promote team awareness.

- A team leader is defined. [114]

- Valuable project associates are awarded with a higher state of appreciation and foster individual dedication for the project. [115]

- Project employees receive regular feedback from the Project Manager. [116]

_Positive customer relationship exists

- A person responsible for the customer relationship is defined.

- A standardized code of conduct for dealing with the customer is defined.

- The state of the customer relationship is obtained using standardized methods (e.g. customer feedback).

- A regular personal exchange of information (meetings) between MSF and the customer is planned.

- A key-account manager is stationed close to the customer.

- A customer life-cycle is defined and is available for relevant project employees. It includes standardized data: [117]

    o Hard data: at least: name, title, function, contact

    o Soft data: at least: birthday, hobbies, personal important days

    o All agreements with the customer

    o Important happenings

- Computer based customer relationship programs for data management are used.

---

[113] Cf. Bachofner (online), access: 09.2012

[114] Cf. Reuter (2011), page 112

[115] Cf. Appold (2003), page 61

[116] Cf. Landau (2007), page 868

[117] Cf. Fuhrer (2006), page 15

_ MSF permanent salaried staff work in the project team

- A target for a relative minimum number of permanent project employees is defined - depending on the project size and urgency - for the start of the project.

_Escalation and board landscapes are present

- A person responsible for the escalation and board landscapes is defined.

- The function of the escalation and board is defined.

- The board members are defined.

- The board is convened by the Project Manager or additional persons with defined competences. [118]

- Regular reporting on project processes and results for the board is planned. [119]

_Project team is located closely together

- The project team work in a common project office or building.

_Details for all engineering employees' competences are present

- The department of Human Resources leads responsibility for competence profiles for all employees.

- A standardized competence profile for the engineering staff is defined.

- All competences are entered into a spider web diagram that provides a quick evaluation.

- For each engineering employee, an individual competence profile is created with the following requirements: [120]

  o Knowledge (e.g. qualifications, skills, certificates)

  o Experience (e.g. years of professional experience, number and duration of project experience)

---

[118] Cf. Hab / Wagner (2010), page 265

[119] Cf. Hab / Wagner (2010), page 264

[120] Cf. Nerdinger / Blickle / Schaper (2011), page196ff.

- o Skills (e.g. specific skills, social skills, collaboration skills, information skills)

- o Ability (e.g. creativity, working under time-pressure, working with specialized tasks)

- o Personality characteristics (sense of purpose, flexibility, reliability, resilience, attitude to risk...)

- The specific departments inform the Human Resources department of any changes in their employees' competency profiles.

- The competency profiles are used to select qualified employees.

_Sufficient period of vocational adjustment for the project team is available

- A minimum vocational adjustment - specified for various positions in the organigram - is defined.

- The minimum vocational adjustment is defined according to levels of urgency, for example, short, middle or long term

_Project team is trained in new tools, methods and processes

- A person responsible for the new tools, methods and processes is defined.

- All relevant tool, methods and processes are listed according to project phases and work tasks in a pool.

- All new implemented tools, methods and processes are marked as 'new' in the pool.

- The specific departments transfer relevant information about new tools, methods and processes to the specific project employees.

- The relevant project employees are trained in new tools, methods and processes.

- Employees agree to their knowledge all new tools and methods; and certify this with a signature.

-

_Standard procedure for the start-up phase is present

- A person from MSF's business unit 'International Project Management' takes over the responsibility for the project start-up guideline in the back office.

- The sequence of the action steps is based on the chronology of the success factors.

- The necessary inputs and outputs of all the actions are delivered based on the results of the cross-impact analysis of the success factors.

- The standard procedure is only manifested in the sequence according to the chronology of the success factors and its detailed tactics. The implemented methods and tools can be changed with the line and optimized respectively.

- A pool is created to gather ideas for improvement and to appraise them in the future.

_Acquisition information is replenished and accessible

- A person responsible for the acquisition information is defined.

- A standardized template is developed for the submission of acquisition information.[121]

- The information that has to be documented and to which level of detail is specified. [122]

- A standardized data structure is created for the acquisition information. [123]

- All acquisition data is clearly identified.

- The relevant acquisition information is made available to selected project employees.

- Contacts from the acquisition team are defined for subsequent requests from the project team.

---

[121] Cf. Hab / Wagner (2010), page 60

[122] Cf. Zell (2012), page 133

[123] Cf. Nausner (2006), page 163

- It is clarified, at which time the acquisition information must be accessible.

- A person responsible for updating the main supply of information is defined. [124]

- The data replenishment of the acquisition information is prepared for future manipulation.

_A common understanding of project realization tools and methods between MSF and the customer is present

- A person responsible for the common understanding between MSF and customer is defined.

- A standardized list exists of all tools that are planned to be used, divided into project start-up phase and various phases of the project realization.

- All relevant tools and methods that are time and task specific are stored in a pool.

- It is pointed out, which important tools and methods must be selected:

  o Tools and methods that are used by Magna and the customer together.

  o Tools and methods that lead to important work outcomes.

  o Other critical tools and methods which are time-consuming, costly or result in a direct correlation between the partners.

- The acceptance of all the selected relevant tools and methods are certified with signatures from all involved partners.

_Concerted transfer of acquisition's open-issues into the project is performed

- A person responsible for the acquisition's open issues is defined.

- The open issues are analyzed and defined.

- Open-issues are evaluated for their transfer into the project (e.g. according to their priorities, causes, effects).

- All open-issues and their evaluation for the transfer into the project are documented in a standardized check list. [125]

---

[124] Cf. Nausner (2006), page 163

- Relevant persons, such as project employees, resource managers or the customer regarding the open issues are selected.

- A meeting is organized to discuss these issues with the selected relevant persons and the person responsible for Open-Issues. [126]

_Stakeholder - analysis is performed

- A person responsible for stakeholder - analysis is defined.

- A standardized procedure for stakeholder - analysis is defined.

- The relevant internal and external stakeholders of the project are identified. It is considered that they can be connected with the project regarding interests, power or concerns. [127]

- The interests, desires, expectations and requirements of the stakeholders are identified. [128] These identified factors will be analyzed according to the criteria of the extended elements of the marketing mix and assessed for: function / quality, costs, time, emotions

- The identified concerns of stakeholders' interests are evaluated. [129]

- The influence of the stakeholders on the project is developed. [130]

- The stakeholders influence on the project and the project's impact on the stakeholders are applied in a stakeholder - matrix. [131]

- The stakeholder chart will serve as a decision support for economic and ethical behavior. [132]

- Stakeholder strategies are created according to the modified marketing mix elements: function / quality, time, costs, emotions.

---

[125] Cf. Hab / Wagner (2010), page 71

[126] Cf. Hab / Wagner (2010), page 70

[127] Cf. Jochen / Geers / Giebel (2011), page 119

[128] Cf. Oettgen (2008), page 40ff.

[129] Cf. Jochen / Geers / Giebel (2011), page 120

[130] Cf. Jochen / Geers / Giebel (2011), page 122

[131] Cf. Jochen / Geers / Giebel (2011), page 123

[132] Cf. Bulmann (2007), page 26ff.

_Subdivision of the risks to the project start is performed

- A person responsible for the subdivision of risks is defined.

- A standardized procedure for the risk - analysis is defined.

- The person responsible obtains support from MSF's business unit: Quality. [133]

- The potential risks are identified according to different views: [134] [135]

    - Retrospective view (e.g. Lessons Learned, controlling data)

    - Future-oriented view (e.g. Creative techniques like brainstorming, Ishykawa-model, 5 Why's method, cross-impact analysis)

    - MSF internal view (e.g. questionnaires, workshops)

    - MSF external view (e.g. benchmarking, reports)

- Risks are analyzed , depending on the purpose:

    - Quantitative Analysis (e.g. FMEA-method) [136]

    - Qualitative Analysis (e.g. risk - matrix) [137]

- Tactics are developed to efficiently counteract the occurrence of a risk.

- Tactics are developed to minimize the impact of a risk.

- All the steps as well as the results of the tactics are documented in a standardized manner.

---

[133] Cf. Weyers (2012), page 9

[134] Cf. Haberfellner et al (2001), page 120

[135] Cf. Fuchs / Oberschmid (2011), page 30ff.

[136] Cf. Romeike / Hager (2009), page 127ff.

[137] Cf. Romeike / Hager (2009), page 145f.

_Effective Information Management is established

- A person responsible for information management is defined.

- All information is recorded, standardized and associated with the following characteristics: [138]

    o Recipient of information

    o Form of expression

    o Date of the demand

    o Content summary.

- All internal and external information inventory and information sources must be identified. [139]

- The distribution of the information is defined. [140]

- All necessary information is made available, which means the access to internal and external information is ensured from a technical and legal view. [141]

- The supply of information is organized and all relevant information is provided to the individual organizational units, such as information dissemination and is controlled by appropriate policies. [142]

_Start Workshop between MSF and customer is performed

- A person responsible for the start workshop is defined.

- A standard start workshop procedure is available. It defines the discussion of the following topics: [143]

    o Project targets (strategic, property, time and cost targets)

---

[138] Cf. Vössner (2012), chapter 11.1 – page 15ff.

[139] Cf. Vössner (2012), chapter 11.1 – page 15ff.

[140] Cf. Hab / Wagner (2010), page 60

[141] Cf. Vössner (2012), chapter 11.1 – page 15ff.

[142] Cf. Vössner (2012), chapter 11.1 – page 15ff.

[143] Cf. Hab / Wagner (2010), page 72

- o Organigram and role description

- o Delivery, service and project result structure

- o Milestones and scheduling

- o Project infrastructure

- A moderator is appointed.

- The agenda is prepared.

- The cooperation and the familiarisation of the project team is supported by various 'tasks': [144]

  - o Presentation of each person in terms of the organigram

  - o Joint development of a short presentation by the project team (e.g. summary of the project targets) and presentation of the approximate project process to the internal client, the control circuit or the management.

- The relevant project employees, the representatives of the customer and a contact person from the acquisition phase are invited.

_Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

- A project-specific standardized demand profile of each organigram role is created according to the templates of the standardized competence profiles by the Project Manager and Module Group Leaders. [145] [146]

- The demand profile is compared with the competence profile.

- The most appropriate team is selected by the Project Manager and the Module Group Leader with co-operation from the specific departments.

- It is determined in which standardized order the core team is chosen.

---

[144] Cf. Messerig (online), access: 14.10.2012

[145] Cf. Nerdinger / Blicke / Schaper (2011), page 2053ff.

[146] Cf. Nerdinger / Blicke / Schaper (2011), page 197

- The core team and Project Manager are involved in major decisions and support the ongoing acquisition process.

_Project Manager exists

- The project-specific competence requirements of the Project Manager are formulated. These cover the points from the standardized competency profile (according to success factor: 'Details for all engineering employees' competences are present'). [147] [148]

- The required competence profile of Project Manager is compared with the corresponding competency profiles of all available Project Managers.

- The most suitable Project Manager is defined.

- Project Managers are coached regularly (e.g. Lessons Learned, in- and external seminars for methods, soft skills)

_Core team & Project Manager are present in acquisition phase

- Ideally, the core team consists of a maximum of 7 people. [149]

- A project-specific standardized demand profile is created according to the templates of the standardized competence profile (according to success factor: 'Details for all engineering employees' competences are present'). [150] [151]

- The demand profile is compared with the competence profile.

- The most appropriate core team is appointed.

_Necessary project targets are arranged

- A person responsible for the project target planning is defined.

- The level of detail for the project targets is defined in accordance with the maturity of the product development process.

---

[147] Cf. Nerdinger / Blicke / Schaper (2011), page 197

[148] Cf. Nerdinger / Blicke / Schaper (2011), page 2053ff.

[149] Cf. Hab / Wagner (2010), page 40

[150] Cf. Nerdinger / Blicke / Schaper (2011), page 2053ff.

[151] Cf. Nerdinger / Blicke / Schaper (2011), page 197

- Project targets are defined in cooperation with the customer's, acquisition team and relevant people from the core team.

