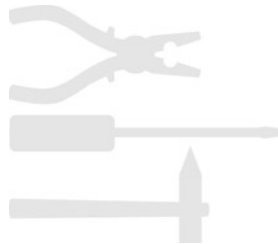


# SIX SIGMA<sup>+LEAN</sup> TOOLSET

## DEFINE

**What is the Problem?**



## Summary DEFINE Phase



### Objective and Scope of Phase

- The DEFINE phase answers the question: "What exactly is the problem?" i.e. where is the pain, why does it have to be addressed, which customer requirements are to be focused on and what exactly does the road to the solution look like?
- The problems and objectives should be clearly defined. The project and process should be clearly scoped. Analysis of the causes of the problem or suggestions for solutions do not happen at this time

### The Meaning of the DEFINE Phase

- Clearly defined goals provide the direction for the team
- A clearly scoped project and a well, defined process provide context and determine focus for team activities.
- As a result of these two points a common understanding is achieved which is of great importance when communicating externally.

### Procedure in the DEFINE Phase

- Project goals are set and defined in a SMART way
- Project and process is clearly scoped
- A comprehensive project management approach (including change and risk management) is established
- Customer and business requirements (CTCs/CTBs) are identified and linked with the project goal

DEFINE

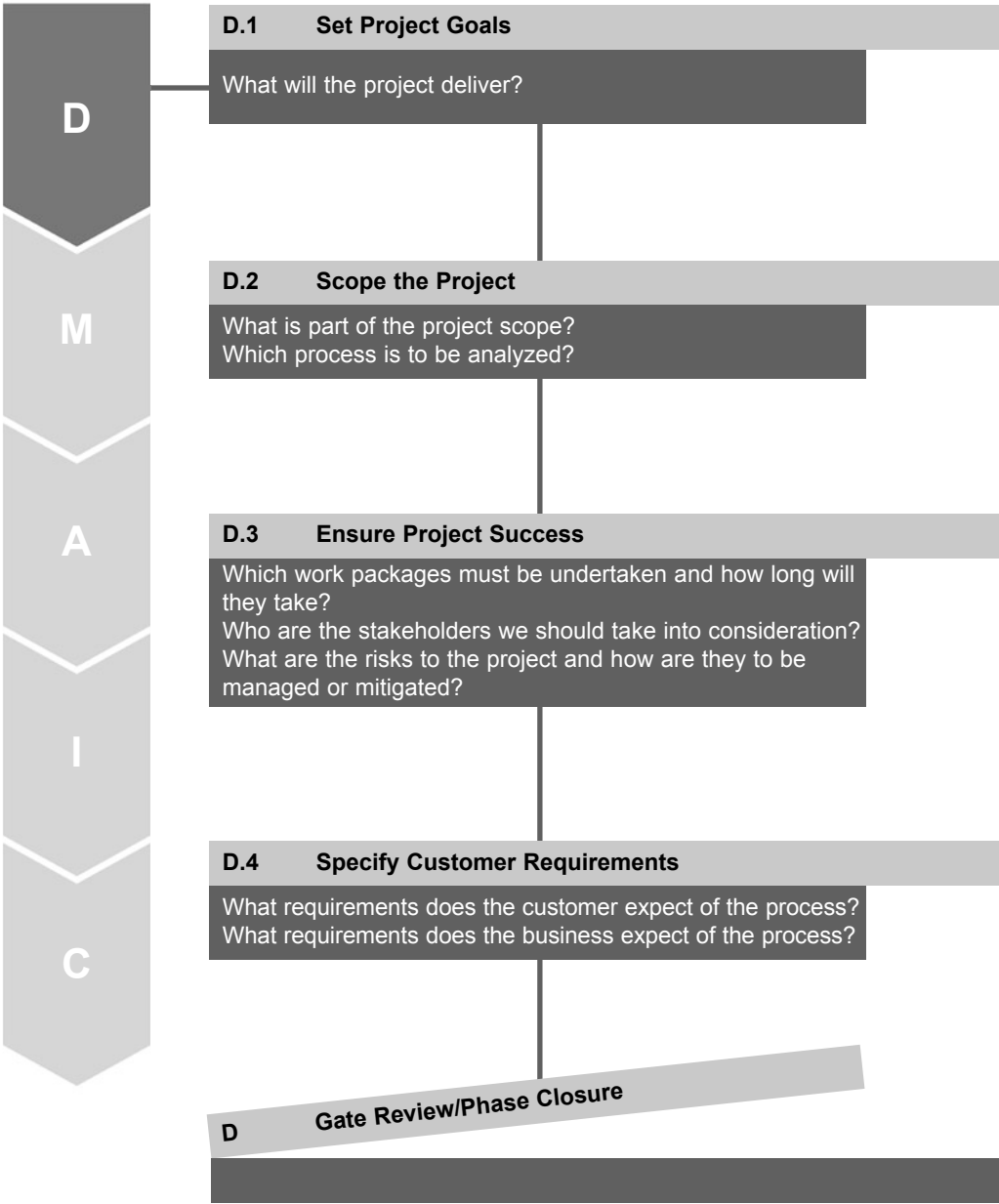
MEASURE

ANALYZE

IMPROVE

CONTROL

# Road Map DEFINE Phase



Tool Overview DEFINE Phase

D.1 Set Project Goals

Project Charter	Benefit Calculation
-----------------	---------------------

D.2 Scope the Project

Project Frame	Multi Generation Plan (MGP)	SIPOC	Dependency Assessment
---------------	-----------------------------	-------	-----------------------

D.3 Ensure Project Success

Project Management	Project Structure Plan	Network Plan	Time Plan	Resource Planning	RACI Chart
Budget Planning	Risk Management	Stakeholder Management	Kick-off Meeting	Project Communication	

D.4 Specify Customer Requirements

Customer Needs Table	Kano Model	Tool 1 CTC/CTB Matrix
----------------------	------------	-----------------------

D Gate Review

# Project Charter



## Term

Project Charter, Team Charter, Project Contract



## When

Before the start of the project

Revisited the at any stage during the project



## Goal

- Define project clearly
- Map the initial situation, the problem and project goals in a concise and clear way
- Focus on the (sub) process to be improved
- Name the most important people involved in the project
- Formalize the sponsor contract for the improvement team



## Procedure

- A draft of the Project Charter is to be drawn up by the sponsor/client in cooperation with the project leader (Black or Green Belt)
- Clarify contents of the Project Charter with people directly and indirectly involved at soon as you can

### Initial Situation

The business environment and the background of the problem should be described. The context and the importance of the project must be emphasized. Explain why the project must be carried out now and indicate the consequences if the project is not carried out now

### Problem and goal

Describe the problem and goal in clear, precise, and measurable terms. The **SMART** rules apply:

- **SPECIFIC:** In which product, service or process does the problem occur?  
What defect or breach of customer requirements is occurring?

