8D Method Overview for Suppliers

Source: Bosch Booklet 16
V1.0

April 2021
1. Objective and principles for problem solving

2. Procedure of the 8D method
   D1: Establishing problem solving team/project
   D2: Problem description
   D3: Containment actions
   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. Example: Stomach ache
Objective and principles for problem solving

Objectives:

- Eliminating problems
- Preventing the recurrence

Principles for problem solving (mindset):

- Problems concern me personally – solving them is my task.
- As a manager I can't delegate my responsibility for solving problems.
- Solving problems is our opportunity for improvement.
- I am observing on-site and analyze the problem based on facts.
- I am describing the problem comprehensible for all involved persons.
- I understand the problem and how it occurs through investigation of the relevant cause and effect relationships.
- We develop a lasting solution by eliminating the real root cause – technically and systemically.
- We provide evidence of the problem solving effect and understand their consequences.
- We transfer improvements for other products/processes/divisions and establish them within our standards.
Procedure of the 8D method

**Defining responsibilities**

Execution of all 8 disciplines necessary using the 8D report template

D1 to D3 can be executed in parallel

BSH reaction rule: 2-14-60-90-Days*

Recurrences often helpful

D1: Problem solving team

D2: Problem description

D3: Containment actions

D4: Cause and effect analysis

D5: Defining corrective actions

D6: Implementing corrective actions

D7: Establishing preventive actions

D8: Final meeting

* The reaction rule defined in the supplier contract applies to faulty parts which are caused by suppliers.

The scope may vary depending on complexity of the topic.
D1: Establishing problem solving team/project

**Team leader**
- Nominated by the sponsor
- Sets up the 8D project team
- Cares for consistent application of the method
- Informs the sponsor and externals about the status of the problem solving

**Team members**
- Persons with adequate knowledge and abilities for problem solving
- Can also be representatives of external customers/suppliers

**Sponsor**
- Minimum head of department
- Sets up the 8D project team
- Requests regular reporting of the team
- Has to be involved in the determination of the MRCs
- Prioritization of the intern problem solving topics

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

**Result:** Problem solving team, if necessary project organization
D2: Problem description

**Procedure:**

- Situation description (**pictures**, diagrams,…)
- Facts collection, Is/Is not\(^1\) (statistical proof)
- Structuring, analysis, containment of the problem
- Explanation of the target status
- Include all affected areas/products
- **Comprehensible and detailed description**
- **Beginning of risk evaluation**\(^2\)
  - Estimation of the occurrence probability and the damage extent

**Result:** **Description of the fundamental problem**

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\(^1\)Facts collection, Is/is not

\(^2\)Risk evaluation Bosch Booklet 16, page 53
D3: Containment actions

Objectives: Containment of the effects and prevention of the recurrence at the customer

Procedure:

- Directly after a problem becomes known containment actions have to be defined;
  example given:
  - Lots on hold/sorting manufactured products
  - Incoming inspection for delivered products

- Update risk evaluation
  - Assessment of possible unrequested side effects before implementation of containment actions
  - Take all (potential) products into consideration

- Implementation of the containment actions

- Documentation of containment actions and their results

- Forwarding of the information to all (potential) affected areas

Result: Implemented containment actions incl. documentation and information to the customer
D4: Cause and effect analysis

Procedure:
- Putting myself into the object
- Describe and understand the target-function and actual-function and determination of deviations
- Derivation of possible causes
- Prioritize and check plausibility of possible causes

Methods:
- Cause-effect-relationship and target-actual comparison
- Cause and effect diagram (Ishikawa)

Result: Probable causes

The probable cause is not equal to the root cause.

1Cause-effect-relationship and target-actual comparison
Bosch Booklet 16, page 25-26
Problem solving funnel
Bosch Booklet 16, page 9-10
D4: Cause and effect analysis

Objective: **Check plausibility** and **eliminate** possible causes (with evidence)

**Procedure:**

- **Evaluating** possible causes according to:
  - Plausible and probable
  - Possible
  - Eliminated with evidence

Result: **Probable causes and decisions regarding further investigations**

Use Ishikawa to check the **completeness**, instead of apply it for brainstorming.