- The project targets meet the following requirements: specific, measureable, matched with project partners, realistic, scheduled and neutral to solutions. [152]

- Project targets are classified within: [153]

    o Strategic targets (e.g. yield, market, business development)

    o Technical targets (e.g. performance data, acceptance criteria)

    o Execution targets (e.g. resources, appointments, costs)

    o Transaction targets (e.g. norms, locations, languages)

- The project aims have the following characteristics: [154]

    o Target object

    o Target feature / target content

    o Dimension

    o Time aspect

    o Location

- Project targets are defined with 'wanted' and 'unwanted' attributes and each attribute requires a tolerance. [155]

- Priorities are assigned to each project target. (e.g. must-, should-, wish targets). [156]

- The project specific target catalogue is documented according to a standardized template.

---

[152] Cf. Hab / Wagner (2010), page 77

[153] Cf. Nausner (2006), page 130

[154] Haberfellner et al (2002), page 138

[155] Haberfellner et al (2002), page 138f.

[156] Nausner (2006), page 130

- The acceptance of all projects targets are certified with signatures from all involved partners.

- The targets are properly prepared for future manipulation. [157]

_Consolidated RASIC exists

- A person responsible for the RASIC is defined.

- The RASIC is developed by MSF in collaboration with the customer.

- The specific RASIC is documented according to standardized guidelines.

- The acceptance to the RASIC is certified with signatures from all involved partners.

- The RASIC is properly prepared for future manipulation.

_ Coordinated time-schedule is performed

- A person responsible for the time-schedule is defined.

- The level of detail for the time-schedule is defined in accordance with the maturity of the product development process.

- A standard approach for creating time-schedules is defined. The following steps are performed: [158]

  o Creation of a list of operations / work packages

  o Performance of a sequence analysis (sequence and relation)

  o Estimation of the time required (duration of operations)

  o Development of the final time-schedule

- Each work package is provided with an individual identification.

- The specific schedule is appropriately documented according to standardized templates.

---

[157] Nausner (2006), page 129

[158] Cf. Nausner (2006), page 118

- All critical parameters must be found, explicitly: [159]

    - The critical work packages (tasks) are defined.

    - The earliest and latest possible start and finish dates for work packages are defined.

    - The backup times (reserve) are defined.

- The schedule is illustrated in: [160]

    - Networked bar-plans for deterministic processes (processes clearly determined in advance)

    - Decision networks (ENP) for stochastic processes (several options for processes)

- The acceptance of the time-schedule is certified with signatures from all involved partners.

- The time-schedule is properly prepared for future manipulation.

_Consolidated organigram is present

- A person responsible for the organigram structure is defined.

- The standardized organigram serves as a template for the project-specific organigram (e.g. MSDS standard organigram). [161]

- Ideally, the structures and roles of the standard organigram are retained, but can be modified for each project.

- Each role is clearly project-specific identified and includes the following role characteristics: tasks, competencies, responsibilities [162]

- The acceptance of the organigram is certified with signatures from all involved partners.

---

[159] Cf. Vahrenkamp (2004), page 112

[160] Cf. Nausner (2006), page 118

[161] Cf. Appold (2003), page 58

[162] Cf. Weyers (2010), page1ff.

_Organizational environment (meeting landscape, protocols, tools...) is available

- A person responsible for the organizational environment is defined.

- All available organizational environment elements are listed according to the project start-up phase and the phases for the project realization.

- All necessary organizational environment elements are placed in a pool and are classified into time limit and work package specific use.

- It is ensured that all project employees with appropriate skills have easy access to the time limit and work package specific organizational environment elements within the pool.

- The application goals of the organizational environment elements are taught to every employee.

- Necessary project employees are trained in detail on the application of relevant organizational environment elements.

- The use of specific organizational environment elements is prescribed for standard situations.

- The acceptance of the organizational environment elements is certified with signatures from all involved partners.

_ Consolidated budget planning is performed

- A person responsible for consolidated budget planning is defined.

- The level of detail of the budget planning is clarified according to the maturity level of the project.

- A standardized budget planning procedure is defined taking into account all involved areas.

- The results of the budget planning are documented using standardized templates.

- The acceptance of the budget planning is certified with signatures from all involved partners.

- The data from the budget planning is prepared for later manipulation.

_Continuous project documentation is prepared

- A person responsible for continuous project documentation is defined.

- There is a standardized project documentation template. [163]

- All data is clearly identified. (e.g. data provided with tags)

- It is exactly specified which data is documented standardized. [164]

- All data is controllable and accessible using integrated software. [165]

- It is ensured that there is an internal and external information flow of the project documentation data. [166]

- It is clarified, at which intervals the data is updated.

- The data preparation of project documentation is prepared for later manipulation.

_Coordinated capacity planning is performed

- A person responsible for coordinated capacity planning is defined.

- The level of detail of the capacity planning is clarified according to the maturity level of the project.

- A standard procedure for creating capacity plans is used in collaboration with the areas involved.

- The specific capacity planning is appropriately documented using standardized templates.

- The acceptance of the organizational environment elements is certified with signatures from all involved partners.

- The data preparation of the capacity planning is prepared for future manipulation.

---

[163] Cf. Nausner (2006), page 163

[164] Cf. Zell (2012), page 113

[165] Cf. Borghoff / Schlichter (1998), page 422

[166] Cf. Hab / Wagner (2010), page 60

_All roles in organigram are staffed

- Each position is documented with the specific contact person.

- Required deputies for positions in the organization are identified and named. [167]

- Each role and its name is documented and illustrated within the organigram.

- The acceptance of the organigram is certified with signatures from all involved partners.

---

[167] Cf. Hab / Wagner (2010), page 33

4 Design of the methodic structure for the project start

The beginning of this Thesis describes the targets of this investigation. The crucial task can be summarized as: at the point of the official project start, the project realization has to work effectively within three days. To achieve this ambitious target a standardized project procedure for MSF is crucial. The next chapters describe the purpose of a milestone, which serves as the initial point of the official project start. Further steps provide the final methodic structure that is recommended as the future sequence of desired actions to ensure a successful project start-up.

4.1 Definition of the official project start - up's milestone

The sense of a milestone plan is the structuring of the project into single stages. The complete project duration is divided into logical phases. A phase describes a period before the milestone. All milestones are the stage goals and finish the previous phase. Each milestone is allocated intermediary results, which have to be achieved. [168]

Two kinds of milestones exist: [169]

- **Quality milestones:** These kinds of milestones divide the project development process into different phases, mostly with an important outcome. At its end, the degree of maturity and the project progress can be measured. Therefore, it is essential to define preconditions and measured values.

- **Synchronization milestones:** These kinds of milestones support the coordination between producers, suppliers and other project partners. The stages of development are assessed, required adaptions performed and decisions are done.

One milestone can also fulfill both tasks.

The milestones serve for better control of a project because the actual measured values are given by the achieved outcomes of the specific phase and can be evaluated with the determined milestone plan. The basics for the milestone plan are the contractual agreements with the purchaser, the project objectives and the resulting timeframe. [170]

---

[168] Cf. Hab / Wagner (2010), page 88f.

[169] Cf. Hab / Wagner (2010), page 89

[170] Cf. Hab / Wagner (2010), page 90

The success factor **'Start Workshop between MSF and customer is performed' is defined as the official start milestone** for the project realization. All content required to perform an effective project procedure, according to plans, regulations as well as coordination, are documented in the specific project manual. Because the start workshop offers the first face-to-face common meeting between the project team and the customer, the requirements, that are not cleared up so far, can be assessed together considering the actual status quo. After the workshop is completed successfully, the Project Manager is able to start the project's realization phase and the official project team is able to prepare the last steps for an effective project start in about three days.

4.2 In- / output relationships of the tactics

It is clear that the outcome quality of a process is determined by its execution. Each execution step requires different working basics (inputs), like documents, experts or structures. A person has to take responsibility for each process or activity performed. The outcomes of the necessary task results are often needed for successive work steps and so serve as a new input. [171]

The following model [Figure 33: In- / output relations of processes] describes the sequence of in- and outputs:
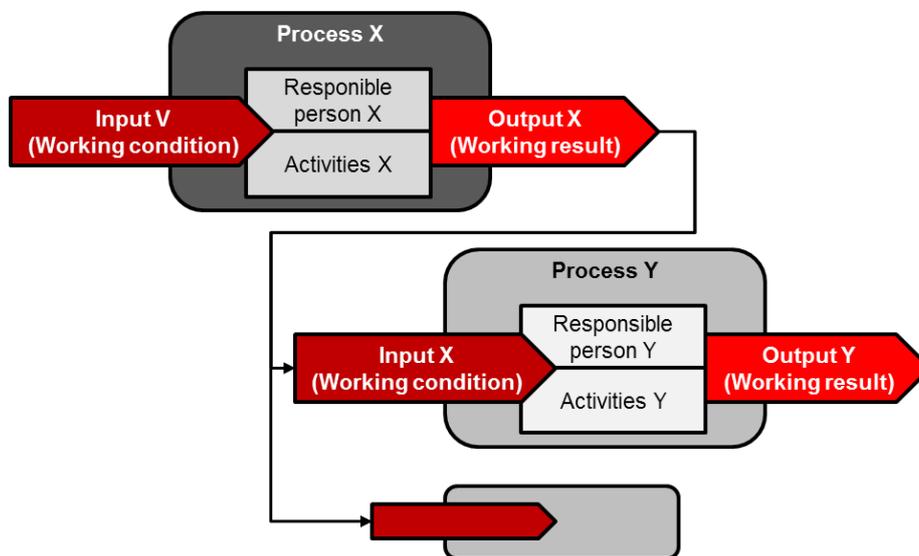
Figure 33: In- / output relations of processes [170]

The practical implementation is performed by adopting the results from the success factor relation analysis [3.3.5.4 Visualization of success factors' relations]. The tactics of each

---

[171] Cf. Bea / Scheurer / Hesselmann (2011), page 334f.

success factors are allocated their necessary precondition (input) and their working results (output) for successive success factors.

4.3 Final result: methodic structure for the MSF's project start - up

MSF is able to use the results of the diploma thesis as a standardized guideline for the start-up phase for all types of product development projects. The implemented milestone (start work shop) of the official project start should guarantee that more than 80 % of the required project preconditions are achieved and the effective work process can begin in the following three days.

It is the function of the specific business divisions or a defined person responsible to implement all necessary methods and tools to this standard to fulfill the required actions according to the guideline. This has the advantage that every single start-up phase can be exactly adapted to the needs of the specific projects without missing an important planning step. Another advantage is that this methodic structure promotes a dynamic optimization of the start-up phase because each achievement of a success factor can be controlled, and structured improvements for future applications of specific methods and tools can be done easily.

If all practical methods and tools are cleared for implementation into the methodic structure, a backward scheduling is necessary to guarantee the performance of all success factors in time.

This standard structure consists of two parts. The first part is a summary of the chronological sequence of required success factors. The detailed document can be seen in the appendix [A-6 Model of the success factor sequence for the MSF project start-up]. This document is a simplified visualization and serves MSF as schematic orientation about the maturity of the project start-up. The success factor relations are for the end-consumer not relevant in this visualization.

The following figure shows a schematic illustration of the success factor sequence according to the detailed concept [Figure 34: Methodic structure: success factor sequence].