- **MEASURABLE:** Formulate the problem statement in such a way that at least one operational measurement is used; estimates can be used at this time
- **AGREED TO:** Same understanding of problems and goals among Sponsor and team
- **REALISTIC:** The project goal can be achieved within the defined time period
- **TIME BOUND:** The time period during which the problem has occurred and/or was measured and date for target achievement

The problem description is a formal description of the AS IS situation and should contain no causes or apportionment of blame. The goal statement should describe the desired final outcome and should not contain solutions.

## **Project Scope**

Focus on, and map the major elements that are IN and OUT of the activity frame. Map the underlying process and its exact start and stop points. In the event of a longer or phased project, goals should be described using a Multi Generation Plan (MGP) in order to break them into smaller, more manageable steps.

## **Project Benefit**

Articulate the financial benefit of the project and if applicable further non-quantifiable benefits (cf. "Benefit Calculation").

## **Roles**

Name the involved persons and estimate the resource needed. Among the most important roles are the Project Sponsor, the Project Leader (Black Belt/Green Belt), team members, the Process Owner as well as the Master Black Belt if required.

## **Milestone**

Set dates for the beginning and end of the project. This should be broken down into separate time plans detailing the most important activities.

**➔ Tip**

- Convey the "level of pain" being experienced during the initialization of the Project Charter in order to reinforce to all readers the necessity of conducting the project; the Project Charter is the calling card of the project
- Follow the SMART rule and focus on the essentials when formulating the contents; many projects fail because problem and goal statements are not specific enough
- Explain the necessity of SMART formulation to the Sponsor especially if problems and goals cannot be formulated in a measurable way immediately; support the idea of creating a common understanding of the problem
- Small teams (three to five members) make it easier to get resources and facilitate cooperation; decisions are faster and it is easier to make joint appointments; you can involve process experts on an ad hoc basis if, and when required
- When forming the team consider whether the project leader can delegate important tasks immediately and without having to consult others
- Discuss the essential points of the Project Charter with the team members before the Kick-off Meeting in order not to lose too much time during the meeting itself
- Use the standard template for the Project Charter of your organization even if it deviates partly from the suggested version
- The Project Charter is a living document. Amend it with any new insights as they arise and update it on the completion of each phase

See example on the following page.

DEFINE

Example: Car Dealer

MEASURE

ANALYZE

IMPROVE

CONTROL

<p>Avoidance of customer defection</p> <p><b>Initial Situation/Project Background</b></p> <p>The company is a car dealer selling many different brands and providing repair services. 80 employees work at the headquarters, in addition to that, 20 employees work at each of the company's two branches. Turnover in the repair services/spray-painting departments has decreased during the last two years with turnover slumping €384,000. Moreover, the number of customer complaints about the quality of the spray-painting has increased. The costs in this area are no longer in line with the market.</p>	
<p><b>Problem:</b></p> <p>During the period from January to December 2010, 30% of the 480 spray-painting orders had to be redone owing to customer complaints. This rework caused additional costs of €57,600. Four employees completed the 480 spray painting orders.</p>	<p><b>Goal:</b></p> <p>Reduce rework to a maximum of 5% of jobs by the end of 2011. Increase of output of the four employees to at least 700 orders per year by the end of 2011.</p>
<p><b>Project Scope/Project Focus</b></p> <p><b>In:</b> Acceptance of order, final control of vehicle, preparation of spray-painting</p> <p><b>Out:</b> Expenses for personnel, warranty work, recalls by manufacturer</p>	<p><b>MGP</b></p> <p><b>Generation I:</b> Headquarters</p> <p><b>Generation II:</b> Branch I and II</p>



<b>Monetary Benefit</b> €148,000	<b>Project Status/ Milestones</b>		<b>Beginning DD.MM.YY</b>	<b>End DD.MM.YY</b>	<b>Status ✓</b>
	1	Kick-off / Project Contract signed	2/25/2011	2/25/2011	✓
	2	Phase DEFINE	2/25/2011	3/5/2011	
	3	Phase MEASURE	3/5/2011	4/15/2011	
	4	Phase ANALYZE	4/15/2011	5/5/2011	
	5	Phase IMPROVE	5/5/2011	9/1/2011	
	6	Phase CONTROL	9/1/2011	9/1/2012	
<b>Additional Benefit</b> Increase of customer satisfaction, reduction in customer defection					
<b>Dependencies</b> None					
<b>Project team:</b>					
<b>Name</b>	<b>Role</b>	<b>Business unit</b>	<b>Agreed time commitment for the project</b>	<b>Approved by Manager</b>	
Goldbach	Black Belt	Spray-painting	45 MD	Vetter	
Vetter	Sponsor	Customer-Relationship-Management	1,5 MD	Vetter	
Stolle	Team member	Paint shop	15 MD	Vetter	
Rimac	Team member	Paint shop	10 MD	Goldbach	
Calabrese	Team member	Paint shop	15 MD	Vetter	

## Benefit Calculation



### Term

Benefit Case, monetary and/or non-monetary benefit, qualitative and quantitative benefit



### When

When drawing up the Project Charter

To be updated on completion of each DMAIC phase



### Goal

- Determine monetary benefit in coordination with the Sponsor and financial controllers
- Indicate non-monetary benefit to make the case for the project more persuasive



### Procedure

- Map AS IS performance, described by the problem statement in the Project Charter
- Outline TARGET performance, described by the goal statement in the Project Charter
- Calculate the difference in performance between TARGET and AS IS
- Break the financial impact down by each change in accordance with the financial policies of the organization
- Adjust the project benefit in the course of the project on the basis of new and further insights; this should be done by the team and Sponsor

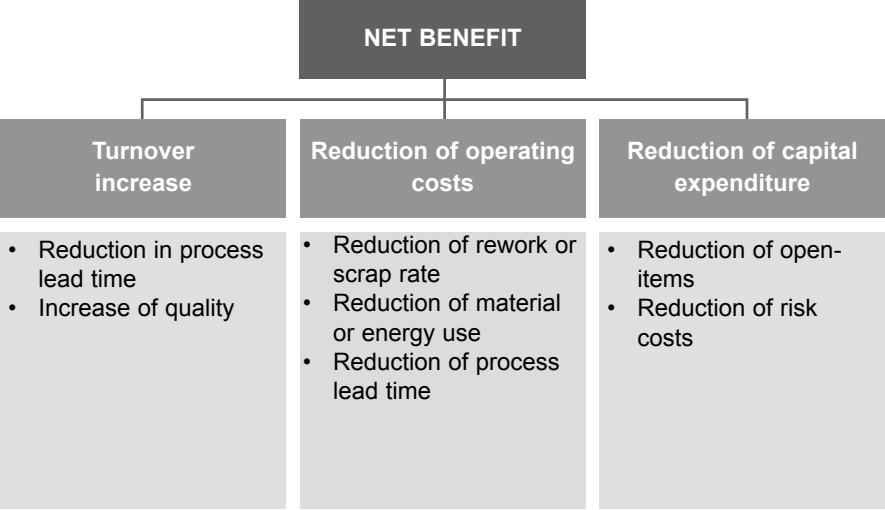


### Tip

- Determine the project benefit with the help of current guidelines in your company
- Get approval from financial control for the calculated benefit. In this way, you create credibility and transparency for the project
- Define the non-monetary benefit as precisely as possible
- At the beginning information on expenses/investments will not be known, you will identify them at the latest during the IMPROVE phase with a Cost Benefit Analysis and then you can include them in the Project Charter