Ishikawa Bosch Booklet 16, page 14-15
D4: Cause and effect analysis

**Procedure:**
- **Proving** causal and functional **relations** (logic and function)
- **Closure** of the risk evaluation
  - The occurrence probability and the damage extent are determined

**Methods:**
- 5 Why?¹

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

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

¹5 Why Example video
¹5 Why Bosch Booklet 16, page 15-16

Result: **TRC and MRC of the occurrence and of non-detection**
D4: Cause and effect analysis

Why did our processes not identify the failure?

Why did our processes let the failure occur?

Managerial Root Cause

Why did our system/leadership not identify the failure?

Why did our system/leadership let the failure occur?

Result: TRC and MRC of the occurrence and of non-detection

Managerial Root Cause

Bosch Booklet 16, page 10-11
D4: Cause and effect analysis
Examples for MRCs

Managerial Root Cause

Occurrence

Our system/leadership let the failure occur because of the following MRCs:

MRC Main Cluster
- Development & Specification
- Work instruction & Standard Operation Sheet
- Technical Knowledge
- Checking & Testing
- FMEA

MRC Subcluster
- Specification incomplete (content missing)
- Specification missing (not done)
- Specification unsuitable
- Others

Non-Detection

Our system/leadership did not identify the failure because of the following MRCs:

MRC Main Cluster
- Checking & Testing
- Development & Specification
- Work instruction & Standard Operation Sheet
- FMEA
- Others

MRC Subcluster
- Inspection process (not defined)
- Test method (not defined)
- Test method unsuitable (ineffective/inaccurate/sample size)
- Others

Result: MRC Main Cluster and Subcluster
D5: Defining corrective actions and proving effectiveness

Procedure:

- **Definition** of potential corrective actions (TRC and MRC)
- Performing theoretical and/or practical examination of the measures, in order to **prove effectiveness** (and prevent with objective evidence unrequested secondary effects) + **documentation**
  - “Are the defined corrective actions the best long-term solution?”
- **Selecting corrective actions** to be implemented
- **Defining responsibilities for the implementation** of corrective actions and creation of a **time plan**

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.

**BSH reaction rule**

After 60 Days:
Detailed report with defined corrective actions

**Defining corrective actions**
Bosch Booklet 16, page 54

Result: **Corrective actions with effectiveness evidence**
D6: Implementing corrective actions and tracking effectiveness

Procedure:

✓ Implementation of the selected corrective actions (concerning TRC and MRC)

✓ Tracking of effectiveness of the implemented corrective actions and documentation of the results for TRC and MRC

   → Control the intern process and the customer process

✓ Removal of the containment actions after implementation and after proving effectiveness of the corrective actions

Result: Established and in the effectiveness confirmed corrective actions, removal of the containment actions from D3

Implementing corrective actions
Bosch Booklet 16, page 55
D7: Establishing preventive actions

**Procedure:**

- Review of other processes/products
- **Transfer lessons learned** to other processes, products, locations, …
  - “Are other customers possibly affected too?”
  - “Can we benefit from the expertise to prevent other potential problems?”
- Transmit gained **knowledge** (Lessons Learned\(^1\)) to avoid duplicated work
- It has to be assured, that the defined actions will be implemented (update of the documentation, e.g. FMEA, control plan)

\(^1\)Lessons Learned Bosch Booklet 16, page 40-42
Preventive actions Bosch Booklet 16, page 55

**Result:** Updated standards, exchange of experience (Lessons-Learned)
D8: Final meeting

Procedure:

- Assessment of 8D problem solving with project team using the evaluation sheet

- Critical evaluation of the implementation of the problem solving process
  - “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 the 8D report by the customer and the sponsor

Result: Evaluation of the steps D1 to D7 and conclusion of the problem solving with agreement of the involved persons
Example: 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
Example: 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.
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