

BSH Hausgeräte Gruppe

**B/S/H/**

# Overview 8D Problem Solving for Suppliers

**Source: Bosch Booklet 16**  
V1.1

August 2021



# Agenda

1. Objective and principles for problem solving
2. Problem Solving with 8D procedure for suppliers

D1: Establishing problem solving team/project @supplier

D2: Problem description

D3: Containment actions - customer protection

D4: Cause and effect analysis

D5: Defining corrective actions and proving effectiveness

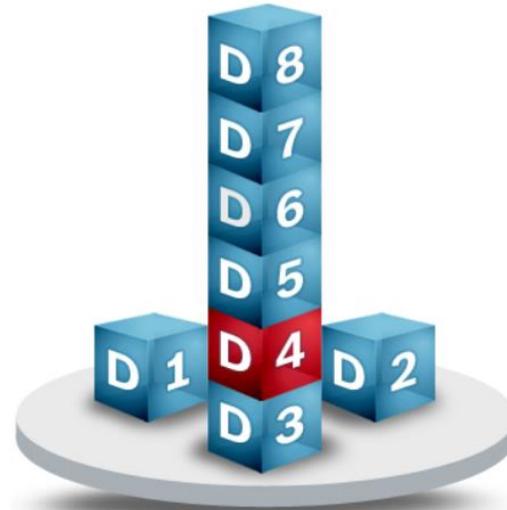
D6: Implementing corrective actions and tracking effectiveness

D7: Establishing preventive actions

D8: Final meeting

3. 8D practice: “stomach ache”

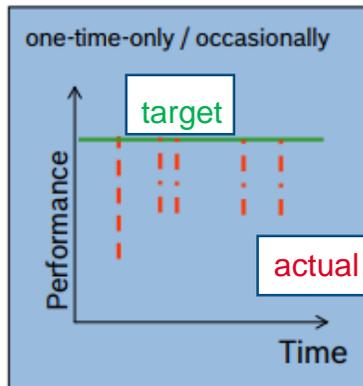
4. Links



# 1. Objective and principles for problem solving

## Objectives:

- Eliminating problems
- Preventing the recurrence



## Principles for problem solving (mindset):

I am concerned	I want to understand the problem and its causes fundamentally	The problems we solve do not reoccur
<ul style="list-style-type: none"><li>→ Problems concern me personally – solving them is my task.</li><li>→ As a manager I can't delegate my responsibility for solving problems.</li><li>→ Solving problems is our opportunity for improvement.</li></ul>	<ul style="list-style-type: none"><li>→ I am observing <u>on-site</u> and analyze the problem based on <u>facts</u>.</li><li>→ I am describing the problem <u>comprehensible</u> for all involved persons.</li><li>→ I understand the problem and how it occurs through investigation of the relevant cause and effect relationships.</li></ul>	<ul style="list-style-type: none"><li>→ We develop a lasting solution by eliminating the real root cause – technically and systemically.</li><li>→ We provide evidence of the problem solving effect and understand their consequences.</li><li>→ We transfer improvements for other products/processes /divisions and establish them within our standards.</li></ul>

## 2. Problem Solving with 8D procedure for suppliers

### Define responsibilities



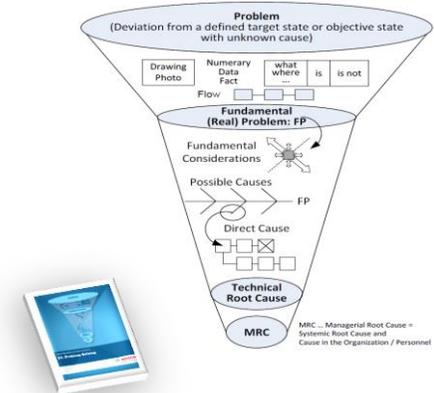
**BSH reaction rule:  
2 – 14 – 60 – 90\* days**