---

[172] Cf. Bea / Scheurer / Hesselmann (2011), page 335
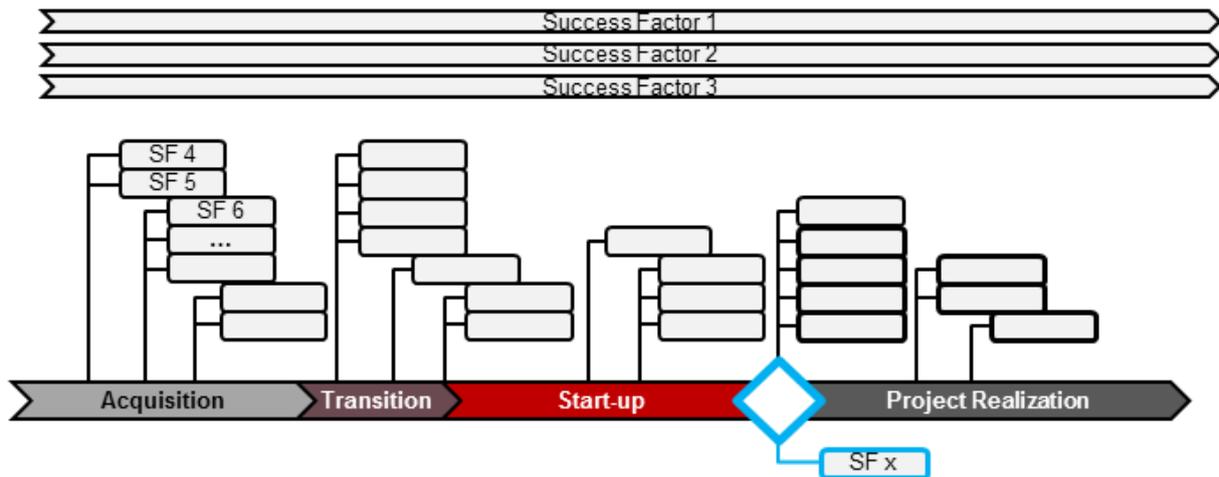
Figure 34: Methodic structure: success factor sequence

The second part explains in detail all necessary activities that guarantee a successful achievement of the specific success factor. It includes each success factor, an overview of the project start-up maturity, its required precondition (input), the following success factor which needs the working results (output) and its action sequence. These are the facts that provide the standard for the methodic concept. These sequences, in-/output relations and the chronological list of activities are manifested and cannot be changed as long as no complete investigation of project start-up phase is done. For each specific process, it is necessary to implement specific processes, methods and tools. The specific implementation and a person responsible for controlling is demonstrated with an empty cell next to each standard activity. It has to be mentioned that these documents are just a schematic example and do not suffice all requirements to bring the standard activities into action. It helps MSF with future projects to pay attention on the most important actions and necessary documentation steps

The following figure shows one of 30 examples of the second part that documents all relevant information to achieve each success factor [Figure 35: Methodic structure: success factor information].

Project Start-up Checklist

Project:		Start:
Step:	12	Finish:

Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase
	Necessary project targets are arranged
	Coordinated time-schedule is performed
	A common understanding of project realization tools and methods between MSF and the customer is present

Actual Working Results have to transfered to the followed Success Factor (Output):	Coordinated capacity planning is performed
	Organizational environment (meeting landscape, protocols, tools...) is
	Subdivision of the risks to the project start is performed
	Start workshop between MSF and customer is performed

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods,
Coordinated time-schedule is performed	The committed time-schedule exists because it is a requirement to realize all working steps within the team as well as with the partners. Finally the defined time-schedule serves to control the workflow.		A person responsible for the time-schedule is defined. The level of detail for the time-schedule is defined in accordance with the maturity of the product development process. A standard approach for creating time-schedules is defined. The following steps are performed: o Creation of a list of operations / work packages o Performance of a sequence analysis (sequence and relation) o Estimation of the time required (duration of operations) o Development of the final time-schedule Each work package is provided with an individual identification. The specific schedule is appropriately documented according to standardized templates. All critical parameters must be found, explicitly: o The critical work packages (tasks) are defined. o The earliest and latest possible start and finish dates for work packages are defined. o The backup times (reserve) are defined. The schedule is illustrated in: o Networked bar-plans for deterministic processes (processes clearly determined in advance) o Decision networks (ENP) for stochastic processes (several options for processes)	

Figure 35: Methodic structure: success factor information

The *detailed documents* for the 30 success factors can be seen in the appendix [A-7 Methodic information structure of all success factors for the MSF project start - up].

5 Assessment of the thesis' results

Finally, the diploma thesis' result is assessed by comparing it with a MSF internal study according to the actual general PM standard 'Magna Steyr Project Management' (MSPM) and a study written by a cooperation of Deutsche Gesellschaft für Projektmanagement e.V. (GPM) and PA Consulting Group.

Assessment: Magna Steyr Project Management

MSF provides a standard as a principal basis for project-type specific guidelines and specific project manuals. This concept regulates topics of Project Management approaches and can be used for all types of projects at MSF. The goal is the achievement of a standardized project and therefore efficient, effective and reliable Project Management. [173]

This study is developed using previous Lessons Learned workshops from MSP. These workshops have taken place after projects have finished and the critical elements that influenced the project have been analyzed. The results of the analysis are illustrated [Figure 36 Results of MSPM analysis [173]].

1) Organization
2) Conditions
3) Target management
4) Change management
5) Time scheduling
6) Capacity planning
7) Communication
8) Employee skills
9) Activity and structure plan
10) Budget planning
11) Documentation
12) Lessons learned
13) Meeting landscape
14) Escalation
15) Problem solution
16) Reporting
17) Project marketing
18) Risk management

Figure 36 Results of MSPM analysis [173]

---

[173] Cf. Danzer (2006), page 2

[174] Cf. Danzer (2011), page 1

All these themes from MSPM are compared to the success factors developed in this Thesis. It has to be considered that the MSPM statistic describes the most important elements for an entire project to succeed but this Thesis focuses on the project start. Nevertheless, almost all important factors from the Lessons Learned workshop are present in the Thesis's success factors as well. Only the points 'Project Marketing' and 'Change Management' have not found explicit attention in the investigation for the project start-up. This can be argued by two facts: The element 'Project Marketing' has a weighting of less than 1 %, which results in this element being relatively unimportant in relation to finishing the project successfully and is even more ineffectual for a successful project start as this factor has never been mentioned in the employee interviews regarding influences on a successful or unsuccessful project start. The element 'Change Management' receives a high priority in MSPM. But it is not important during the project start phase because all preconditions, such as structures, organization or tasks, are contractually planned but the details and therefore possible occurring changes still have to be defined during the project realization. Therefore, it would be illogical to have Change Management implemented during the project start-up.

Assessment: GPM and PA Consulting Group

In the year 2008, a study was performed by GPM and the PA Consulting Group and investigated elements that influence the outcome of a Project Management process [Figure 37: Result of GPM and PA study [17]]. The focus of this study was what had driven a project into success or failure. This study focused on the entire project process as well.[175]
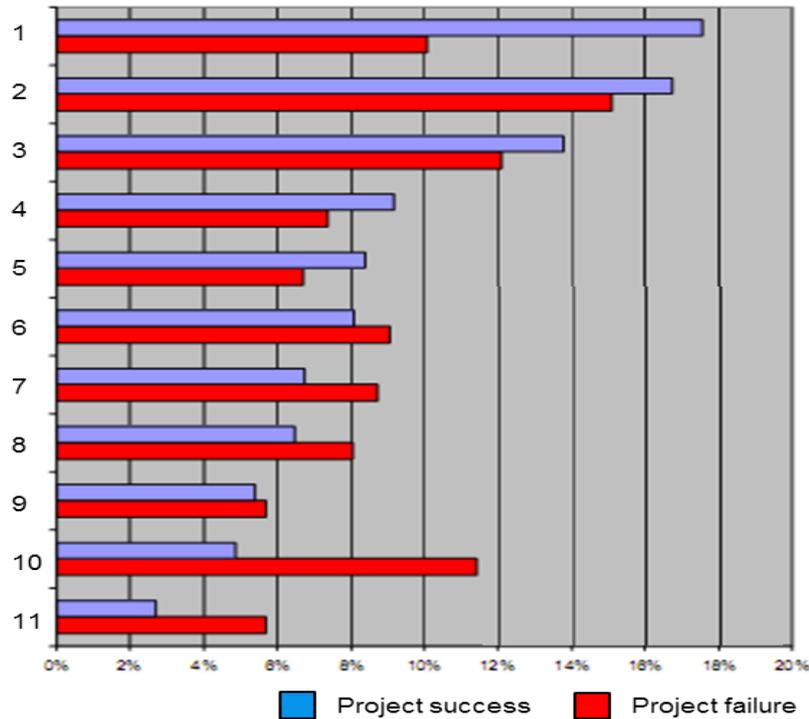
1) Qualified project employees /
Unqualified project employees

2) Good communication /
Bad communication

3) Clear target requirements /
Unclear target requirements

4) Sufficient project planning /
Insufficient project planning

5) PM experience within core team /
Missing PM experience within core team

6) Sufficient capacity at project start /
Insufficient capacity at project start

7) Support by the Top Management /
No support by the Top Management /

8) PM methodic /
Missing PM methodic /

9) Stakeholder Management /
Insufficient Stakeholder Management

10) Team work rules, defined team relations and
defined competences /
No team work rules, defined team relations or
defined competences

11) Sufficient technical requirements /
Technical requirements too high

Figure 37: Result of GPM and PA study [175]

---

[175] Cf. Engel / Tamdjidi / Quadejacob (2008), page 2ff.

All elements required to finish a project successfully are directly or indirectly considered in the diploma thesis' success factors. Only the element 'Support of the Top Management' is disregarded in the Thesis. This is because a specific project only needs the direct support of the Top Management if such large problems occur that even the board landscape is no longer able to deescalate or solve a problem. This problem could occur only during the project realization because if such a problem would be indicated during the acquisition or project start-up phase, the cause has to be searched for in the specific acquisition and project start-up phase. This means, something went wrong with the process and can only be solved with methodical corrections. The Top Management is able to initiate a change or improvement of the project start-up concept but the detailed knowledge and competences can only be offered by the management and specialists of each business.

6 Summary and prospect

The following chapter summarizes the most important investigation steps and their outcome. The second part describes the conclusion and further application of the diploma thesis results.

6.1 Summary

Continuous changes to the worldwide market distribution and growing competing pressure in the automotive industry intensely affects OEMs and their related suppliers as well as development service providers. They need to respond quickly to customer wishes, offer the best quality and innovations. This forces MSF, located in a country with high wages, to work with an extraordinary effectiveness and efficiency in the area of project realization.

The initial problem with MSF projects is that there is a big information gap between the acquisition phase and the project realization. This causes a too long period until the project can start effectively. The reason can be clearly identified in a missing start-up phase to manage a controlled transfer from the acquisition into the project realization. This point must be solved by the results of this Thesis' investigations.

According to the specific business strategy procedure, called M.O.S.T - analysis, the thesis' investigation steps could be planned. A mission was defined to show the direction of the desired outcomes. In the following step, objectives had to be defined. For this purpose, interviews with MSF employees were executed with the goal of exploring which factors are responsible for a successful as well as an unsuccessful project start. The number of success and failure factors were reduced during different investigations. The result showed that it is sufficient to concentrate on the 30 most critical success factors to guarantee an effective and efficient project start. An analysis was performed to be able to illustrate the critical success factors' relationships as well as their necessary sequence. These preconditions allowed the formulation of objectives to guarantee a successful project start. Based on the objectives, the specific strategies for each success factor could be explored. The last step of the M.O.S.T. - analysis is the formulation of tactics. To guarantee a proper outcome of activities, the final tactics were investigated in two different procedures with an increasing level of detail.

The final step includes the preparation of all tactics that have to be performed to give MSF a standard structure of how to manage the activities logically until the project can start effectively. For this purpose, all final tactics were analyzed to optimize a frictionless sequence of activities. Therefore, several tactics had to be reduced, added or changed in

their chronology. Also, required in- and outputs were implemented. Furthermore a milestone for the official start of the project realization was defined.

6.2 Prospect

The outcome of the Thesis gives a general concept for the most important activities that are necessary to achieve a successful project start. Thus specific processes, methods and tools have to be developed to perform the standard activities for each project. The problem occurs in a real project that is barely possible to provide enough capacities to manage the development and implementation of required processes, method and tools. Thus it is necessary to spend additional effort to design these standard activities more user-friendly. This can be for example, clear standard processes or a collection of available tools for each success factor. It could be recognized in the diploma investigations that a lot of useful methods already exist but the knowledge on these methods are decentralized available in different business units.