- In case the project goal is one of cost reduction the operation on the following page will be +, -; in case it is a turnover increase the operation will be -, +

Example of measurements for the three main drivers of monetary benefit



See example of a Monetary Evaluation on the following page.

# BENEFIT CALCULATION

DEFINE

MEASURE

ANALYZE

IMPROVE

CONTROL

## Example of a Monetary Evaluation

<b>+1) Situation before implementation (one year period)</b>  # of KPI units x base units/KPI x costs of base unit  e.g. rework: 1,500 parts x 2 hours x €200/hour	<b>-1) Situation after implementation (one year period)</b>  # of KPI units x base units/KPI x costs of base unit  e.g. rework: 200 parts x 2 hours x €200/hour
<b>- Operating costs divided by project implementation (one-year period)</b>  e.g. rent for equipment: €6,000	
<b>- Required investments for the implementation (one-year depreciation)</b>  e.g. annual depreciation of equipment: €3,000	
<b>- Direct project costs</b>  e.g. project team: 300 hours x €60/hour	
<b>Net Benefit of project (one-year period)</b>	

## Examples of non-monetary strategic values

- Technical developments and innovations in line with strategy
- Improvement of aspects with respect to environment, safety, health
- Improvement of customer and employee retention e.g. through improvement of consulting and support quality

# Project Frame



## Term

IN/OUT of Frame, Project Frame, Scoping



## When

DEFINE, ideally during the first project meeting



## Goal

- Scope content and alignment of project clearly
- Identify and define topics which are in scope and out of scope
- Create a common understanding of the project scope among all team members
- Set basis for clear communication



## Procedure

- Visualize the Project Scope in the form of a picture frame
- Define topics together with the team, which are to be addressed within the frame of the project (IN)
- Scope topics which are to be expressly excluded from the project (OUT)
- Define open and/or topics to be discussed (on the frame)



## Tip

- Create clarity about open topics (on the frame) with respect to IN/OUT up to the closure of the DEFINE phase
- Using this distinction you can identify the topics which remain to be clarified in the further course of the project
- Discuss the relevance of "OUT" aspects for potential follow-up project generations
- Use the Project Frame during the course of the project for continually securing project alignment

DEFINE

MEASURE

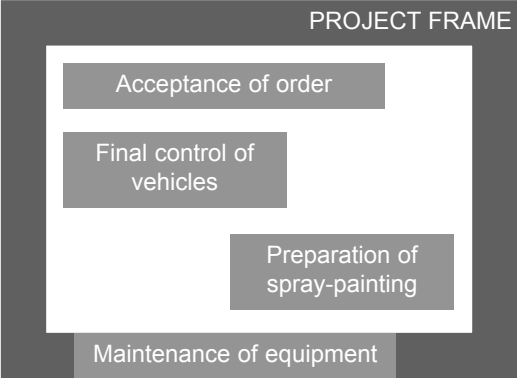
ANALYZE

IMPROVE

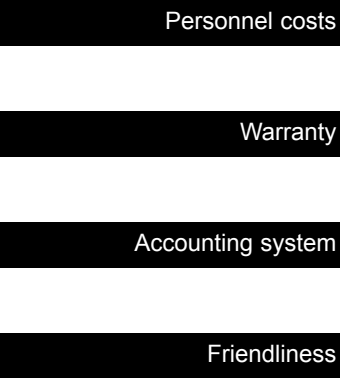
CONTROL

Example Project Frame

IN



OUT



# Multi Generation Plan



## Term

MGP, Multi Generation Plan



## When

DEFINE, ideally during the first project meeting



## Goal

- Establish the milestones in order to reach a long-term project goal in smaller steps and/or identify follow-up project generations early on
- Guarantee a uniform understanding of the process to be improved



## Procedure

- Assign the agreed focal points (IN/OUT Frame) to the first generation of the project
- Assign the topics excluded explicitly from this (OUT) to a potential second and/or third project generation and/or use this as a basis for a further specification of potential follow-up projects



## Tip

- Use the Multi Generation Plan in order to cut the project into "smaller manageable slices" yet maintain sight of the long term project goals
- Make use of the Multi Generation Plan to identify potential follow-up projects early on in the course of the discussion with the Sponsor ("think forward"), e.g.  
 Gen I: Machine A, product Z at site K  
 Gen II: All machines for product Z at site K  
 Gen III: All machines for product Z throughout Germany
- Use the Multi Generation Plan in the further course of the project for continually securing the project alignment

See example Multi Generation Plan on the following page.

MULTI GENERATION PLAN

DEFINE

MEASURE

ANALYZE

IMPROVE

CONTROL

Example Multi Generation Plan

GENERATION I — Carry out the first step	GENERATION II — Improve the achieved position	GENERATION III — Take over the leadership position
Generation I aims at cutting off urgent problems and at filling gaps	Generation II extends the result of Generation I	Generation III strives for a quantum leap with effective success
Machine A, product Z at site K	All machines for product Z at site K	All machines for product Z throughout Germany



# SIPOC



## Term

SIPOC (Supplier, Input, Process, Output, Customer)



## When

DEFINE, ideally during the first project meeting



## Goal

- Determine the start and stop signals of the process under scrutiny
- Determine the relevant process outputs and identify their recipients i.e. customers
- Guarantee a uniform understanding of the process to be improved



## Procedure

- Articulate start and stop signals of the underlying process as an "event", i.e. passively and highlight them with the help of colors – this helps to avoid misunderstandings with respect to IN/OUT
- Map the process to be optimized in five to seven process steps using actions
- Describe individual process steps with one, brief, sentence consisting of nouns and verbs in the correct sequence
- Identify essential inputs of the process, relevant suppliers of the input and the most important process outputs
- Describe important customers i.e. recipients of the main outputs
- This element is the basis for the next tool – Tool 1/CTC Matrix