Use only  
with BSH agreed  
**8D-Report template**



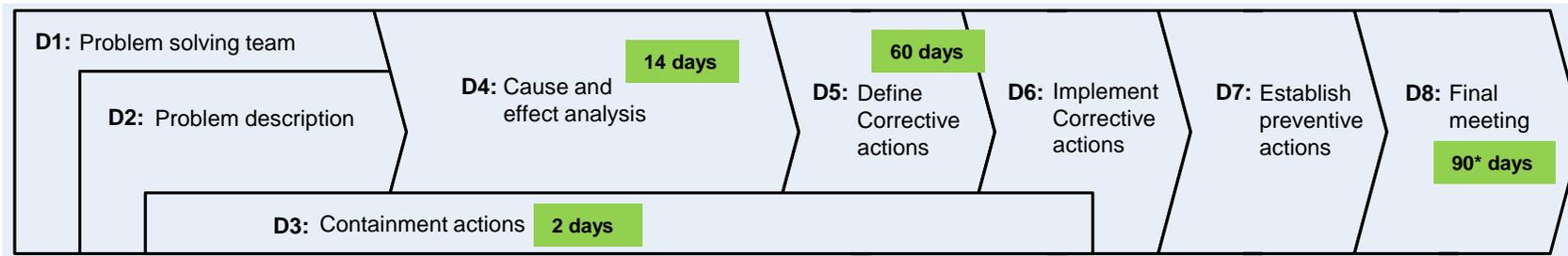
### Funnel model



[Problem solving funnel](#)  
[Bosch Booklet 16, page 7-8](#)

Apply D1 to D3 automatically at once, in particular D3

e.g. from IQOS

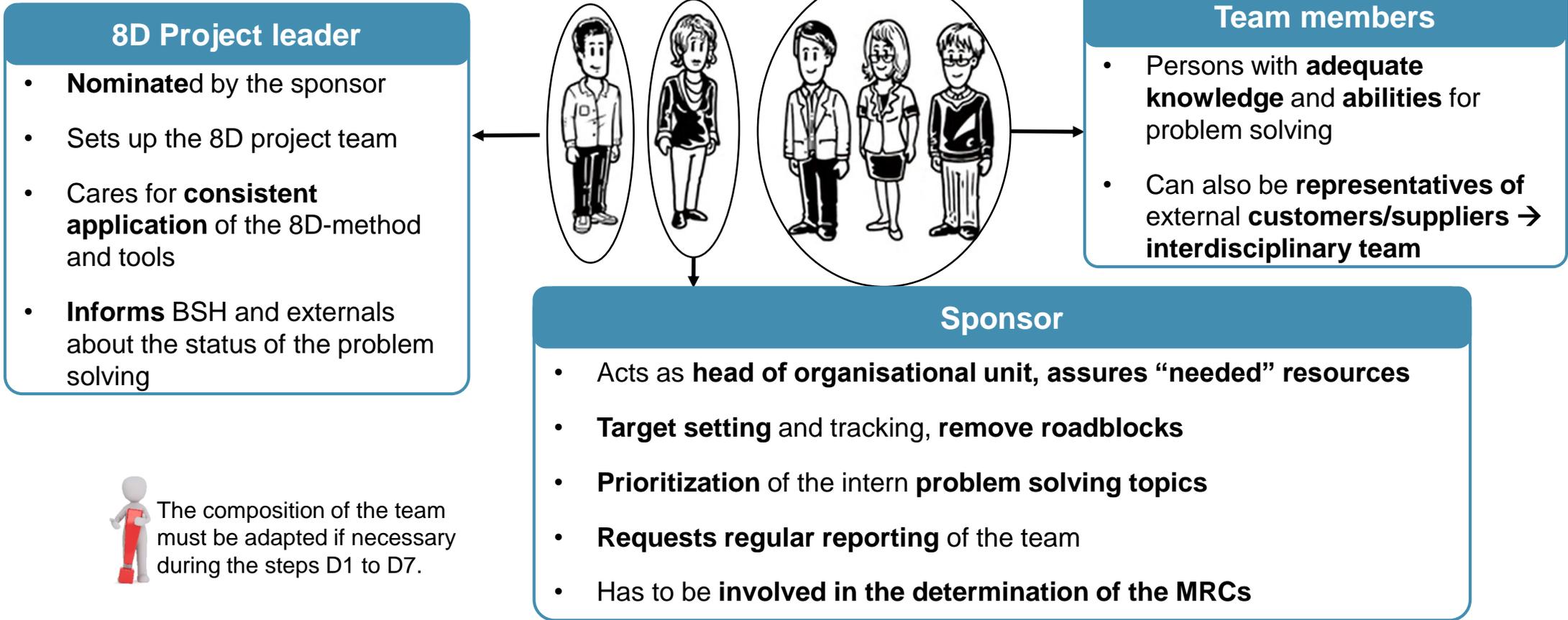


The scope may vary depending on complexity of the topic.