It is also supposed that the different standard activities do not need the same effort. Some are more important or have a stronger impact to the project start than others. It would be useful to assess all standard activities to their priority. This guarantees additional cost and time savings in projects.

It has also mentioned that this standard is built on subjective ideas and experience. For example the objectives as the base of the investigation are designed by the experience of a certain amount of people with great knowledge about projects. Nevertheless it can be beneficial for the project start-up to criticize certain relations or even existence of the chronology and connections of success factor as well as standard activities.

List of figures

List of equations

List of abbreviations

CRM   Customer Relationship Management

GPM   Deutsche Gesellschaft für Projektmanagement e. V.

IIBA   International Institute of Business Analysis

MGL   Module Group Leader

MS   Microsoft

MSDS   Magna Steyr Development System

MSF   MAGNA STEYR Fahrzeugtechnik AG & Co KG

OEM   Original Equipment Manufacture

PL   Project Leader

PM   Project Management

PMI   Project Management Institute

QM   Quality Management

RASIC   Responsible, Approve, Support, Inform, Consulting

TU   Technical University

UFO   Institut für Unternehmungsführung und Organisation

VDA   Verband der Automobilindustrie

Bibliography

Abramovicz W., 2009: *Business information systems*, Poznan: Springer Verlag.

Allgemein Unfallvericherungsanstalt, 2012: *E14*, Wien: AUVA.

Appold K. - W., 2003: *Projekte gut inszenieren*, München: Verlag C.H. Beck oHG.

Baccarini D., 1999: *The Logical Framework Method for Defining Project success*, Vol. 30, No. 4, Philadelphia: Project Management Journal.

Bachofner A, 2006: *Teamarbeit: die vier Erfolgsfaktoren.* http://www.bachofner.ch/pdf/ Teamarbeit_-_Die_vier_Erfolgsfaktoren.pdf, access: 09.2012.

Bartsch H. - J., 2004: *Taschenbuch Mathematische Formeln*, 20. Edition, Leipzig: Fachbuchverlag Leipzig.

Bea F. X., Scheurer S., Hesselmann S., 2011: *Projektmanagement*, 2. Edition. Konstanz: UVK Verlagsgesellschaft mbH.

Blockus M. - O., 2010: *Komplexität als Problemdarstellung in Dienstleistungsunternehmen*, Wiesbaden: Gabler Verlag.

Boghoff U. M., Schlichter J. H., 1998: *Rechnergestützte Gruppenarbeit - Eine Einführung in verteilten Anwendungen*, 2. Edition, Heidelberg: Springer Verlag.

Böhm B., 2006: *Vertrauensvolle Verständigung - Basis interdisziplinärer Projektarbeit*, München: Franz Steiner Verlag GmbH.

Brink A., 2011: *Philosophie des Managements: Überlegungen zu einer normativen Theorie der Unternehmung*, Weimar bei Marburg: Metropolis Verlag.

Brockhaus Enzyklopädie (ed.), 2006: *Taktik*, 21. Edition, Vol. 26, Leipzig: Verlag F.A. Brockhaus - wissenmedia in der inmediaONE GmbH.

Buchenau G., Koch O., Schüttler R., 2011: *Analyse ausgewählter Projektmanagement - Standards für große und mittelständische Unternehmen,* Kassel: WITEC Verlag.

Bulmann A., 2007: *Mehr Wert durch Mehrwert - Nachhaltiger Unternehmenserfolg durch Investition in Social Responsibility*, Paderborn: Salzwasser Verlag GmbH & Co. KG.

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, 2012: *Betriebliche Indikatoren für psychische Fehlbelastungen*, http://www.baua.de/de/Themen-von-A-Z/Psychische-Fehlbelastung-Stress/ISO10075/Weitere-Informationen/Ergaenzendes/Indikatoren/Indikatoren.html, access 09.2012.

Business dictionary, 2012: *Tactic*, http://www.businessdictionary.com/definition/tactics.html, access: 11.2012.

Coach-academy, 2012: *Das 7-S-Modell: Sieben Erfolgsfaktoren für Unternehmen,* http://www.coachacademy.de/de;magazin;karriere;d:402.htm, access 10.2012.

Danzer W., 2006: *Projectmanagement - MSPM: MAGNA STEYR Project management,* Graz: MAGNA STEYR Fahrzeugtechnik AG & Co KG.

Danzer W., 2011: *MSPM - Themenrückmeldung aus Lessons Learned;* Graz: MAGNA STEYR Fahrzeugtechnik AG & Co KG.

Dillerup R, Stoi R., 2011: *Unternehmensführung*, 3. Edition, München: Verlag Franz Vahlen GmbH.

Engel C., Tamdjidi A., Quadejacon N., 2008: *Ergebnisse der Projektmanagement Studie - Erfolge und Scheitern im Projektmanagemenet*, Nürnberg: GPM Deutsche Gesellschaft für Projektmanagement e.V..

Fassin Y., 2008: *The Stakeholder Model Refined*, Ghent: Springerlink.

Friedemann R. T., 2010: *Value Management als integrativer Bestandteil des Entwicklungsprozesses technischer Produkte im Automotive-Bereich*, München: GRIN Verlag.

Fuchs H., Oberschmid H. , 2011: *Operational Risk Management*, Graz: TU Graz.

Fuhrer D., 2006: *Der Weg zur optimalen Kundenbeziehung*, München: GRIN Verlag.

Gabler Wirtschaftslexikon, 2012: *BRIC,* http://wirtschaftslexikon.gabler.de/Definition/bric-staaten.html, access: 11.2012.

Gabler Wirtschaftslexikon, 2012: *Triade*, http://wirtschaftslexikon.gabler.de/Definition/triade.html, access: 11.2012.

Gärtner R., 2009: *Der Einfluss von Stakeholder-Gruppen auf den Strategieprozes*, Hamburg: Diplomica Verlag GmbH.

Gessner C., 2001: *Package Features für die Kommunikation in den frühen Phasen der Automobilentwicklung*, Berlin: TU-Berlin.

Grünberg J., 2009: *Strategie und Taktik nach Clausewitz und ihre Anwendung in mittelständischen Unternehmen*, Hamburg: Diplomica Verlag GmbH.

Hab G., Wagner R., 2010: *Projektmangement in der Automobilindustrie - Effizientes Management von Fahrzeugprojekten entlang der Wertschöpfungskette*, 3. Edition, Wiesbaden: Gabler Verlag.

Haberfellner R., Nagel P., Becker M., Büchel A., von Massow H., 2002: *System Engineering: Methoden und Praxis*, 11. Edition, Zürich: Verlage für industrielle Organisation.

IIBA, 2008: *Business Analysis Body of Knowledge v1.6*, http://www.theiiba.org/Content/NavigationMenu/Learning/BodyofKnowledge/Version16/BOK V1_6.pdf, access: 05.2012.

Jochen R, Geers D., Giebel N, 2011: *Six Sigma leicht gemacht - Ein Lehrbuch mit Musterprojekt für den Praxiserfolg*, Düsseldorf: Symposion Publishing GmbH.

Johnson G., Scholes K., Whittington R., 2008: *Exploring corporate strategy*, 8. Edition, London: Pearson Education Limited.

Kerth K., Asum H., 2008: *Die besten Strategietools in der Praxis*, 3. Edition, München: Carl Hasner Verlag.

Kerzner H., 2008: *Projektmanagement: Ein systemorientierter Ansatz zur Planung und Steuerung*, 2. Edition, Bonn: Redline GmbH.

Landau K., 2007: *Lexikon Arbeitsgestaltung - Best Practice im Arbeitsprozess*, Stuttgart: Genther Verlag.

Mepss, 2012, *Worksheet W07 - System Analysis*, *2 - Cross Impact Analysis*, http://www.mepss.nl/index.php?p=tool&l4=W07, access: 11.2012.

Messerig W. A., 2012, *Projektstart Workshop, http://www.die-seminarwerkstatt.de/ index.php?id=24, access:* 10.2012.

Microsoft - MS Excel 2010, 2012: *MS Excel 2010*, http://office.microsoft.com/de-at/excel/features-und-vorteile-von-excel-2010-HA101806958.aspx, access: 11.2012.

Microsoft - MS Project 2010, 2012: *MS Project 2010*,. http://www.microsoft.com/project /en-us/project-pro-2010-benefits.aspx, access: 11.2012.

Microsoft - MS Visio 2010, 2012: *MS Visio 2010*, http://office.microsoft.com/deat/visio/ die-zehn-wichtigsten-grunde-visio-2010-zu-testen-HA101805356.aspx, access: 11.2012.

MSF, 2012: *MSF Corporate Presentation*, Graz: *MAGNA STEYR* Fahrzeugtechnik AG & Co KG.

Mike, 2012: *Visions, Missions, Objectives, Strategies and Tactics*, http://www.salessuccessandmore.com/visions-missions-objectives-strategies-and-tactics, access: 05.2012.

Nausner P., 2006: *Prjoektmanagement - Die Entwicklung und Produktion des Neuen in Form von Projekten*, Wien: Facultus Verlags- und Buchhandels AG.

Nawrath V., 2012: *GPM/IPMA Zertifizierung - ICB 3.0*, http://www.vona.in-berlin.de/Volker/Files/PM/ICB_3_Kapitel_1.01.pdf, access: 08.2012.

Nerdinger F. W., Blickle G., Schaper N., 2011: *Arbeit- und Organisationspsychologie*, Heidelberg: Springer Verlag.

Nil A. F. L., 1994: *Strategische Unternehmensführung aus ethischer Perspektive*, Berlin: LIT Verlag.

Oettgen N., 2008: *Integriertes Marketing Für Professionelle Fußballvereine - Stategisches Marketingmanagement*, Frankfurt a. M.: Internationaler Verlag der Wissenschaften.

Remenyi D., 2005: *European Conference on IS Management, Leadership and Governance*, Reading: Academic Conference Limited.

Reuter M., 2011: *Psychologie im Projektmanagement - Eine Einführung für Projektleiter und Team*, Erlangen: Publicis Publishing.

Richter P., 2009: *Gegenüberstellung von Modellen zur Messung von "IS-success"*, Norderstedt: GRIN Verlag.

Risiko Manager, 2012: *Risiko Diagramm*, http://risikomanager.org/methodenassistent /risikodiagramm-risikograph-risikolandschaft-risikoportfolio-risikomatrix, access: 09.2012.

Romeike F., Hager P., 2009: *Erfolgsfaktor Risiko-Management 2.0 - Methoden, Beispiele, Checklisten, Praxishandbuch für Industrie und Handel*, 2. Edition, Wiesbaden: GWV Fachverlage GmbH.

Schlick C., Bruder R., Luczak H., 2010: *Arbeitswissenschaft*, Heidelberg: Springer Verlag.

Specker A., 2005: *Modellierung von Informationssystemen*, 2. Edition, Zürich: Vdf Hochschulverlag AG.

Spengler G., 2009: *Strategie- und Organisationsentwicklung - Konzeption und Umsetzung eines integrierten, dynamischen Ansatzes zum strategischen Management*, Wiesbaden: GWV Fachverlage GmbH.

Stangl W., 2012: *Was sind Stichproben*, http://arbeitsblaetter.stangl-taller.at/FORSCHUNGSMETHODEN/Stichproben.shtml, acess: 11.2012.

Turner R., Huemann M., Anbari F., Bredillet C., 2010: *Perspective of Projects*, New York: Routledge.

Uni Karlsruhe, 2012: *Quantitative vs. Qualitative Methoden*, http://imihome.imi.uni-karlsruhe.de/nquantitative_vs_qualitative_methoden_b.html, access: 08.2012.

Vahrenkamp R., 2004: *Produktionsmanagement*, München: Oldenbourgh Wissenschaftsverlag.

VDA, 1998: *Sicherung der Qualität vor Serieneinsatz*, Vol. 4.3, Frankfurt a.M.: Verband der Automobilindustrie.

VDA, 2003: *Partnerschaftliche Zusammenarbeit-Abläufe-Methoden,* Vol. 4.1, Frankfurt a. M.: Verband der Automobilindustrie.