## Tip

- Please use facilitation cards or Post-its® for drawing up the SIPOC – this allows for changes and enables a "clean" picture of the elements as you create it.
- Check that the output is consistent with the content of the Project Charter: Has the project been "cut" in the right place?
- Maintain the altitude (high level process) but take into account that a SIPOC is prepared to generate a common understanding
- Highlight the outputs relevant for the project with color

- Pay attention to the fact that the input and the supplier are not yet a focus for observation
- Check the result of the SIPOC by considering the defined In/Out Frame

Example: SIPOC

Supplier	Input	Process	Output	Customer
Customer	Vehicle	Vehicle accepted		
Customer service	Order	Prepare vehicle		
Spray-painting supplier	Paint	Carry out spray-painting		
		Complete vehicle	Order report and invoice	Accounting
		Vehicle handed over	Spray-painted vehicle	Customer

■ Start    ■ Stop

# Dependency Assessment



## Term

Dependency Assessment



## When

DEFINE or before the project is instigated



## Goal

Check other company projects (internal and external) to check their potential influence on the new project e.g. overlap or resource availability or repetition etc.



## Procedure

### Focus internal projects:

- Get an overview of projects with a similar focus and check the transferability of the results to the new project
- Get an overview of other projects carried out in the company at the same time in order to leverage their information in the new improvement project
- Check the influence of other projects with respect to any constraints they might create e.g. resources
- Define forms of documentation and communication in order to ensure an effective and efficient exchange of information among the employees of different projects

### Focus external projects:

- Get an overview of projects at suppliers or customers in order to check their potential influence on the new project



## Tip

- Also take into consideration current and concluded projects in other plants or branches
- Apart from the "formal" information sources such as your Program Office and Intranet you should also pay attention to "informal" sources

# Project Management



## Term

Program Management, Project Management



## When

Throughout the course of the project



## Goal

Control project activities actively in order to reach the project goal with the available resources without exceeding the budget or the time frames  
(OTOBOS = **on** Time, **on** Budget, **on** Specification)



## Procedure

1. Derive all necessary work packages and activities and find out linkages, connections and dependencies
2. Plan derived work packages/activities based on the likely duration of activity and the activity effort
3. Find out the budgets for the implementation of the individual work packages/activities and distribute the total budget
4. Form the project team, find out resource availability, assign resources and responsibilities
5. Set up project communication, identify risks, develop plans to mitigate and contingency plans to respond
6. Develop Change Management concept, derive communication strategy

## Mapping Project Management Elements



## Work Breakdown Structure



### Term

Work Breakdown Structures, Project Structure Plan, Activity Plan, Action Plan



### When

- DEFINE, after the project has been scoped
- IMPROVE, during piloting and final implementation



### Goal

Breakdown of project into sub tasks that can be planned and controlled (work packages) and are required for the implementation of the DMAIC project or for the solution to be implemented in IMPROVE



### Procedure

#### Compositional Procedure (Bottom-up)

- Collect work packages
- Analyze relationships with the help of the question "What is part of what?"
- Set up and put together project structure in the form of a hierarchy (cause-effect-chain)
- Add unmentioned but obviously required tasks and/or project components

#### Decomposition Procedure (Top-down)

- Determine the project and implementation phases and break down into main tasks
- Break down the main tasks into sub tasks
- Define tasks in smaller and smaller work packages, describing them in detail

## Mapping Decomposition Procedure

DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
Set project goals	...	...	...	...
- Define problem and goal - Find out Benefit - Draw up Project Charter	...	...	...	...
	...	...	...	...
	...	...	...	...
Scope the project	...	...	...	...
				...
...	...	...	...	...

### ➔ Tip

- A robust and realistic time plan can only be created by breaking the work into small enough pieces
- Bear in mind that each work package must be assigned to only one responsible person
- Ensure that all technical, material and organizational prerequisites are available for completing the work package
- In order to check completeness you should ask yourself the question: "If I have carried out all these things, can I successfully complete the phase?"

# Network Plan



## Term

Program Evaluation and Review Technique, Critical Path Method, Network Plan



## When

- DEFINE, in the course of project planning
- IMPROVE, in the course of the implementation planning



## Goal

- Visualize logical relationships/dependencies between the activities and their sequence in the course of the project and in particular with the planning of more complex flows/projects
- Find out the critical path, i.e. the shortest period of time in which the project can be concluded
- Minimize project duration and make it controllable



## Procedure

1. Map work packages in a logical sequence; parallel steps are possible
2. Map the earliest beginning, the duration and the earliest end (Best Case Scenario) as well as the latest beginning and the latest end (Worst Case Scenario) of all work packages
3. Find out and mark the shortest period of time by adding all the best case durations

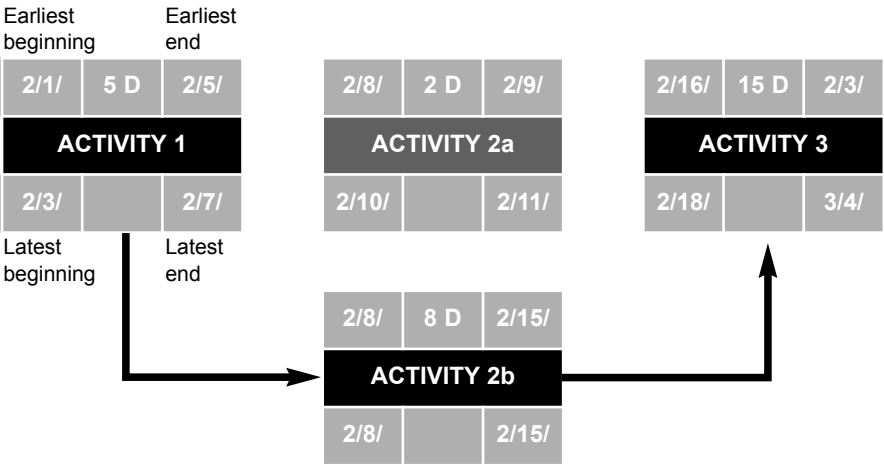


## Tip

- Bear in mind and take into consideration that a difference can exist between the effort for carrying out an activity and its real duration until completion
- With respect to the level of detail you should always focus on which activities can be carried out at the same time when dependencies have an influence on the project duration
- Use different colors/shading to visualize finished and pending activities and also to recognize the critical path



Mapping Network Plan



## Time Plan



### Term

Gantt Chart, Time Plan



### When

- DEFINE, in the course of planning the project
- IMPROVE, during implementation planning



### Goal

- Define and visualize duration and effort for individual milestones/phases/work packages
- Make sure that the project is led to success on time