\***BSH reaction rule** defined in the supplier contract applies to faulty parts which are caused by suppliers. **Days in D8** can deviate and **need to be agreed with BSH!**

## 2. Problem Solving with 8D procedure for suppliers

### D1: Establishing problem solving team/project @supplier

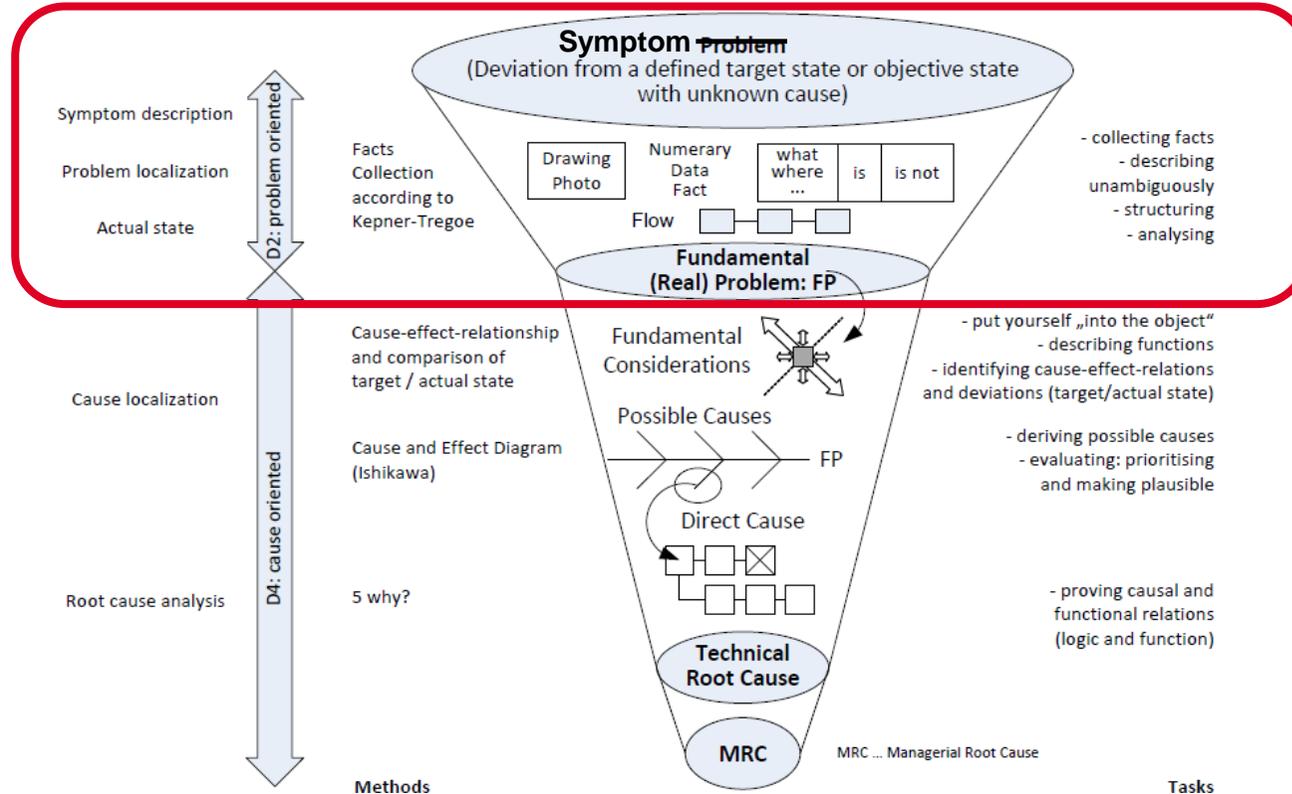


 The composition of the team must be adapted if necessary during the steps D1 to D7.

**GOAL:** responsibilities among the team members are assigned, active involvement of management @supplier is ensured

## 2. Problem Solving with 8D procedure for suppliers

### D2: Problem description – problem solving funnel



[1 Facts collection, Is/is not Example video](#)

[1 Facts collection, Is/is not Bosch Booklet 16, page 12-14](#)

[2 Risk evaluation Bosch Booklet 16, page 53](#)

## 2. Problem Solving with 8D procedure for suppliers

### D2: Problem description

Challenge

- **Collect** information, data, **facts** and figures
- Describe the **symptom** (defect/deviation) **as accurately as possible** giving **quantitative** details (facts, figures, dates, effect on customer, severity)

Activities

- **Go to Gemba**, get **samples** (good / **defective parts**)
- Gather and evaluate objective data (measurements)
- Visualize facts (**pictures**, drawings, **sketches** ...)
- Analyze the object by involving of specialists
- Timeline
- Describe flow characteristics (e.g. process flow, product life cycle, logistical flow, value stream)
- Analyze design & function, functional block diagram
- Answer the questions acc. to **facts collection<sup>1</sup>** table (**What? Where? When? Who? How many? Is / Is not; differences** and changes)
- All persons must have a **clear** and **fact based understanding** of the problem.
- **Preliminary risk assessment<sup>2</sup>** : Estimation of the occurrence, probability and damage extent