VDA, 2009: *Deutsche Automobilindustrie kann stärker als andere aus der Wirtschaftskrise hervorgehen*, Berlin: Verband der Automobilindustrie.

VDA, Wymann O., 2009: *New Automotive Deal*, Berlin: Verband der Automobilindustrie.

Vössner S., 2012: *Engineering and Business Informatics*, Graz: TU Graz.

Walker D., Rowlinson S., 2008: *Procurement Systems - A cross-industry perspective*, Oxon: Taylor & Francis.

Weyers L., 2010: *MSDS: das MagnaSteyrDevelopementSystem*, Graz: MAGNA STEYR Fahrzeugtechnik AG & Co KG.

Weyers L., 2011: *Standard Programm-Organisation und Rollenbeschreibung*, Graz: MAGNA STEYR Fahrzeugtechnik AG & Co KG.

Weyers L., 2012: *Präsentation über Abhängigkeiten der Managementebenen*, Graz: MAGNA STEYR Fahrzeugtechnik AG & Co KG.

Wolf M., Mlekusch R., Hab G., 2006: *PM-Live: Instrumente, Verfahren und Kooperationen als Garante des Projekterfolgs*, 6. Edition, Renningen: Expert Verlag.

Zell H., 2012: *Projektmanagement - lernen, lehren und für die Praxis*, 4. Edition, Norderstedt: Books on Demand GmbH.

Zimmermann J., Stark C., Rieck J., 2010: *Projektplanung - Modelle, Methoden, Management*, 2. Edition, Heidelberg: Springer Verlag.

Appendix

A-1 Original interview guide

TU Graz
Graz University of Technology

MAGNA STEYR

Fragebogen zum Thema:

„Optimierung des Anlaufes von Projekten"

Interviewpartner: Datum:

In welchem Unternehmen und welcher Abteilung haben Sie früher gearbeitet und was waren Ihre Kernaufgaben?
Unternehmen: Abteilung: Kernaufgaben:

Über welchen Zeitraum waren Sie im Unternehmen beschäftigt?
Von: bis:

Gab es einen definierten Ablauf für den Übergang der Angebotsphasen in die Projektanlaufphasen im genannten Unternehmen? Wie sah dieser aus?
⬭ Ja,   Name des Ablaufprozesses: ⬭ Nein Phasen des Prozesses:

Was waren die 6 bedeutendsten Erfolgsfaktoren für einen effizienten Projektanlauf im früheren Unternehmen? Bitte erläutern Sie diese kurz.

z.B.: spezifische Organisation, Standardisierung..

(1)

(2)

(3)

(4)

(5)

(6)

Sind diese Erfolgsfaktoren bei Magna vorhanden?

Erfolgsfaktor	Vollkommen vorhanden	Eher vorhanden	Weniger vorhanden	Nicht vorhanden	Weiß nicht
(1)	O	O	O	O	O
(2)	O	O	O	O	O
(3)	O	O	O	O	O
(4)	O	O	O	O	O
(5)	O	O	O	O	O
(6)	O	O	O	O	O

Ordnen Sie bitte diese Erfolgsfaktoren nach deren Prioritäten in Hinblick auf einen erfolgreichen Projektanlauf.

Priorität:	zugeordneter Erfolgsfaktor:
1.	(-)
2.	(-)
3.	(-)
4.	(-)
5.	(-)
6.	(-)

Was waren die 6 bedeutendsten Faktoren für die Verzögerung des Projektanlaufs im früheren Unternehmen? Bitte erläutern Sie diese kurz.

(1)

(2)

(3)

(4)

(5)

(6)

Sind diese Faktoren bei Magna vorhanden?

Faktor	Vollkommen vorhanden	Eher vorhanden	Weniger vorhanden	Nicht vorhanden	Weiß nicht
(1)	O	O	O	O	O
(2)	O	O	O	O	O
(3)	O	O	O	O	O
(4)	O	O	O	O	O
(5)	O	O	O	O	O
(6)	O	O	O	O	O

Ordnen Sie bitte diese Faktoren nach deren Prioritäten in Hinblick auf einen verzögerten Projektanlauf.

Priorität:	zugeordneter Faktor:
1.	(-)
2.	(-)
3.	(-)
4.	(-)
5.	(-)
6.	(-)

Hätten Sie aufgrund Ihrer Erfahrung Vorschläge, in welchen Bereichen Verbesserungspotential bei Magna Steyr für einen erfolgreichen Projektstart vorhanden sind? Wie stellen Sie sich diese vor?

Können Sie mir bitte weitere Personen nennen, die ich zum Thema befragen kann?

Falls Sie zusätzliche Kommentare haben, können Sie diese gern vermerken.

Ich bedanke mich recht herzlich für Ihre Unterstüzung
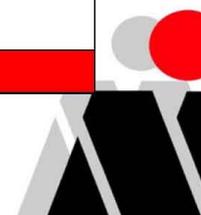
A-2 Raw data from interviewees with MSF project experience

Success Factors	Number of nominations	Priority
Budget planning is accomplished	2	3
Capacity planning is accomplished	3	2,67
Concept quantity structure is available (bill of material, bill of costs..)	2	2,5
Coordinated organigram is available	10	4,6
Core team & Project Leader are present in quotation phase	1	5
Effective Information Management is established	3	4
Evaluation of "Open Issues" for handing-over the project to the project team is accomplished	1	5
Functions of Positions in Organigram are not known	1	1
Improvement of processes is transparent	2	5
Objectives are aligned	8	4,14
Objectives are prioritized	1	1
Organizational frameworks are arranged (Meeting landscape, protocol,..)	3	2,67
Positive customer's relation is accomplished	5	3,8
Project board and escalation paths are defined	3	4,67
Project godfather is nominated	1	2
Project Leader & Module Group Leader recruit the	1	5
Project Leader is sufficiently qualified	1	6
Project team works closely together	2	3,5
RASIC is defined	9	4,67
Standard guideline for project start is available	4	4,25
Summary and accessibility of the quotation information is available	2	4
Time scheduling is accomplished	4	4,5
Workshop is planned to solve misunderstandings between MSF & customer	2	1,5

Failure Factors	Number of nominations	Priority
Customer relationship is poor	3	3,5
Boundary between acquisition & project team exists	1	4
Budget planning is unaccomplished	1	5
Capacity planning is insufficiently accomplished	5	4,2
Contracts are not properly defined	1	6
Coordinated Organigram is not available	3	4,67
Effective Information Management is not established	3	3,33
Burden on employees is too high	1	4
Functions of Organigram are not known	3	4
No common knowledge about tools & methods between MSF & customer	1	5
Objectives are insuffienctly aligned	8	4,12
Project documentation is not applicable	1	4
Project leader is insufficiently qualified	1	1
Project team is deficiently functional qualities	4	4,5
Project team works in different places	3	4,67
Project's committee and escalation paths are not defined	2	3,5
RASIC is not defined	2	5
Standard guideline for project start is not available	4	3,75
Summary and accessibility of the quotation information is not available	3	5,67
Supplier is changed	1	4
Team is changed after quotation phase	1	3
Time scheduling is unaccomplished	5	3,6
Too many correction loops occur	1	5

A-3 Raw data from interviewees with external company's project experience

Success Factors	Number of nominations	Priority
Front loading is accomplished	1	3
Budget planning is accomplished	2	4,5
Capacity planning is accomplished	3	4,33
Coordinated organigram is available	4	3,5
Core team is available in quotation phase	2	6
Functions of Organigram are known	2	5,5
Low number of **freelancers** working on project	1	5
MSF's divisions work together	2	5
Objectives are aligned	4	4
Positive c**ustomer relationship** is achieved	3	4
Project Leader comes from most involved division	1	2
Project team features **high functional qualities**	4	5,83
Short-term decision making is managable	1	2
Time scheduling is accomplished	2	3

Failure Factors	Number of nominations	Priority
Decision making needs a long time	1	3
Customer relationship is poor	1	4
Budget planning is unaccomplished	1	4
Capacity planning is insufficiently accomplished	2	6
Coordinated Organigram is not available	3	3,33
Burden on employees is too high	1	6
Functions of Positions in Organigram are not known	1	5
Objectives are insufficiently aligned	4	4,5
Organigram is chased by budget	1	3
Preparation time for project team is too short	2	5,5
Project Leader is not sufficiently qualified	1	6
Project team is deficient in **functional qualities**	6	4,33
Too many **correction loops** occur	1	4
Unknown processes and tools are applied	1	4

A-4 Analysis of success factors' relations by cross - impact- matrix

Beziehungen der einzelnen Erfolgsfaktoren

Leitfrage: Wie sind die Abhängigkeitsbeziehungen (input/Output) der Erfolgsfaktoren untereinander?
- **2:** Faktor A (Zeile) muß vor Faktor B (Spalte) entschieden werden.
- **1:** Faktor A (Zeile) ist unabhängig von Faktor B (Spalte). *-keine Beziehung-*
- **0:** Faktor B (Spalte) muss vor Faktor A (Zeile) entschieden werden.

Column headers (Erfolgsfaktor B), numbered 1–30:

1. Teambeziehung innerhalb des Organigramm ist geklärt *(Kultur)*
2. Positive Kundenbeziehung ist vorhanden
3. Auftreten des Teams als "Einheit"
4. Verhältnismäßige Belastung des Projektteams
5. Vollständige Budgetplanung ist durchgeführt *(Struktur)*
6. Vollständige Kapa-Planung ist durchgeführt
7. Kernteam / PL in Angebotsphase ist vorhanden
8. Abgestimmtes Organigramm ist vorhanden
9. Organisat. Rahmenbedingungen (Besprechungslandschaft, -protokoll, Tools..) sind vorhanden
10. Vollständige RASIC ist vorhanden
11. Vollständige Terminplanung ist vorhanden
12. Notwendige Ziele sind abgestimmt
13. Kontinuierliche Projektdoku ist vereinbart
14. Aufarbeitung + Zugänglichkeit der Angebotsinfos (mit Ansprechpartner) ist vorhanden *(Prozess)*
15. Standardablauf für Startphase ist vorhanden
16. Effektives Informationsmangement ist etabliert
17. Vollständige Stakeholderanalyse ist durchgeführt
18. Vollständige Übergabebewertung (Open Issue) von Angebot > Projekt ist durchgeführt
19. Unterteilung des Projektstarts nach Risiken (Budget…) ist durchgeführt
20. Startworkshops (Kunde - Magna) ist durchgeführt
21. Einheitliches Verständnis der Tools und Methoden zwischen Kunde und MSF ist vorhanden
22. Teamrecruiting in Startphase durch PL + MGL ist durchgeführt *(Strategie)*
23. Fest angestellte MSF-Mitarbeiter arbeiten im Projektteam
24. PL ist vorhanden
25. Gezielter Einsatz von MA mit speziellen Fähigkeiten
26. Korrekturschleifen sind zu vermeiden
27. Eskalations- + Gremienlandschaften sind vorhanden
28. Ausreichend Einarbeitungszeit für das Projektteam ist vorhanden
29. Projektteam befinden sich örtlich nah beieinander
30. Projektteam ist in neue Tools, Methoden + Prozesse geschult