### Procedure

1. Include work packages from the Activities Plan and Network Plan
2. Set start and end dates for each activity
3. Additionally dates (start-end) and responsibilities for the implementation need to be fixed
4. If required, further information can be added such as implementation status, % complete, effort/benefit etc.
5. Continually update the Time Plan for the ongoing TARGET-AS IS comparison with respect to the implementation status, effort/benefit etc.
6. Resources need to be actively managed, adjusted and controlled in the event that the project deviates from the plan



### Tip

- If you are unsure about the planning of your milestones get support e.g. from your coach
- Plan time buffers for activities in order to be able to compensate for unknowns or a big difference between planned duration and the actual effort required

- Use suitable software packages to track the current status of the activities and the timeline in order to be able to react quickly to deviations

Example Rough Time Plan

DMAIC phases		DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
February	1					
	2	GR				
	3					
	4		GR			
March	1					
	2					
	3					
	4					
April	1			GR		
	2					
	3				GR	
	4					
May	1					
	2					
	3					
	4					
June	1					
	2					
	3					
	4					
July	1					
	2					
	3					
	4					
August	1					
	2					
	3					
	4					GR
September	1					
	2					
	3					
	4					
until Sep- tember 1 of following year	1					
	2					
	3					
	4					
Work packages		<ul style="list-style-type: none"><li>• Provisional problem description</li><li>• High level process mapping</li><li>• Identified process and quality indicators</li><li>• Project Plan mapped</li></ul>	<ul style="list-style-type: none"><li>• Data Collection Plan developed and implemented</li><li>• Problem description finally defined</li><li>• Improvement goals finally defined</li><li>• Base Line found out</li></ul>	<ul style="list-style-type: none"><li>• Possible causes collected and verified</li><li>• Main causes confirmed</li><li>• Solution opportunities quantified</li></ul>	<ul style="list-style-type: none"><li>• Benchmarking of Best Practices</li><li>• Counter Measures Matrix</li><li>• Cost-Benefit Analysis presented</li><li>• Action Plan drawn up for implementation</li><li>• Main causes eliminated</li></ul>	<ul style="list-style-type: none"><li>• Continuous Monitoring System implemented</li><li>• Improvement shown</li></ul>

## Resource Planning



### Term

Resource Planning



### When

- DEFINE, in the course of planning the project
- IMPROVE, during implementation planning



### Goal

- Find out the resources needed
- Identify necessary resources and ensure availability for the project



### Procedure

1. Determine and/or check team composition and answer the following questions:
  - Which sub-processes are involved? Who are the people involved?
    - Use the SIPOC for this purpose
  - Which specialists and methodology experts are required for completing the project?
  - How much time is required for the team sessions and for work between the sessions?
  - Who are the team members from the Six Sigma organization (MBB, BB, GB)?
  - Are the right people in the team? Functional? Hierarchical?
2. Work out the effort need per team member from the activities and time planning and link with the requested resources. Ensure availability of resources and control actively
3. Set realistic time frames with the help of the following questions:
  - To what extent can the team members be released from everyday activities?
  - Apart from the core team, who else is needed and to what extent?
  - Who is the contact partner?
  - What, if any, external support is required?
  - When are vacation periods?

- Who is on vacation and when?
- Who is absent when (conferences, sales activities, etc.)?
- What is the running time for the DMAIC project (90 to 180 days)?

#### 4. Define responsibilities (RACI Chart)

**Tip**

Use a RACI Chart in order to determine the roles and responsibilities of those touched by the project work.

## RACI Chart



### Term

RACI Chart



### When

- DEFINE, in the course of project planning
- IMPROVE, during implementation planning



### Goal

Determine roles and responsibilities in the course of the project work and create transparency



### Procedure

1. Identification/listing of all activities as well as of involved roles/persons
2. Clarification and determination of RACI roles for each activity
  - a. Responsible
  - b. Accountable
  - c. Consulted
  - d. Informed
3. Clarification of responsible person per activity; only one Accountable per activity/task
4. Elimination of responsibility overlaps and identification of "responsibility gaps"



### Tip

Draw up the RACI Chart during the Kick-off Meeting at the latest – this proven tool prevents communication problems arising during the course of the project.

Mapping of RACI Roles

RESPONSIBLE (R)	<b>"The Doer"</b> <ul style="list-style-type: none"><li>• Person(s) who complete(s) a task</li><li>• Responsible for an action and/or for introducing an action</li><li>• The responsibility is set by the accountable person</li><li>• Projects can have multiple R's</li></ul>
ACCOUNTABLE (A)	<b>"Vouches for the others"</b> <ul style="list-style-type: none"><li>• Person bearing ultimate responsibility for completing a task and who can be held accountable</li><li>• This person possesses a veto</li><li>• Every task can only have one "A"</li></ul>
CONSULTED (C)	<b>"Consultant"</b> <ul style="list-style-type: none"><li>• The person(s) who is/are consulted before a final decision is made</li></ul>
INFORMED (I)	<b>"Information obligation"</b> <ul style="list-style-type: none"><li>• The person(s) who has/have to be informed about a decision or a proposed action</li></ul>

Example RACI CHART

Activity \ Name	Employee training	First talks with customers	Identify potential measurements
Mr. X	R	I	I
Ms. Y	I	R	
Mr. Z	I		R
Management	C	I	I
...			
...			

## Budget Planning



### Term

Budget Planning



### When

- DEFINE: in the course of scoping and planning the project
- IMPROVE: in the course of estimating costs related to implementing solutions



### Goal

- Plan and derive the required project budget including labour, machine and equipment costs etc.
- Actively manage the project budget



### Procedure

1. List of all budget and non-budget related cost categories
2. Write a statement regarding the skill sets (individuals) required and how much of their time and talent will be needed in order to successfully complete the project
3. List the estimated date(s) when any given cost will be incurred or appear on the books
4. Total the costs per category
5. Tracking real costs against planned or budgeted costs



### Tip

- Take into consideration the project costs as it relates to your Six Sigma<sup>+Lean</sup> Organization
- Work together closely with your Sponsor during budget planning



Example Budget Planning Table

					Planned (TARGET)			
	Category	Details What? What for? Why?	DMAIC phase	Project activity	Cost period	Net amount €	Before tax €	Total amount €
Budget related (BR)	1. External services							
	2. Materials and tools							
	3. Travel expenses							
	4. Investments							
	5. Additional costs (e.g. rent, soft- ware licenses)							
Non-(BR)	6. Internal costs (according to ICR*)							
* ICR Internal Cost Rate					Sum:			

# Risk Management



## Term

Risk Management



## When

- DEFINE: anticipating risks at the beginning or the planning stage of the project
- Should continue for the duration of the project



## Goal

- Identify potential risks that might affect the project's success
- Continually manage risks
- Identify actions and implement to mitigate risks



## Procedure

1. Identify the risks
2. Evaluate and prioritize each risk with respect to it's impact and probability of occurring
3. Relative impact on the project success and occurrence are mapped in a matrix comprising of nine fields
4. Depending upon the field, a standard strategy is pursued when dealing with the risk
5. Take appropriate actions and/or add activities, if required, and put them into a timeline.