?	is	is not	D & C
what			
where			
when			
who			
how many			
Fundamental Problem:			

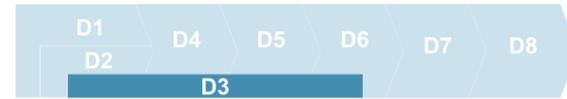
D & C ... Differences and Changes



**GOAL: precise description of fundamental problem, based on facts!**

## 2. Problem Solving with 8D procedure for suppliers

### D3: Containment actions - customer protection



**BSH reaction rule**  
**After 2 Days:**  
**Status of defined**  
**containment actions**

Challenge

Determine the most suitable containment actions

Activities

→ Safeguard the situation by defining **containment actions** directly on the customer's premises, in transport, in warehouse, in order to prevent a reoccurrence of the problem at the customer, e.g.

- **Lots on hold/ sorting** manufactured products
- **Incoming inspection** for delivered products
- **Appropriate identification** of sorted lots



→ Containment actions must be **documented**; often they bear **no relation** to the cause of the problem 

→ Assess the **effectiveness of the measures** and of possible unrequested **side effects before implementation**

→ Take **all** (potential) **products** into **consideration**

→ **Forwarding information** to other BSH factories



[Containment actions Bosch Booklet 16, page 53](#)

**GOAL:** instant information and support to the customer, implemented containment actions including documentation



## 2. Problem Solving with 8D procedure for suppliers

### D4: Cause and effect analysis

Challenge

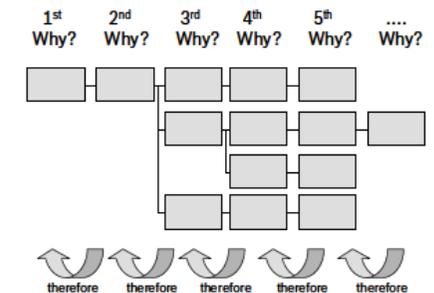
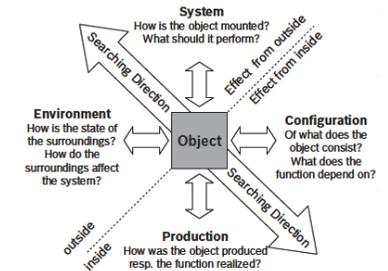
Determine technical and managerial root cause (TRC & MRC)

Activities

- Identify relevant functions, **cause and effect relationships** through **fundamental considerations, sketches, flow charts** (physical, chemical, technical, ...) and compare target and actual state.
- Derive all possible causes from these considerations.
- Think in all directions (**inside and outside of the object**; 5 or 7 M) for possible causes and consider stress & strength of the object
- Apply “**5xWhy**” questioning technique to determine and verify the causal functional relation → the technical root cause (**TRC**).
- Provide a **risk assessment** to estimate **customer risk**. It includes:  
A) estimation whether, how many failures to be expected; B) gravity of the outcome, depends on severity and probability; C) hazard possible health/safety effect on the customer
- **Identify** the managerial root causes (**MRC**) which causes the technical root cause (extended 5xWhy).



**BSH reaction rule**  
**After 14 Days:**  
**Status of TRC and MRC for occurrence and non-detection**



**GOAL: technical and managerial root cause is confirmed**

## 2. Problem Solving with 8D procedure for suppliers

### D4: Cause and effect analysis

#### TRC and MRC for Occurrence and Non-Detection

##### OCCURRENCE

Why has the problem occurred?

##### TRC

##### Technical Root Cause(s)

➤ technical / physical /chemical responsible for the **occurrence** of the problem

##### MRC

##### Managerial Root Cause(s)

➤ conditions in the **management system**, in the **business process** or in the company **organization** that are responsible for the **occurrence** of the problem

##### NON-DETECTION

Why has not the problem been detected earlier?