Nr.	"Erfolgsfaktor" (A)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Kultur																														
1	Teambeziehung innerhalb des Organigramm ist geklärt	■	1	2	0	2	2	0	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	1	1	1	1	1	1	0	1
2	Positive Kundenbeziehung ist vorhanden	1	■	0	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	1	1	1	1
3	Auftreten des Teams als "Einheit"	0	2	■	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1
4	Verhältnismäßige Belastung des Projektteams	2	1	2	■	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	1
	Struktur																														
5	Vollständige Budgetplanung ist durchgeführt	0	1	1	1	■	2	0	0	0	0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
6	Vollständige Kapa-Planung ist durchgeführt	0	1	1	1	0	■	1	0	0	0	0	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
7	Kernteam / PL in Angebotsphase ist vorhanden	2	2	1	1	2	1	■	2	2	2	2	1	1	1	1	1	1	1	2	2	1	2	0	0	1	1	2	1	1	1
8	Abgestimmtes Organigramm ist vorhanden	1	2	2	2	2	2	0	■	2	1	1	0	1	1	1	2	1	0	2	1	2	2	1	0	1	1	1	1	1	1
9	Organisat. Rahmenbedingungen (Besprechungslandschaft, -protokoll, Tools..) sind vorhanden	1	2	1	1	2	2	0	0	■	0	0	1	2	0	1	2	1	1	2	0	2	0	1	1	1	1	1	1	1	1
10	Vollständige RASIC ist vorhanden	1	1	1	1	2	2	0	1	2	■	1	0	1	0	1	2	1	1	2	2	0	1	1	1	1	1	1	1	1	1
11	Vollständige Terminplanung ist vorhanden	1	1	1	1	1	2	0	1	2	1	■	0	1	0	1	1	1	1	2	2	0	1	1	1	1	1	1	1	1	1
12	Notwendige Ziele sind abgestimmt	1	1	1	1	2	2	0	2	1	2	2	■	1	0	1	1	2	2	2	0	1	1	1	1	1	1	1	1	1	1
13	Kontinuierliche Projektdoku ist vereinbart	1	1	1	1	1	1	1	0	1	1	1	1	■	1	1	2	1	1	1	1	0	1	1	1	1	1	1	1	1	1
	Prozess																														
14	Aufarbeitung + Zugänglichkeit der Angebotsinfos (mit Ansprechpartner) ist vorhanden	1	1	1	1	2	2	1	1	2	2	2	2	1	■	1	2	1	2	1	2	1	1	1	0	1	1	1	1	1	1
15	Standardablauf für Startphase ist vorhanden	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Effektives Informationsmangement ist etabliert	0	1	1	1	1	1	0	0	0	1	1	0	0	0	1	■	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Vollständige Stakeholderanalyse ist durchgeführt	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	■	1	2	2	1	1	1	1	1	1	1	1	1	1
18	Vollständige Übergabebewertung (Open Issue) von Angebot > Projekt ist durchgeführt	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	■	1	2	1	1	1	1	1	1	1	1	1	1
19	Unterteilung des Projektstarts nach Risiken (Budget…) ist durchgeführt	1	1	1	1	2	2	0	2	2	1	0	0	1	1	1	1	0	1	■	2	1	1	1	2	2	1	1	1	1	1
20	Startworkshops (Kunde - Magna) ist durchgeführt	0	2	1	1	1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	■	0	0	1	0	1	1	1	1	1	1
21	Einheitliches Verständnis der Tools und Methoden zwischen Kunde und MSF ist vorhanden	1	2	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	2	■	1	1	1	1	1	1	1	1	1
	Strategie																														
22	Teamrecruiting in Startphase durch PL + MGL ist durchgeführt	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	2	1	■	1	0	2	1	1	1	1	1
23	Fest angestellte MSF-Mitarbeiter arbeiten im Projektteam	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1	1	1	1	1	1	1
24	PL ist vorhanden	1	2	2	2	1	1	2	2	2	1	1	1	1	2	1	1	2	0	2	1	2	1	2	■	1	1	1	1	1	1
25	Gezielter Einsatz von MA mit speziellen Fähigkeiten	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	■	1	1	1	1	1
26	Korrekturschleifen sind zu vermeiden	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1	1	1	1
27	Eskalations- + Gremienlandschaften sind vorhanden	1	1	1	2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1	1	1
28	Ausreichend Einarbeitungszeit für das Projektteam ist vorhanden	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1	1
29	Projektteam befinden sich örtlich nah beieinander	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■	1
30	Projektteam ist in neue Tools, Methoden + Prozesse geschult	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	■
	SUMME	1	2	3	4	16	17	18	19	20	21	22	23	24	25	28	29	30	31	32	33	34	35	39	40	41	42	43	44	45	46

("Formeln pflegen" button appears at left of the "Erfolgsfaktor" (A) header row.)

A-5 Visualization of success factors' chronology and relations by MS Visio

Chronology and Relations of Success Factors

A-6 Model of the success factor sequence for the MSF project start-up

Standard procedure for the start-up phase is present

Project team is trained in new tools, methods and processes

Details for all engineering employees' competences are present

MSF permanent salaried staff work in the project team

Project Manager exists

Core team & Project Manager are present in acquisition phase

Acquisition information is replenished and accessible

A common understanding of project realization tools and methods between MSF and the customer is present

Necessary project targets are arranged

Escalation and board landscapes are present

Consolidated RASIC exists

Coordinated time-schedule is performed

Concerted transfer of acquisition's Open-Issues into the project is performed

Stakeholder Analysis is performed

Subdivision of the risks to the project start is performed

Consolidated organigram is present

Project team is located closely together

Team connections within the organigram are clear

Organizational environment (meeting landscape, protocols, tools...) is available

Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase

Sufficient period of vocational adjustment for the project team is available

Proportionate burden on the project team exists

Consolidated budget planning is performed

Continuous project documentation is prepared

Effective Information Management is established

All roles in organigram are staffed

Occurrence of the team as a 'Unit'

Coordinated capacity planning is performed

Positive customer relationship exists

Acquisition

Transition

Project Start-up

Official Project Start

Project Realization

Start workshop between MSF and customer is performed

Requires back scheduling of specific implementation methods & tools

Requires about 3 days until the effective project realization can begin

A-7 Methodic information structure of all success factors for the MSF project start - up

Project start-up checklist				
Project:			**Start:**	
Step:	1		**Finish:**	
Required Preconditions come from privous Success Factor (Input):	X			
Actual Working Results have to transfered to the followed Success Factor (Output):	X			

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Standard procedure for the start-up phase is present	A guide for a standardized approach for the project start-up phase exists and is adaptable for specific project needs.		A person from MSF's business unit 'International Project Management' takes over the responsibility for the project start-up guideline in the back office.	
			The sequence of the action steps is based on the chronology of the success factors.	
			The necessary inputs and outputs of all the actions are delivered based on the results of the cross-impact analysis of the success factors.	
			The standard procedure is only manifested in the sequence according to the chronology of the success factors and its detailed tactics. The implemented methods and tools can be changed with the line and optimized respectively.	
			A pool is created to gather ideas for improvement and to appraise them in the future.	

Project Start-up Checklist

Project:		Start:	
Step:	2	Finish:	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	X		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Details for all engineering employees' competences are present	The competences of all engineering employees are documented uniformly in an evaluation structure.		The department of Human Resources leads responsibility for competence profiles for all employees.	
			A standardized competence profile for the engineering staff is defined.	
			All competences are entered into a spider web diagram that provides a quick evaluation.	
			For each engineering employee, an individual competence profile is created with the following requirements:	
			o Knowledge (e.g. qualifications, skills, certificates)	
			o Experience (e.g. years of professional experience, number and duration of project experience)	
			o Skills (e.g. specific skills, social skills, collaboration skills, information skills)	
			o Ability (e.g. creativity, working under time-pressure, working with specialized tasks)	
			o Personality characteristics (sense of purpose, flexibility, reliability, resilience, attitude to risk...)	
			The specific departments inform the Human Resources department of any changes in their employees' competency profiles.	
			The competency profiles are used to select qualified employees.	

Project Start-up Checklist

Project:		Start:	
Step:	3	Finish:	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	X		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Project team is trained in new tools, methods and processes	The project team is trained and able to use newly implemented tools, methods and processes so that they are able to use them correctly in the project.		A person responsible for the new tools, methods and processes is defined.	
			All relevant tool, methods and processes are listed according to project phases and work tasks in a pool.	
			All new implemented tools, methods and processes are marked as 'new' in the pool.	
			The specific departments transfer relevant information about new tools, methods and processes to the specific project employees.	
			The relevant project employees are trained in new tools, methods and processes.	
			Employees agree to their knowledge all new tools and methods; and certify this with a signature.	

Project Start-up Checklist

Project:		Start:	
Step:	4	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Core team & Project Manager are present in acquisition phase		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
MSF permanent salaried staff work in the project team	MSF's permanent salaried staff work predominantly on the project instead of temporary workers.		A target for a relative minimum number of permanent project employees is defined - depending on the project size and urgency - for the start of the project.	

Project Start-up Checklist

Project:		Start:	
Step:	5	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists	Acquisition information is replenished and accessible	
	Occurrence of the team as a 'Unit'	Concerted transfer of acquisition's Open-Issues into the project is performed	
	Proportionate burden on the project team exists	Start workshop between MSF and customer is performed	
	Core team & Project Manager are present in acquisition phase	Team recruitment is performed by Project Manager and Module Group Leaders in	
	Consolidated organigram is present	All roles in organigram are staffed	
	Organizational environment (meeting landscape, protocols, tools...) is available		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Project Manager exists	The Project Manager is identified and ready to lead the project team.		The project-specific competence requirements of the Project Manager are formulated. These cover the points from the standardized competency profile (according to success factor: 'Details for all engineering employees' competences are present').	
			The required competence profile of Project Manager is compared with the corresponding competency profiles of all available Project Managers.	
			The most suitable Project Manager is defined.	
			Project Managers are coached regularly (e.g. Lessons Learned, in- and external seminars for methods, soft skills)	

Project Start-up Checklist

Project:		Start:	
Step:	6	Finish:	

Required Preconditions come from privous Success Factor (Input):	MSF permanent salaried staff work in the project team	
	Project Manager exists	

Actual Working Results have to transfered to the followed Success Factor (Output):	Team connections within the organigram are clear	Coordinated time-schedule is performed
	Positive customer relationship exists	Necessary project targets are arranged
	Consolidated budget planning is performed	Subdivision of the risks to the project start is performed
	Organizational environment (meeting landscape, protocols, tools...) is available	Start workshop between MSF and customer is performed
		Escalation and board landscapes are present
	Consolidated RASIC exists	Consolidated organigram is present

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Core team & Project Manager are present in acquisition phase	The core team and the Project Manager are integrated during the acquisition phase.		Ideally, the core team consists of a maximum of 7 people.	
			A project-specific standardized demand profile is created according to the templates of the standardized competence profile (according to success factor: 'Details for all engineering employees' competences are present').	
			The demand profile is compared with the competence profile.	
			The most appropriate core team is appointed.	

Project Start-up Checklist

Project:		Start:	
Step:	7	Finish:	

Required Preconditions come from privous Success Factor (Input):	Project Manager exists		

Actual Working Results have to transfered to the followed Success Factor (Output):	Consolidated budget planning is performed	Effective Information Management is established
	Coordinated capacity planning is performed	Concerted transfer of acquisition's Open-Issues into the project is performed
	Organizational environment (meeting landscape, protocols, tools...) is	Start workshop between MSF and customer is performed
	Consolidated RASIC exists	
	Coordinated time-schedule is performed	
	Necessary project targets are arranged	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Acquisition information is replenished and accessible	All relevant information from the acquisition phase is clearly replenished and available for the project team.		A person responsible for the acquisition information is defined.	
			A standardized template is developed for the submission of acquisition information.	
			The information that has to be documented and to which level of detail is specified.	
			A standardized data structure is created for the acquisition information.	
			All acquisition data is clearly identified.	
			The relevant acquisition information is made available to selected project employees.	
			Contacts from the acquisition team are defined for subsequent requests from the project team.	
			It is clarified, at which time the acquisition information must be accessible.	
			A person responsible for updating the main supply of information is defined.	
			The data replenishment of the acquisition information is prepared for future manipulation.	

Project Start-up Checklist

Project:		Start:	
Step:	8	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Organizational environment (meeting landscape, protocols, tools...) is	Positive customer relationship exists	
	Consolidated RASIC exists		
	Coordinated time-schedule is performed		
	Necessary project targets are arranged		
	Continuous project documentation is prepared		
	Start workshop between MSF and customer is performed		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
A common understanding of project realization tools and methods between MSF and the customer is present	All necessary tools and methods are known and understood by MSF as well as by the customer.		A person responsible for the common understanding between MSF and customer is defined.	
			A standardized list exists of all tools that are planned to be used, divided into project start-up phase and various phases of the project realization.	
			All relevant tools and methods that are time and task specific are stored in a pool.	
			It is pointed out, which important tools and methods must be selected:	
			o Tools and methods that are used by Magna and the customer together.	
			o Tools and methods that lead to important work outcomes.	
			o Other critical tools and methods which are time-consuming, costly or result in a direct correlation between the partners.	
			The acceptance of all the selected relevant tools and methods are certified with signatures from all involved partners.	