## Tip

Bear in mind that "Soft Risks" exist, e.g. unexpected resistance, unidentified Stakeholders, conflicts within the team, poor or missing communication etc. as well as the "Hard Risks", e.g. external events, delay of preceding project tasks, personnel changes, by the Sponsor or by Management, unexpected resource constraints.

Risk Management Matrix

Occurrence probability	High	Clarify before project start	Significant risk	Show Stopper
	Medium	Proceed with caution	Clarify before project start	Significant risk
	Low	Proceed with caution	Proceed with caution	Clarify before project start
		Low	Medium	High
		Impact on project success		

# Stakeholder Management



## Term

Stakeholder Management



## When

Analyze potential instances of resistance with respect to the implementation of improvements before the project starts and throughout the entire project, in particular, during the DEFINE and IMPROVE phases



## Goal

- Determine the attitude of leaders and of the team members, then take action and win them over
- Generate support for the project
- Identify resistance and overcome it



## Procedure

1. Create a list of individuals for the Stakeholder Analysis with the help of the following questions:
  - Who is affected by this project? Which departments and interfaces are involved? Looking at individuals outside the project, who might be interested in its outcomes?
  - Who feels positive about this project?
  - Who will profit by the success of the project?
  - How can the Stakeholders contribute to the project success? Can certain relationships be used in a positive way?
2. Determine the attitude of each respective Stakeholder to the project
3. In case of resistance, determine the type of resistance (TPC analysis: technical, political or cultural) which may cause a negative attitude. Do this for each Stakeholder
4. Assess the actual or expected behavior for each individual; note the perceived viewpoint of each person (o) as well as of the target area (x); visualize the gaps; find links between the players: Who influences whom?

5. Create an effective system for communication and strategy to influence others

➔ **Tip**

- Conduct Stakeholder Analysis with the Project Sponsor – he/she will support you in identifying and analyzing the relevant Stakeholders and in identifying the appropriate actions
- Document the Stakeholder Analysis for future use in the project; However, the Stakeholders' names and the analysis should be kept confidential – it could lead to misunderstandings and increased resistance
- Update the Stakeholder Analysis frequently during the course of the project: Always check the success of the planned actions and examine if "new" stakeholders are to be added
- Stakeholders can be identified not only within but also outside the organisation

Example Stakeholder Analysis Template

Stakeholder	Opinion towards project					Type of resistance		
	--	-	0	+	++	<b>Technical (I can't do that!)</b>	<b>Political (I'm not allowed to do that!)</b>	<b>Cultural (I don't like that!)</b>
						Lack of abilities, lack of critical resources	Concerns with regard to power or authority	Norms, mentality, habits, language

DEFINE

Example Influencing Strategy

Stakeholder	Topics/concerns	Lever	Influenced (by whom)
Mr. A	SAP introductiong	Resources	Sponsor
Ms. B	Works council	Company agreement	Sponsor
Mr. C	Training	Training	Sponsor

MEASURE

Mapping Communication Plan

Con- tent	Purpose	Recipient	Respon- sible Person	Media	Times	Status
Mess- age	Why is this mess- age to be sent to the recipient?	Who is to receive the mess- age? (RACI)	Who is respon- sible for the com- munica- tion? (RACI)	What media will be used?	When or how often is the communi- cation to be sent?	Was the message sent as planned?
				Examples: Email, Gate Review, posting, orally, newsletter, "Elevator Speech"		

ANALYZE

IMPROVE

CONTROL

# Kick-off Meeting



## Term

Kick-off Meeting, Start Workshop



## When

At the beginning of the project work



## Goal

- Active introduction of team members to the project
- State importance and significance of the project topic to the company
- Formalize the project's start
- Each team member knows his/her role and his/her tasks and can fulfill them



## Procedure

1. Coordinate dates with the Sponsor
2. Develop the agenda with input from the Sponsor and the MBB
3. Invite participants (team members can include other invested stakeholders)
4. Prepare the room(s)
5. Conduct the meeting following the agenda
6. Take notes and publish them after the meeting



## Tip

- Let the Sponsor present project, problem, goal, team etc. – he/she should create a "Sense of Urgency" and show his/her appreciation of the project team
- Make sure that suitably sized rooms and IT (technology) is available
- Send the agenda to the participants before the Kick-off
- Ask the team members to bring along their calendars in order to discuss follow-up dates and note absences (e.g. due to vacation)
- Bring with you all the necessary facilitation material

# KICK-OFF MEETING

DEFINE

## Example Kick-off Agenda

Name of Meeting	Kick-off DMAIC-Project					Facilitator	Black Belt
Participants of meeting						Minute taker	
Date of Meeting	DD.MM.YYYY	Beginning	10:00 AM	End	15:00 PM	Location	Room 1

MEASURE

ANALYZE

IMPROVE

CONTROL

No.	Topic	Beginning	Duration	Expected result	Who
1	Welcoming	10:00 AM	15 min.	All participants are introduced to each other, expectations explored with respect to the Kick-off and goals are established	Black Belt
2	Introduction and project presentation	10:15 AM	15 min.	All participants know the background and the necessity of carrying out the project	Sponsor
3	Presentation of the Project Charter	10:30 AM	30 min.	Common understanding of all elements of Project Charter	Black Belt/ Sponsor
4	Six Sigma <sup>+</sup> Lean introduction	11:00 AM	30 min.		Black Belt
5	Determine roles and rules; planning of meetings/vacations; organizational matters	11:30 AM	60 min.	Roles, tasks and responsibilities within the project are supported by all participants; basics for project planning and project work	Black Belt
6	Lunch with the group	12:30 AM	60 min.		
7	Development of SIPOC	13:30 AM	60 min.	Scoping of project and/or process with the group with uniform understanding	Black Belt
8	Determination of next steps (first steps to VOCs)	14:30 AM	30 min.	All participants know the next steps and their specific tasks	Black Belt
9	Closure and Feedback	15:00 AM	15 min.	Summary of results and feedback round	All



# Project Communication



## Term

Project communication



## When

At the beginning of the project work and during the entire project



## Goal

- Ensure regular and structured communication within and between the project team and individual sub-teams
- Continuous communication with the Sponsor about the project's progress
- Regularly inform employees working in the project domain and create transparency



## Procedure

### 1. Internal:

- a. Define necessary communication frequency for the project
- b. Plan the timing with the team members and the Sponsor during the Kick-off Meeting