##### TRC

##### Technical Root Cause(s)

➤ technical / physical /chemical responsible for the **non-detection** of the problem

##### MRC

##### Managerial Root Cause(s)

➤ conditions in the **management system**, in the **business process** or in the company **organization** that are responsible for the **non-detection** of the problem

**Technical Root Cause:**  
Interaction of causing conditions

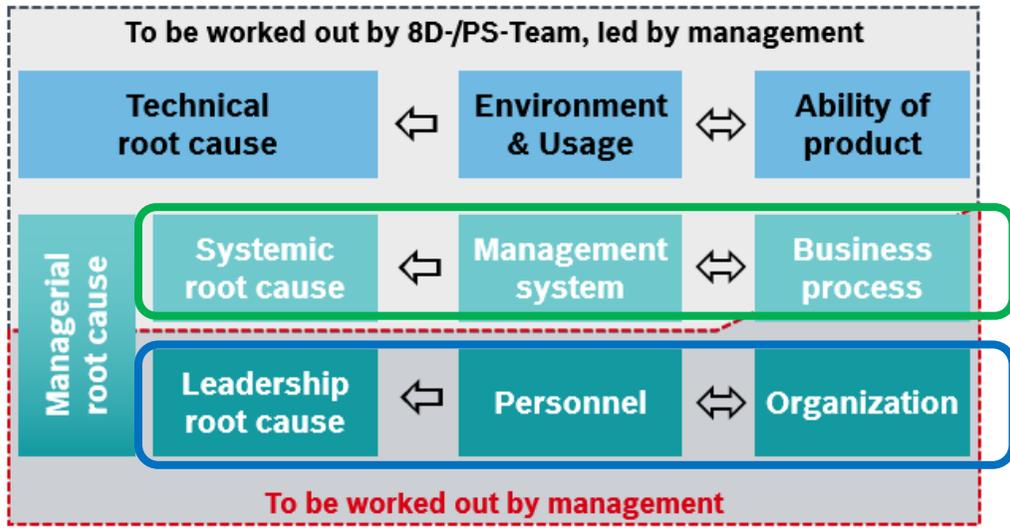
**Managerial Root Cause:**  
Systemic root cause and leadership root cause

**GOAL: TRCs, MRCs for occurrence and non-detection determined**

## 2. Problem Solving with 8D procedure for suppliers

### D4: Cause and effect analysis

#### Responsibility and examples MRC's



Managerial Root Causes		Examples
Systemic root causes	<b>Management system</b> Cause relates to the immediate surroundings of the product/process.	Specifications <u>for the product/process</u> , e.g. work plan, FMEA, CP, order specification - Not created - Incomplete - Misleading - Created but with errors
	<b>Business processes</b> Cause relates to the supporting business processes	<u>Higher-level rules</u> , e.g. checklist for product or process approval, PEP, central directives, procedures, work instructions, standards - Applied incorrectly - Implemented incorrectly - Disregarded - Not created - Incomplete - Misleading - Created but with errors
Leadership causes	<b>Personnel</b> Personnel deployment and qualifications	Associate deployment, use of associate skills, associate induction, knowledge management, competence management, training systems, associate development, personnel management, personnel development, working environment, ergonomics, decision making
	<b>Organization</b> Interfaces, cooperation, responsibilities	Establishing an operating unit (organizational, spatial), responsibilities (RASIC) in product and process approval, interfaces between development and sales, cooperation between lead plant and production plant, standard agenda in regular meetings, managing capacity and resources



**Management has overall responsibility for TRC and MRC**

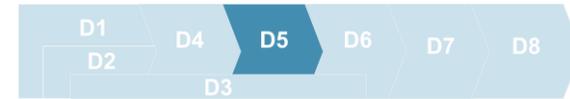


[Managerial Root Cause Bosch Booklet 16, page 10-11](#)

**GOAL: responsibility and examples MRC's clarified**

## 2. Problem Solving with 8D procedure for suppliers

### D5: Defining corrective actions and proving effectiveness



**BSH reaction rule**  
**After 60 Days:**  
**Detailed report with defined corrective actions**

Challenge

Develop and evaluate "optimum" corrective actions for technical and managerial root cause(s)

Activities

- Define potential corrective actions to eliminate the root causes (occurrence & non-detection; TRC & MRC)
- Consider all corrective actions that can eliminate the problem
- Perform theoretical (e.g. DRBFM, FMEA) and/or practical examination of the measures, in order to prove the effectiveness and prevent unexpected secondary effects → **Don't create new problems!**
- Determine and confirm "optimum" corrective action(s)
- Determine and release an action plan with introduction timing and responsibilities (e.g. customer agreement)
- Ask "Why is the defined measure effective?"



If it's not possible to prove effectiveness, the definition of the root causes and/or the corrective actions are wrong. Step D4 and D5 have to be repeated.