Project Start-up Checklist

Project:			Start:	
Step:	9		**Finish:**	
Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase			
	Acquisition information is replenished and accessible			
	A common understanding of project realization tools and methods between MSF and the customer is present			
Actual Working Results have to transfered to the followed Success Factor (Output):	Consolidated budget planning is performed	Subdivision of the risks to the project start is performed		
	Coordinated capacity planning is performed	Start workshop between MSF and customer is performed		
	Consolidated organigram is present			
	Consolidated RASIC exists			
	Coordinated time-schedule is performed			
	Concerted transfer of acquisition's Open-Issues into the project is			

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Necessary project targets are arranged	The project targets are - maturity level depending - matched and confirmed by taking into account all areas involved.		A person responsible for the project target planning is defined.	
			The level of detail for the project targets is defined in accordance with the maturity of the product development process.	
			Project targets are defined in cooperation with the customer's, acquisition team and relevant people from the core team.	
			The project targets meet the following requirements: specific, measureable, matched with project partners, realistic, scheduled and neutral to solutions.	
			Project targets are classified within: o Strategic targets (e.g. yield, market, business development) o Technical targets (e.g. performance data, acceptance criteria) o Execution targets (e.g. resources, appointments, costs) o Transaction targets (e.g. norms, locations, languages)	
			The project aims have the following characteristics: o Target object o Target feature / target content o Dimension o Time aspect o Location	
			Project targets are defined with 'wanted' and 'unwanted' attributes and each attribute requires a tolerance.	
			Priorities are assigned to each project target. (e.g. must-, should-, wish targets).	

		The project specific target catalogue is documented according to a standardized template.	
		The acceptance of all projects targets are certified with signatures from all involved partners.	
		The targets are properly prepared for future manipulation.	

Project Start-up Checklist

Project:		Start:	
Step:	10	Finish:	
Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase		
Actual Working Results have to transfered to the followed Success Factor (Output):	Proportionate burden on the project team exists		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Escalation and board landscapes are present	Project specific ways for escalating conflicts as well as a customer committed board landscape is established.		A person responsible for the escalation and board landscapes is defined.	
			The function of the escalation and board is defined.	
			The board members are defined.	
			The board is convened by the Project Manager or additional persons with defined competences.	
			Regular reporting on project processes and results for the board is planned.	

Project Start-up Checklist

Project:			Start:	
Step:		11	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase			
	Necessary project targets are arranged			
	Acquisition information is replenished and accessible			
	A common understanding of project realization tools and methods between MSF and the customer is present			
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists			
	Consolidated budget planning is performed			
	Coordinated capacity planning is performed			
	Organizational environment (meeting landscape, protocols, tools...) is			
	Effective Information Management is established			
	Start workshop between MSF and customer is performed			

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Consolidated RASIC exists	The RASIC is defined and confirmed by taking into account all areas involved.		A person responsible for the RASIC is defined.	
			The RASIC is developed by MSF in collaboration with the customer.	
			The specific RASIC is documented according to standardized guidelines.	
			The acceptance to the RASIC is certified with signatures from all involved partners.	
			The RASIC is properly prepared for future manipulation.	

Project Start-up Checklist

Project:			Start:	
Step:		12	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase			
	Necessary project targets are arranged			
	Coordinated time-schedule is performed			
	A common understanding of project realization tools and methods between MSF and the customer is present			
Actual Working Results have to transfered to the followed Success Factor (Output):	Coordinated capacity planning is performed			
	Organizational environment (meeting landscape, protocols, tools...) is			
	Subdivision of the risks to the project start is performed			
	Start workshop between MSF and customer is performed			

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Coordinated time-schedule is performed	The committed time-schedule exists because it is a requirement to realize all working steps within the team as well as with the partners. Finally the defined time-schedule serves to control the workflow.		A person responsible for the time-schedule is defined.	
			The level of detail for the time-schedule is defined in accordance with the maturity of the product development process.	
			A standard approach for creating time-schedules is defined. The following steps are performed:	
			o Creation of a list of operations / work packages	
			o Performance of a sequence analysis (sequence and relation)	
			o Estimation of the time required (duration of operations)	
			o Development of the final time-schedule	
			Each work package is provided with an individual identification.	
			The specific schedule is appropriately documented according to standardized templates.	
			All critical parameters must be found, explicitly:	
			o The critical work packages (tasks) are defined.	
			o The earliest and latest possible start and finish dates for work packages are defined.	
			o The backup times (reserve) are defined.	
			The schedule is illustrated in:	
			o Networked bar-plans for deterministic processes (processes clearly determined in advance)	
			o Decision networks (ENP) for stochastic processes (several options for processes)	

		The acceptance of the time-schedule is certified with signatures from all involved partners.	
		The time-schedule is properly prepared for future manipulation.	

Project Start-up Checklist

Project:		Start:	
Step:	13	Finish:	
Required Preconditions come from privous Success Factor (Input):	Necessary project targets are arranged		
	Acquisition information is replenished and accessible		
	Project Manager exists		
Actual Working Results have to transfered to the followed Success Factor (Output):	Start workshop between MSF and customer is performed		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Concerted transfer of acquisition's Open-Issues into the project is performed	All 'Open Issues' from the acquisition phase are identified and evaluated at the project start.		A person responsible for the acquisition's open issues is defined.	
			The open issues are analyzed and defined.	
			Open-issues are evaluated for their transfer into the project (e.g. according to their priorities, causes, effects).	
			All open-issues and their evaluation for the transfer into the project are documented in a standardized check list.	
			Relevant persons, such as project employees, resource managers or the customer regarding the open issues are selected.	
			A meeting is organized to discuss these issues with the selected relevant persons and the person responsible for Open-Issues.	

Project Start-up Checklist

Project:		Start:	
Step:	14	Finish:	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists		
	Consolidated organigram is present		
	Subdivision of the risks to the project start is performed		
	Start workshop between MSF and customer is performed		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Stakeholder - analysis is performed	Strategies for all of the projects' important stakeholders are described in terms of their expectations and influences.		A person responsible for stakeholder-analysis is defined.	
			A standardized procedure for stakeholder-analysis is defined.	
			The relevant internal and external stakeholders of the project are identified. It is considered that they can be connected with the project regarding interests, power or concerns.	
			The interests, desires, expectations and requirements of the stakeholders are identified. These identified factors will be analyzed according to the criteria of the extended elements of the marketing mix and assessed for: function / quality, costs, time, emotions	
			The identified concerns of stakeholders' interests are evaluated.	
			The influence of the stakeholders on the project is developed.	
			The stakeholders influence on the project and the project's impact on the stakeholders are applied in a stakeholder-matrix.	
			The stakeholder chart will serve as a decision support for economic and ethical behavior.	
			Stakeholder strategies are created according to the modified marketing mix elements: function / quality, time, costs, emotions.	

Project Start-up Checklist

Project:		Start:	
Step:	15	Finish:	

Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase	
	Coordinated time-schedule is performed	
	Necessary project targets are arranged	
	Stakeholder Analysis is performed	
Actual Working Results have to transfered to the followed Success Factor (Output):	Consolidated budget planning is performed	
	Coordinated capacity planning is performed	
	Consolidated organigram is present	
	Organizational environment (meeting landscape, protocols, tools...) is	
	Start workshop between MSF and customer is performed	
	All roles in organigram are staffed	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Subdivision of the risks to the project start is performed	Possible risks are classified to efficiently counteract an unwanted situation.		A person responsible for the subdivision of risks is defined.	
			A standardized procedure for the risk - analysis is defined.	
			The potential risks are identified according to different views:	
			The potential risks are identified according to different views:	
			o Retrospective view (e.g. Lessons Learned, controlling data)	
			o Future-oriented view (e.g. Creative techniques like brainstorming, Ishykawa-model, 5 Why's method, cross-impact analysis)	
			o MSF internal view (e.g. questionnaires, workshops)	
			o MSF external view (e.g. benchmarking, reports)	
			Risks are analyzed , depending on the purpose:	
			o Quantitative Analysis (e.g. FMEA-method)	
			o Qualitative Analysis (e.g. risk – matrix)	
			Tactics are developed to efficiently counteract the occurrence of a risk.	
			Tactics are developed to minimize the impact of a risk.	
			All the steps as well as the results of the tactics are documented in a standardized manner.	

Project Start-up Checklist

Project:		Start:	
Step:	16	**Finish:**	

Required Preconditions come from privous Success Factor (Input):	Necessary project targets are arranged	
	Stakeholder Analysis is performed	
	Subdivision of the risks to the project start is performed	
	Project Manager exists	
	Core team & Project Manager are present in acquisition phase	
Actual Working Results have to transfered to the followed Success Factor (Output):	Team connections within the organigram are clear	Organizational environment (meeting landscape, protocols, tools...) is available
	Positive customer relationship exists	Effective Information Management is established
	Occurrence of the team as a 'Unit'	Team recruitment is performed by Project Manager and Module Group Leaders in
	Proportionate burden on the project team exists	
	Consolidated budget planning is performed	
	Coordinated capacity planning is performed	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Consolidated organigram is present	The organigram structure, including all necessary descriptions of roles, are defined and confirmed by taking into account all areas involved.		A person responsible for the organigram structure is defined.	
			The standardized organigram serves as a template for the project-specific organigram (e.g. MSDS standard organigram).	
			Ideally, the structures and roles of the standard organigram are retained, but can be modified for each project.	
			Each role is clearly project-specific identified and includes the following role characteristics: tasks, competencies, responsibilities	
			The acceptance of the organigram is certified with signatures from all involved partners.	

Project Start-up Checklist

Project:		Start:	
Step:	17	Finish:	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Team connections within the organigram are clear		
	Occurrence of the team as a 'Unit'		
	Proportionate burden on the project team exists		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Project team is located closely together	There is a collective place available, which enables the project team to work close to one another.		The project team work in a common project office or building.	

Project Start-up Checklist

Project:		Start:	
Step:	18	**Finish:**	

Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase	
	Consolidated organigram is present	
	Project team is located closely together	
Actual Working Results have to transfered to the followed Success Factor (Output):	Occurrence of the team as a 'Unit'	Start workshop between MSF and customer is performed
	Consolidated budget planning is performed	
	Coordinated capacity planning is performed	
	Effective Information Management is established	
	Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Team connections within the organigram are clear	The roles descriptions (tasks, competences, responsibilities) for all positions within the organigram are defined.		A person responsible for the current project-specific organigram assumes responsibility for the position/role description.	
			Every specific role within the organigram is based on the standardized role description.	
			Every position is comprehensively described, is distinct and practical with commitment between MSF and the customer, based on "MSF'S – Standard Programm – Organisation und Rollenbeschreibung" .	
			Ways of interaction between the roles in the organigram are defined.	
			Activities are planned to equip every project employee with distinct knowledge about the organigram and its functions:	
			o Detailed knowledge of the organigram structure.	
			o Detailed knowledge of role descriptions concerning roles with direct interaction.	
			o Basic knowledge of functions concerning roles with indirect interaction.	
			The acceptance of the specific organigram structure, role descriptions and their ways of interaction are certified with a signature from MSF and the	

Project Start-up Checklist

Project:		Start:	
Step:	19	Finish:	
Required Preconditions come from privous Success Factor (Input):	Core team & Project Manager are present in acquisition phase	A common understanding of project realization tools and methods between MSF and the customer is present	
	Consolidated organigram is present		
	Consolidated RASIC exists		
	Coordinated time-schedule is performed		
	Acquisition information is replenished and accessible		
	Subdivision of the risks to the project start is performed		
	Project Manager exists		
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists	Start workshop between MSF and customer is performed	
	Proportionate burden on the project team exists		
	Consolidated budget planning is performed		
	Coordinated capacity planning is performed		
	Continuous project documentation is prepared		
	Effective Information Management is established		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Organizational environment (meeting landscape, protocols, tools...) is available	The project team has access to all necessary organizational frameworks, such as meeting landscape, protocols and tools.		A person responsible for the organizational environment is defined.	
			All available organizational environment elements are listed according to the project start-up phase and the phases for the project realization.	
			All necessary organizational environment elements are placed in a pool and are classified into time limit and work package specific use.	
			It is ensured that all project employees with appropriate skills have easy access to the time limit and work package specific organizational environment elements within the pool.	
			The application goals of the organizational environment elements are taught to every employee.	
			Necessary project employees are trained in detail on the application of relevant organizational environment elements.	
			The use of specific organizational environment elements is prescribed for standard situations.	
			The acceptance of the organizational environment elements is certified with signatures from all involved partners.	