### 2. External to the project environment:

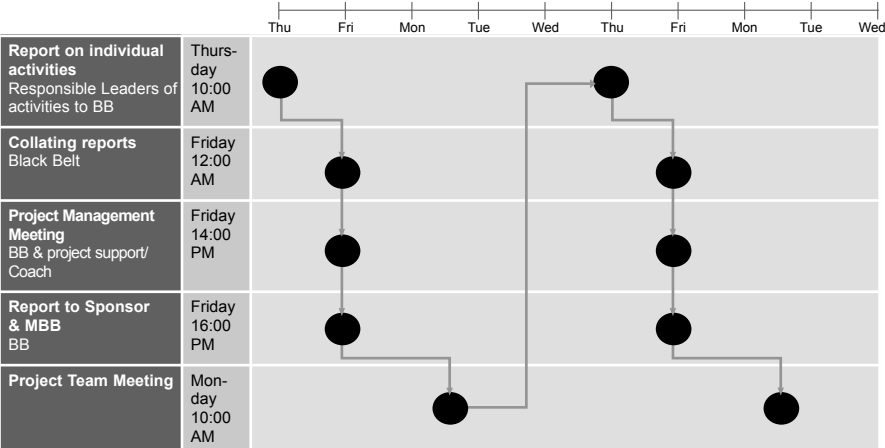
- a. Set communication goal and determine recipients
- b. Set contents and media methods



## Tip

- Use the Kick-off date in order to set the communication pace for the project team.
- Develop an Elevator Speech with your team. The so-called "Elevator Speech" will enable you and your team to describe the necessity and the goal of the project in a concise and clear way: Problem, benefit, current status including desired support

Example Project Communication Pace



Example Weekly Report for Sponsor

Lead	Last name, first name	Report no.	7	Date	1/22/2012	CW	08
		Time	● ● ●	Budget	● ● ●	Risk	low
Activities CW 08			Next steps CW 09		Necessary decisions		
• xxx		planned	closed	• xxx			
YES		YES					

Communication Map

Content	Purpose	Recipient	Person responsible	Meda	Times	Status
Mess- age	Why is this message to be sent to the recipi- ent?	Who is to receive the message? (RACI)	Who is respon- sible for the com- munication? (RACI)	Which media are to be used?	When is communi- cation to take place?	Was the message sent as agreed?
				Examples: Email, Gate Review, posting, orally, newsletter, "Elevator- Speech"		

## Customer Needs Table



### Term

Customer Needs Table



### When

DEFINE, to ensure customer focus



### Goal

Identify actual customer needs



### Procedure

1. Collect genuine customer and business opinions ("Voice of Customer" – VoC, "Voice of Business" – VoB)
  - Customers have already been identified in the SIPOC
  - Collect customer views (usually by interviews or surveys, or during the Customer Interaction Study ["Gemba" study]) Value verbatim statements
2. Organize the collected statements (VoC and VoB) into complaints, solutions, specifications etc. Subgroup by theme if necessary e.g. timeliness, accuracy
3. Derive the "true" customer needs
4. Articulate each customer need. Remember that customer needs ...
  - ... are a statement of the benefit to the customer,
  - ... don't contain solutions, and
  - ... have a positive focus, i.e. "I would like ..." instead of "I don't want any ..." or "It must ..."

# CUSTOMER NEEDS TABLE

DEFINE

MEASURE

ANALYZE

IMPROVE

CONTROL

Example Customer Needs Table

Voice of Customer/ Business	Complaint	Solution	Cause	Specification	Other	"True Need"
"I'm cold!"	X					I want a pleasant temperature
"Turn up the heating!"		X				
"Turn up the temperature to 72°!"				X		
"The window is draughty!"			X			
...						

➔ **Tip**  
Discuss the derived need with the customer and/or the Sponsor and let them confirm you correctly understood.

# Kano Model



## Term

Kano Model<sup>1</sup>, Kano Analysis



## When

DEFINE; ensure customer focus



## Goal

- Classify customer needs into delighters, satisfiers and dissatisfiers
- Recognize needs that must be guaranteed/fulfilled, and recognize which needs can be guaranteed?



## Procedure

1. Every need is tested by asking the customer a positively and a negatively phrased question:
  - "How would you feel if this need was not fulfilled?" (negative)
  - "How would you feel if this need was fulfilled?" (positive)
2. The customers can choose between four answers:
  - "I like that"
  - "That's normal"
  - "I don't care"
  - "I don't like that"
3. Based on the answers to the negatively and positively phrased questions the need can be categorized with the help of a table.
4. Based on the customer responses the needs can be classified into:
  - **Basic needs** (Dissatisfier), i.e. features which are expected by the customer
  - **Performance factors** (Satisfier), i.e. features which enable the customer to measure/assess the quality of the system

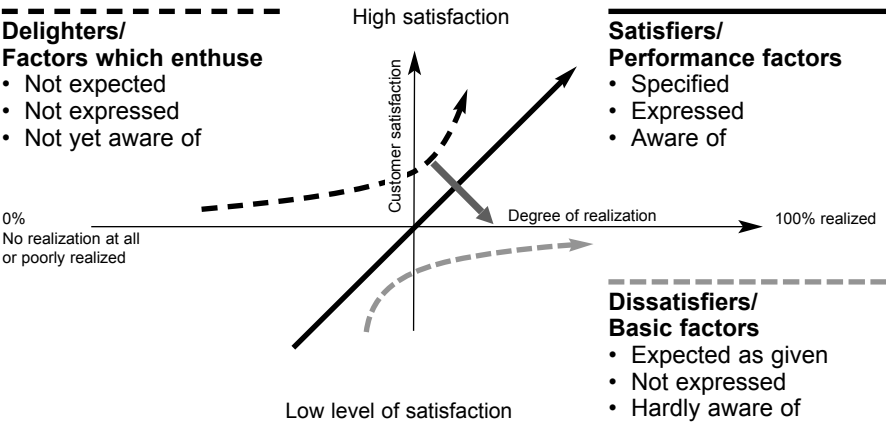
<sup>1</sup> This classification is based on the model by Professor Dr Noriaki Kano (Rika University, Tokyo), developed in 1978.

- **Buzz factors** (Delighter), i.e. features which exceed the customer's expectations

The following matrix helps with the assignation of the needs

Answer to a negatively formulated question		Answer to a positively formulated question			
		I like that	Normal	I don't care	I don't like that
Answer to a positively formulated question	I like that		Delighter	Delighter	Satisfier
	Normal				Dis-satisfier
	I don't care				Dis-satisfier
	I don't like that				

Mapping Kano Model





**Tip**

If an item has been assigned to an empty cell then this hints at contradictory answers. Ask the questions again and, if necessary, discuss with the customer in order to resolve the contradiction. Rephrasing the original question may help.