[Defining corrective actions](#)  
[Bosch Booklet 16, page 54](#)

**GOAL: Corrective actions with effectiveness evidence**



## 2. Problem Solving with 8D procedure for suppliers

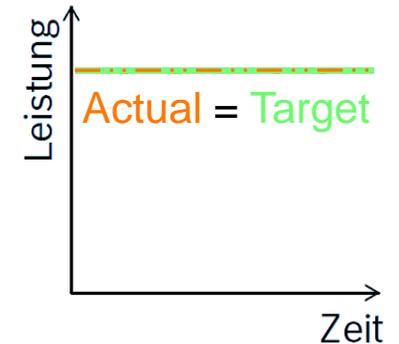
### D6: Implementing corrective actions and tracking effectiveness

#### Challenge

Implement action plan to introduce corrective actions for technical and managerial root cause(s).

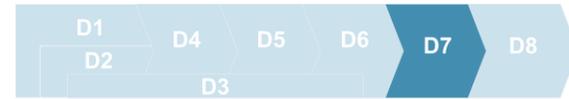
#### Activities

- Implement previously selected Corrective Actions
- Validate effectiveness after implementing and ensure that there are no negative consequences, e.g. monitor process internally as well as the process at the customer.
- **Document results** 
- Decide about continuing containment actions internally and at the customer.
- Removal **of the containment actions** after implementation and after proving effectiveness of the corrective actions if agreement with customer done



[Implementing corrective actions](#)  
[Bosch Booklet 16, page 55](#)

**GOAL: Corrective Actions** with confirmed effectiveness are **established**. Containment Actions from D3 are removed



## 2. Problem Solving with 8D procedure for suppliers

### D7: Establishing preventive actions

#### Challenge

Establish preventative actions to avoid occurrence of comparable problems in other business or production processes and products

#### Activities

- Ensure there is no risk of reoccurrence by adapting the monitoring systems for the processes and all affected procedural guidelines.  
(e.g. update FMEA, Control Plan, drawings, inspection plans, procedures, test and work instructions, design rules, trainings)
- Transfer acquired experience via Lessons Learned to other/comparable products, processes, production sites and divisions:
  - Are other customers affected?
  - Will further problems be caused as a result of this problem?
  - Does the knowledge gained allow other potential defects to be identified and prevented?



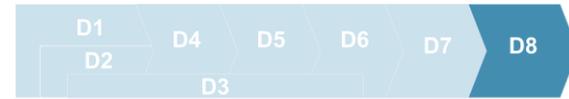
<sup>1</sup>[Lessons Learned Bosch Booklet 16, page 40-42](#)

[Preventive actions Bosch Booklet 16, page 55](#)

**GOAL: Updated standards (QM-system, work instr.) are released, Experiences exchanged (Lessons-Learned)**

## 2. Problem Solving with 8D procedure for suppliers

### D8: Final meeting



#### Challenge

Conduct final meeting of the 8D project team.  
Prerequisite: Completion of all steps D1 to D7  
(all actions and their verification are finalized)!

#### Activities

- Conduct a critical **8D evaluation** of all steps and actions during the concluding discussion, use **BSH 8D Evaluation Sheet**
  - “How often were the deadlines met?”   
  - “How often were the targets achieved?”
  - “Which improvements can be helpful for future problem solving processes?”
- **Documentation** of the results 
- **Signature** and **conclusion of 8D report** by the customer and the sponsor @supplier
- Archive the completed 8D report



**BSH reaction rule**  
**After 90\* Days:**  
**Completion of problem solving with 8D method**

B/S/H		8D Evaluation Sheet			Supplier Name:
Select Language		8D Report Number: <input type="text"/>		Assessment team:	
EN		8D-Report Title: <input type="text"/>		Business Unit:	
				Plant / Location:	
8D STEP	NOT SATISFYING	BASIC LEVEL	EXCELLENT	SUM Supplier	
D2 Problem Description	Empty or only symptom description, data collection is missing.	Fundamental (real) Problem, occurrence and effects are described understandable and clearly (including detailed quantitative data: what, where, when, how much, who, ...)	Additional information with regard to interface and effect at customer are available.	4	



[Evaluation sheet](#)  
[Key Questions](#)



[Final meeting Bosch Booklet 16, page 55](#)



**GOAL: Evaluation D1 to D7 and conclusion of problem solving with agreement of the involved persons**

### 3. 8D practice: “stomach ache”

1

#### SYMPTOM:

Stomach ache

- Asking questions
- Is/Is not
- Ultrasound
- Palpation



2

#### FUNDAMENTAL PROBLEM:

Since 3 days burning pain in the upper stomach, patient has been in his home country the last time, symptom occurs for the first time, patient is 26 years old, ultrasound shows thickened stomach wall

- Understand the context
- Asking questions (Of what does the object consists? What does it depends on? How does the object work?)