Project Start-up Checklist

Project:			Start:	
Step:	20		Finish:	
Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear			
	Consolidated organigram is present			
	Project Manager exists			
Actual Working Results have to transfered to the followed Success Factor (Output):	Start workshop between MSF and customer is performed			
	All roles in organigram are staffed			

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase	The Project Manager and Module Group Leaders nominate the project team in the starting phase.		A project-specific standardized demand profile of each organigram role is created according to the templates of the standardized competence profiles by the Project Manager and Module Group Leaders.	
			The demand profile is compared with the competence profile.	
			The most appropriate team is selected by the Project Manager and the Module Group Leader with co-operation from the specific departments.	
			It is determined in which standardized order the core team is chosen.	
			The core team and Project Manager are involved in major decisions and support the ongoing acquisition process.	

Project Start-up Checklist

Project:		Start:	
Step:	21	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	X		
Actual Working Results have to transfered to the followed Success Factor (Output):	Occurrence of the team as a 'Unit'		
	Proportionate burden on the project team exists		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Sufficient period of vocational adjustment for the project team is available	All project employees have a sufficient period of vocational adjustment before they start working in the project.		A minimum vocational adjustment - specified for various positions in the organigram - is defined. The minimum vocational adjustment is defined according to levels of urgency, for example, short, middle or long term	

Project Start-up Checklist

Project:		Start:	
Step:	22	Finish:	
Required Preconditions come from privous Success Factor (Input):	Consolidated organigram is present		
	Organizational environment (meeting landscape, protocols, tools...) is available		
	Project Manager exists		
	Escalation and board landscapes are present		
	Sufficient period of vocational adjustment for the project team is available		
	Project team is located closely together		
Actual Working Results have to transfered to the followed Success Factor (Output):	Occurrence of the team as a 'Unit'		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Proportionate burden on the project team exists	The project demands are challenging for the team but achievable.		Target values for the work load are determined on the basis of data on absenteeism, downtimes, work results and healthiness.	
			The actual workload of the project employees is evaluated regularly in the form of brief and quantitative questionnaires.	
			One person is defined, who is in charge of controlling the workload situation.	
			The project team is able to work autonomously within tolerances according to limits such as time, costs, resources or quality.	
			The core team and the Project Manager participate in preventative stress management seminars.	
			Training for all project employees is provided in order to raise their awareness of the issue of 'workload'.	
			Each project employee is required to acquaint themselves the MSF's "burnout guide" including checklists.	
			The key articles from the "burnout guide" will be displayed at a central	

Project Start-up Checklist

Project:			Start:	
Step:	23		**Finish:**	

Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear	Acquisition information is replenished and accessible
	Core team & Project Manager are present in acquisition phase	Subdivision of the risks to the project start is performed
	Consolidated organigram is present	
	Organizational environment (meeting landscape, protocols, tools...) is available	
	Consolidated RASIC exists	
	Necessary project targets are arranged	
Actual Working Results have to transfered to the followed Success Factor (Output):	Coordinated capacity planning is performed	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Consolidated budget planning is performed	Budget planning is carried out - maturity level depending - and confirmed by taking into account all areas involved.		A person responsible for consolidated budget planning is defined.	
			The level of detail of the budget planning is clarified according to the maturity level of the project	
			A standardized budget planning procedure is defined taking into account all involved areas.	
			The results of the budget planning are documented using standardized templates.	
			The acceptance of the budget planning is certified with signatures from all involved partners.	
			The data from the budget planning is prepared for later manipulation.	

Project Start-up Checklist

Project:		Start:	
Step:	24	Finish:	
Required Preconditions come from privous Success Factor (Input):	Organizational environment (meeting landscape, protocols, tools...) is available		
	A common understanding of project realization tools and methods between MSF and the customer is present		
Actual Working Results have to transfered to the followed Success Factor (Output):	X		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Continuous project documentation is prepared	The project documentation is continuously prepared in a clear and detailed manner.		A person responsible for continuous project documentation is defined.	
			There is a standardized project documentation template.	
			All data is clearly identified. (e.g. data provided with tags)	
			It is exactly specified which data is documented standardized.	
			All data is controllable and accessible using integrated software.	
			It is ensured that there is an internal and external information flow of the project documentation data.	
			It is clarified, at which intervals the data is updated.	
			The data preparation of project documentation is prepared for later manipulation.	

Project Start-up Checklist

Project:		**Start:**	
Step:	25	**Finish:**	

Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear	
	Consolidated organigram is present	
	Organizational environment (meeting landscape, protocols, tools...) is available	
	Consolidated RASIC exists	
	Acquisition information is replenished and accessible	
Actual Working Results have to transfered to the followed Success Factor (Output):	X	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Effective Information Management is established	The flow of information that is relevant to the project is continuous and effective.		A person responsible for information management is defined.	
			All information is recorded, standardized and associated with the following characteristics:	
			o Recipient of information	
			o Form of expression	
			o Date of the demand	
			o Content summary.	
			All internal and external information inventory and information sources must be identified.	
			The distribution of the information is defined.	
			All necessary information is made available, which means the access to internal and external information is ensured from a technical and legal view.	
			The supply of information is organized and all relevant information is provided to the individual organizational units, such as information dissemination and is controlled by appropriate policies.	

Project Start-up Checklist

Project:		Start:	
Step:	26	**Finish:**	

Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear	Stakeholder Analysis is performed
	Core team & Project Manager are present in acquisition phase	Concerted transfer of acquisition's Open-Issues into the project is performed
	Organizational environment (meeting landscape, protocols, tools...) is available	Subdivision of the risks to the project start is performed
	Consolidated RASIC exists	A common understanding of project realization tools and methods between MSF and the customer is present
	Coordinated time-schedule is performed	Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase
	Necessary project targets are arranged	
	Acquisition information is replenished and accessible	Project Manager exists
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Start workshop between MSF and customer is performed	A start workshop between MSF and the customer is performed to obtain a common view and coordinated approach to the project.		A person responsible for the start workshop is defined.	
			A standard start workshop procedure is available. It defines the discussion of the following topics:	
			o Project targets (strategic, property, time and cost targets)	
			o Organigram and role description	
			o Delivery, service and project result structure	
			o Milestones and scheduling	
			o Project infrastructure	
			A moderator is appointed.	
			The agenda is prepared.	
			The cooperation and the familiarisation of the project team is supported by various "tasks":	
			o Presentation of each person in terms of the organigram	
			o Joint development of a short presentation by the project team (e.g. summary of the project targets) and presentation of the approximate project process to the internal client, the control circuit or the management.	
			The relevant project employees, the representatives of the customer and a contact person from the acquisition phase are invited.	

Project Start-up Checklist

Project:		Start:	
Step:	27	Finish:	

Required Preconditions come from privous Success Factor (Input):	Subdivision of the risks to the project start is performed	
	Team recruitment is performed by Project Manager and Module Group Leaders in the start-up phase	
	Project Manager exists	
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
All roles in organigram are staffed	Every required position in the organigram is staffed with an actual person.		Each position is documented with the specific contact person.	
			Required deputies for positions in the organization are identified and named.	
			Each role and its name is documented and illustrated within the organigram.	
			The acceptance of the organigram is certified with signatures from all involved partners.	

Project Start-up Checklist

Project:		Start:	
Step:	28	Finish:	

Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear	
	Proportionate burden on the project team exists	
	Consolidated organigram is present	
	Project Manager exists	
	Sufficient period of vocational adjustment for the project team is available	
	Project team is located closely together	
Actual Working Results have to transfered to the followed Success Factor (Output):	Positive customer relationship exists	

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Occurrence of the team as a 'Unit'	The project employees act and react as a cohesive team.		Target values are determined for realizing positive team relations.	
			The current team relationship is regularly determined and evaluated by all project employees by application of appropriate methods.	
			Mutual values and standards are defined for how team members have act with each other. The following elements are always observed:	
			o Creation of transparency within the team.	
			o Support of a direct dialogue.	
			o Support of fairness and commitment.	
			A person responsible for controlling the team relationship is defined.	
			A workshop for getting to know each other and presenting the project content is organized for the entire project team.	
			Regular communication within the team is promoted.	
			A specific "team-corporate-identity" is created to promote team awareness.	
			A team leader is defined.	
			Valuable project associates are awarded with a higher state of appreciation and foster individual dedication for the project.	
			Project employees receive regular feedback from the Project Manager.	
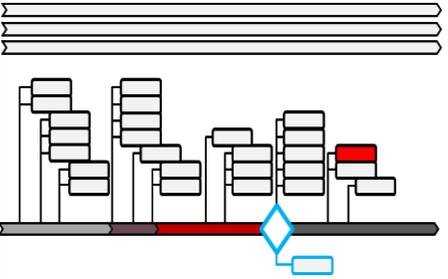
Project Start-up Checklist

Project:		Start:	
Step:	29	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	Team connections within the organigram are clear	Necessary project targets are arranged	
	Consolidated budget planning is performed	Acquisition information is replenished and accessible	
	Consolidated organigram is present	Subdivision of the risks to the project start is performed	
	Organizational environment (meeting landscape, protocols, tools...) is available		
	Consolidated RASIC exists		
	Coordinated time-schedule is performed		
Actual Working Results have to transfered to the followed Success Factor (Output):	X		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Coordinated capacity planning is performed	The capacity planning is carried out - maturity level depending - and confirmed by taking into account all areas involved.		A person responsible for coordinated capacity plaaning is defined.	
			The level of detail of the capacity planning is clarified according to the maturity level of the project.	
			A standard procedure for creating capacity plans is used in collaboration with the areas involved.	
			The specific capacity planning is appropriately documented using standardized templates.	
			The acceptance of the organizational environment elements is certified with signatures from all involved partners.	
			The data preparation of the capacity planning is prepared for future manipulation.	

Project Start-up Checklist

Project:		Start:	
Step:	30	**Finish:**	
Required Preconditions come from privous Success Factor (Input):	Occurrence of the team as a 'Unit'	Start workshop between MSF and customer is performed	
	Core team & Project Manager are present in acquisition phase	Project Manager exists	
	Consolidated organigram is present	All roles in organigram are staffed	
	Organizational environment (meeting landscape, protocols, tools...) is available	A common understanding of project realization tools and methods between MSF and the customer is present	
	Consolidated RASIC exists		
	Stakeholder Analysis is performed		
Actual Working Results have to transfered to the followed Success Factor (Output):	X		

Success Factor	Description	Responsible Person	Required Sequence of Activities	Implemented Processes, Methods, Tools
Positive customer relationship exists	The team works in a customer-focused manner to provide the customer's satisfaction within the project.		A person responsible for the customer relationship is defined.	
			A standardized code of conduct for dealing with the customer is defined.	
			The state of the customer relationship is obtained using standardized methods (e.g. customer feedback).	
			A regular personal exchange of information (meetings) between MSF and the customer is planned.	
			A key-account manager is stationed close to the customer.	
			A customer life-cycle is defined and is available for relevant project employees. It includes standardized data:	
			o Hard data: at least: name, title, function, contact	
			o Soft data: at least: birthday, hobbies, personal important days	
			o All agreements with the customer	
			o Important happenings	
			Computer based customer relationship programs for data management are	