# Tool 1



## Term

CTC/CTB Matrix, Tool 1



## When

DEFINE, to ensure customer focus



## Goal

- Specify critical to customer and business requirements which are connected with the stated problems
- Formulate clear and measureable customer requirements ("critical to customer" – CTCs) in the language of the process
- Translate business requirements ("critical to business" – CTBs) into the language of the process



## Procedure

- Collect Voice of the Customer and of the Business
- Derive the needs from the Voice of the Customer and the Business (VoC and VoB) (Customer Needs Table)
- Understand the needs, evaluate them with the help of the Kano Model and prioritize them
- Create specific and measurable requirements (CTCs and CTBs)

Tool 1 Template

Voice of Customer/ Business	Complaint	Solution	Cause	Specification	Other	"True" need	CTC/CTB



## Example

Voice of Customer/ Business	Complaint	Solution	Cause	Specification	Other	"True" need	CTC/CTB
"I can see that the car had an accident."					X	I want my car to look good.	Each paint application has to correspond to the original paint with respect to coloration, thickness and density: <ul style="list-style-type: none"> <li>• Paint thickness LSL = 100 <math>\mu\text{m}</math>; USL = 180 <math>\mu\text{m}</math></li> <li>• No formation of drips and runs</li> <li>• Color: No visible transition.</li> </ul>
"The paint has drained away."	X						
"I'm here to pick up the car and it hasn't been completed yet."	X					I want good service.	Each order is completed by the agreed date. (*)
"The service could be friendlier."		X					The question on friendliness in the CSI questionnaire must have been answered with a score of at least eight. (*)
"I don't want to be called because of my invoice."				X			Each order is ready after the final check and the invoice can be issued immediately. (*)

(\*) These CTBs should be dealt with in a follow-up project because they are beyond the scope of the Project Frame.

**CTCs**  
(Critical to Customer)  
are critical, measurable  
customer requirements

**i.e., CTCs ...**

- describe the customer requirement, not the solution
- are measurable, precise and formulated positively
- are formulated for a unit of the product or service

**CTBs**  
(Critical to Business)  
are critical, measurable  
business requirements

**i.e., CTBs ...**

- describe the business requirement, not the solution
- are measurable, precise and formulated positively
- usually correspond to the target/goal (of the project)

➔ **Tip**

- In a DMAIC project you should focus on one to three CTCs and one or two CTBs at the most.
- Indicate which CTCs and CTBs will not be pursued in the existing project in order to avoid misunderstandings
- Projects that have too many CTCs/CTBs will struggle to be delivered in the expected time frame of 6 months. If a project is targeting improvements in quality, speed and inventory level, then it would be better split into smaller more manageable projects.
- Note also that you often have projects where some of the CTCs are already being correctly fulfilled. You may need to monitor these to ensure that improvement work on the under performing CTCs does not negatively impact them.
- Commencing a CTC/CTB with the words "Each" or "Every" helps focus on the unit level

# Gate Review



## Term

Gate Review, Tollgate Review, Phase Check, Phase Closure, Phase Transition



## When

At the end of each DMAIC phase



## Goal

- Inform the Sponsor and other key stakeholders about the results the team achieved in the phase
- Communicate the progress of the project to the Sponsor
- Guarantee the timely delivery of goals and the project closure by setting and tracking critical milestones
- Increase the acceptance of the project work within the entire organization by including key stakeholder groups throughout the project
- Acknowledge the work of the team
- Coordinate tasks and actions and, if necessary, adjust the Project Frame together with the sponsor and risk management experts. Identify any risks that need addressing
- Determine what support is required of the sponsor early on; decide whether the project is to continue (Go/No-go)



## Procedure

- Conduct a phase closure with the MBB (this should ensure that all DMAIC criteria have been fulfilled)
- Confirm the Tollgate date with the Sponsor
- The following participants should be invited as soon as possible
  - **Required:** Project Leader (Black/Green Belt) and Sponsor
  - **Recommended:** Process Owner
  - **Optional:** Project team, Quality Leader, Master Black Belt, Management, Controller, internal customers, works council, further Stakeholders

- Prepare presentation
  - Starting point and/or results of the previous phase
  - Goal of the phase
  - (Short) overview of the activities under taken in this phase
  - Insights and results of phase
  - Next steps

- Conduct the meeting
- Discuss the Project Charter and make adjustments if necessary
- Coordinate next steps
- Go/No-Go decision: In case of a Go decision the next phase is introduced; in case of a No-Go decision, outline the required steps needed to continue with the project – if neither of the above the project should be cancelled

**Tip**

- Present the results as simply as possible: Think of your listeners and prepare the presentation with the target audience in mind
  - Coordinate the dates for the phase closures with all involved
  - Use phase checklists for the project leader (Black/Green Belt) and the Sponsor – you provide the facilitation for discussions
  - Give your team members a platform where they present specific parts of the review; this leads to a stronger commitment by the project team and shows your appreciation towards colleagues
  - Plan enough time for open and honest discussions
  - Brief the Sponsor before the Meeting with respect to the current status of the Stakeholder Management – a Gate Review Meeting is a good opportunity for creating transparency and for exerting a positive influence
- Avoid being side tracked by minor technical questions

## Gate Review DEFINE

- **Set Project Goals**
  - Has the starting point been described in a suitable way?
  - Has the problem been stated in a SMART way?
  - Have goals of the project been set in a SMART way?
  - What exactly is the benefit of the project? How great is the monetary benefit? Was Financial Control involved in the estimation of the cost benefit?
- **Scope the Project**
  - Has the project been scoped clearly? Which aspects are IN and which are OUT? Has an MGP (Multi Generation Plan) been drawn up?
  - Has the process to be improved been defined clearly? (high level/SIPOC)
  - Are other projects influenced by this project? If so which?
- **Ensure Project Success**
  - Has a detailed project plan been drawn up (activities and timeline)?
  - Who are the team members and why were they selected?
  - Have all necessary personnel been given time to work on the project, i.e. have they been released from other tasks so they can work on the project?
  - Was a budget calculated for the project? How much is it? What are the underlying assumptions?
  - Which tools were used to achieve acceptance of the project and to overcome resistance?
  - What are the potential risks?
  - Does everyone involved in the project know his/her role and responsibilities? Which tools were used in order to determine their roles and responsibilities?
- **Specify Customer Requirements**
  - How did we collect the Voice of the Customer and the Business?
  - How were the needs derived from the Voice of the Customer and Business? How have we ensured that they describe the true needs?
  - Are we sure we aren't working on the improvement of "nice-to-have" features without fulfilling the basic requirements first?
  - Have the critical customer and business requirements been formulated in a measurable way?

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