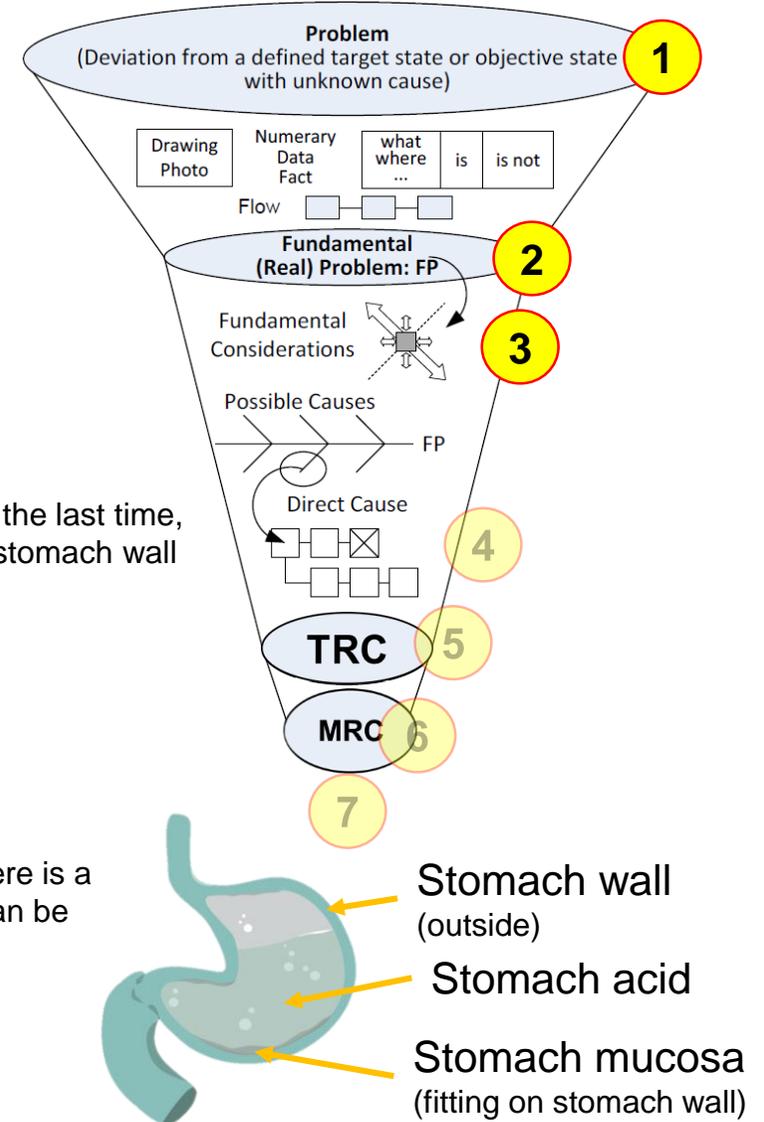
3

#### FUNDAMENTAL CONSIDERATIONS:

The stomach mucosa protects the stomach wall from the corrosive stomach acid. If there is a disproportion between the stomach acid and the stomach mucosa, the stomach wall can be attacked by the stomach acid and can get thicker.

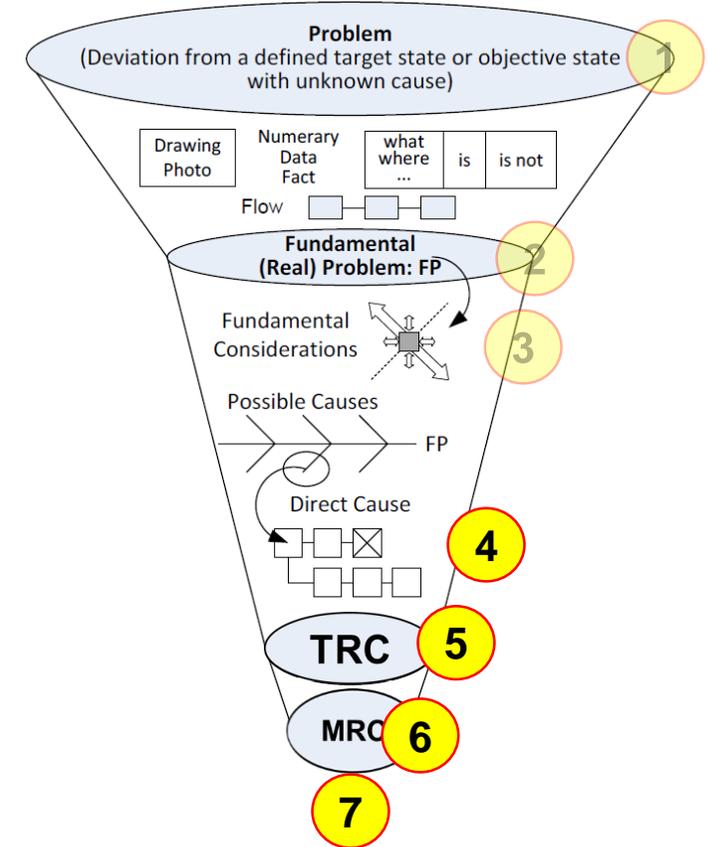
Possibility causes: too much stomach acid, too less stomach mucosa

- Blood test
- Gastroscopy



### 3. 8D practice: “stomach ache”

- 4 **DIRECT CAUSE:**  
I have too much stomach acid.  
*5 Why?*
- 5 **TECHNICAL ROOT CAUSE:**  
My body produces too much stomach acid through daily fast-food consumption.  
*5 Why?*
- 6 **MANAGERIAL ROOT CAUSE:**  
I have too much stress/too less time to prepare healthy meals.
  - *How can I prevent the recurrence of the stomach ache?*
- 7 **LESSONS LEARNED:**  
At the weekend, I will precook healthy meals for the week.  
I will search some restaurants that offer fast but less fatty food. During my holiday, I compile a collection of low-fat and fast recipes.



## 4. Links

	<b>Problem solving funnel</b> Bosch Booklet 16, page 7-8		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=8">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=8</a>
D2	<b>Facts collection, Is/is not</b> Example video		<a href="https://www.youtube.com/watch?v=CXYmYBrNwuc">https://www.youtube.com/watch?v=CXYmYBrNwuc</a>
	<b>Facts collection, Is/is not</b> Bosch Booklet 16, page 12-14		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=13">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=13</a>
	<b>Risk evaluation</b> Bosch Booklet 16, page 53		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=54">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=54</a>
D3	<b>Containment actions</b> Bosch Booklet 16, page 53		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=54">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=54</a>
	<b>Cause-effect-relationship and target-actual comparison</b> Bosch Booklet 16, page 25-26		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=26">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=26</a>
	<b>Problem solving funnel</b> Bosch Booklet 16, page 9-10		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=10">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=10</a>
D4	<b>Ishikawa</b> Bosch Booklet 16, page 14-15		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=15">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=15</a>
	<b>5 Why</b> Example video		<a href="https://www.youtube.com/watch?v=IETtnK7gzIE">https://www.youtube.com/watch?v=IETtnK7gzIE</a>
	<b>5 Why</b> Bosch Booklet 16, page 15-16		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=16">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=16</a>
	<b>Managerial Root Cause</b> Bosch Booklet 16, page 10-11		<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=11">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=11</a>

## 4. Links

<b>D5</b>	<b>Defining corrective actions</b> Bosch Booklet 16, page 54	 <a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=55">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=55</a>
<b>D6</b>	<b>Implementing corrective actions</b> Bosch Booklet 16, page 55	 <a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56</a>
<b>D7</b>	<b>Lessons Learned</b> Bosch Booklet 16, page 40-42	 <a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=41">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=41</a>
	<b>Preventive actions</b> Bosch Booklet 16, page 55	 <a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56</a>
<b>D8</b>	<b>Final meeting</b> Bosch Booklet 16, page 55	 <a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=56</a>
	<b>Evaluation sheet</b>	 <a href="https://media3.bsh-group.com/Documents/18207215_Appendix_3_Selfevaluation_ML.xlsx">https://media3.bsh-group.com/Documents/18207215_Appendix_3_Selfevaluation_ML.xlsx</a>
	<b>Key Questions</b>	 <a href="https://media3.bsh-group.com/Documents/16274489_Appendix_4_Key_Questions_D_Steps.pdf">https://media3.bsh-group.com/Documents/16274489_Appendix_4_Key_Questions_D_Steps.pdf</a>
	<b>Terms and definitions</b> Bosch Booklet 16, page 50-51	<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=51">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=51</a>
	<b>Hints for formulations using the method „5xWhy?“</b> Bosch Booklet 16, page 60	<a href="https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=60">https://media3.bsh-group.com/Documents/16274506_booklet-no16-problem-solving_EN.pdf#page=60</a>