

8D (EIGHT DISCIPLINES) PROBLEM-SOLVING METHODOLOGY.

Introduction

For their own continuous quality improvement (quality system requirements, QS-9000, 4.14.1) activities at all levels of engineering and manufacturing, in early 1990's Ford Motor Company introduced a standardized set of steps to be followed in solving problems by quality improvement teams within the company. These eight step process of problem solving is known as 8D (Eight disciplines)* and is by far the common disciplines used and accepted by most industries today. It is the basis for all subsequent problem solving technique developments such as 6D, 7D, 9D and 10D.

The 8D Problem Solving Process to identify, correct and eliminate the recurrence of quality problems. The 8D is a methodology for product and process improvement. It is structured into 8-disciplines, emphasizing team synergy.

The team as a whole is better and smarter than the quality sum of the individuals. Each discipline is supported by a checklist of assessment questions, such as “what is wrong with what, when, where and how much”

This program will present detailed discussions of the basic disciplines involved in problem solving for all situations. This course will provide the participants the information required to complete an 8D problem solving process for manufacturers. In this session, the participant will learn the 8D process and be ready to begin to use the discipline on actual problems in their own workplace. They will learn how to effectively use a team approach to problem solving. The disciplines prescribed offer the attendees a framework to utilize the experience and expertise in their own activity and implement permanent solutions to the problems encounter.

Objectives

At the conclusion of the program participants will be able to:

- Use structured problem solving and corrective action methodology based on the Ford 8D process model.
- Understand the importance of finding the root cause to effectively solve problems
- Understand waste and process control
- Utilise various statistical tools for problem solving
- Effectively implement these disciplines in their organization

Develop action plans to perform problem solving activities using the 8D methodology.

Course Content

1. The 8-D Methodology

The 8-D System

- Typical Investigation Time Line
- Analysis vs. Action
 - Analysis Steps
 - Action Steps

Process Tools

- Problem Solving
- Decision Making
- Planning and Problem Prevention
- Concerns Analysis

Statistical Tools

- Universe, Populations & Samples
- Interpreting Statistics
- Histogram
- Normal Distribution (Bell Curve)
- Standard Deviation
- Mean

2. D0 - Problem Identified

Process Flow

- Early Process Flow Diagram
- Where Was The Problem Discovered?
- Where Did The Problem Escape?
- Asking Why. How Far? Where Do I Look?
- Design Block Diagram Example
- Cause and Effects

Failure Modes In Measurement Systems

Process Variation

- Distributions From Variation
- Process Variation
- Causes of Variation
- Facts About Causes of Variation
- Special Causes of Variation
- Tampering - Process Variation
- Structural Variation

Problem vs. Symptom

When An 8-D Is Necessary

- Investigative Questions

3. D1 - Use Team Approach

Team Approach

- Model for Effective Teamwork:
- Structure
- Goals
- Roles
- Procedures
- Interpersonal Relationships
- Establishing A Team (Flow)

The Team - Basics

- What is a Team?
- Maintaining Focus
- Brainstorm

Brainstorming

- How To Brainstorm
- Individual vs. Group Brainstorming

Define Scope Of Team

- Natural Work Group vs. Team

Team Structure

- Size
- Support Needed
- Environment

Team Organization

- Cross-functional
- Decision Making Criteria / Model
- Roles In A Team
- Inputs To Team
- Team Goals
- Basic Team Rules
- Team Meeting Responsibility
- Team-to-Team Communication
- Successful Teams
- Team Check List

4. D2 - Describe The Problem

Describe the Problem

- Customer Complaints
- Operational Definition of the Problem
- Symptoms vs. Causes

Problem Solving

- Systematic approaches to problem solving:
- Problem analysis methodologies:
- In-Depth Analysis
- 5W - 2H Analysis
- Stratification Analysis

Describe the Problem

- Describe the Problem Flow
- Root Cause Analysis
- Investigative / Tracking Charts
- Is / Is Not Questions
- Timing Plan
- Basis for status reporting
- Describe the Problem Phases
 - Phase I
 - Phase II
- Describe the Problem Questions
 - Customer Terms / Symptoms
 - Use a Process Flow Chart!
 - Cause and Effects Diagram
- Describe The Problem Check List

5. D3 - Containment

Implement and Verify

- Interim (Containment) Actions
- Contain Symptom Flow
- Containment Actions Objective

Containment Actions

- Containment Actions Flow
- Verifying Containment Actions - Pilot Runs
- Monitor Results
- Containment Actions Verification Questions
- Contain Symptom Check List

6. D4 - Define Root Cause(s)

Define and Verify Root Cause(s)

- Two Root Causes
 - Initial Data Evaluation
 - Interpreting Control Charts
- Control Chart Analysis Reaction
- Hypothesis Generation
- Six Steps Of Investigation
- Identify Alternate Solutions
- Identify Potential Causes - Cause & Effects Diagram

Analyze Potential Causes

Validate Root Causes

- Potential Causes - Some Questions
- Analyze What Has Changed
- Data and Root Causes
- Product - Process Assumptions
- Process Failure Causes
- Process Control Examples
- The Poka-Yoke System

Process

- 5 Elements of Production
- Defining The 5 Elements
- 4 Process Phenomena's
- Separating Error From Defect
- Causes of Defects
- Levels of Defects

Inspection

- Inspection Philosophies
- 3 Methods of Inspection
- Judgment Inspection
- SPC Inspection
- Source & Sequential Inspection

Efficiency & Waste

- Production Efficiency & Waste
 - Melody
- Flow Production
 - Rhythm
- Tack Time (Level Production)
 - Harmony
- Standard Operation Man, Machine, Material, Method, Measurement

Types of Waste

- Stock Inefficiency
- Excess Stock Parts & Materials
- Transportation Inefficiencies
- Inefficient worker movement
- Inefficient results from looking for things
- Selection inefficient
- Defective production

Shingo's Method

Poka Yoke Devices, Systems & Inspection

- Control Systems
- Warning Systems
 - Floppy Disk Poke-Yokes Example
- Source Inspection (ZQC)
- Built into process
- Self Check Informative Inspections (SQC)
- Successive Check Informative Inspection (SQC)

Tools For Assessment

Organizing Systems for Zero Defects

7. D5 - Choose, Implement & Verify Corrective Actions

Choose, Implement & Verify Corrective Actions

- Run Pilot Tests
- Monitor Results
- Confirmation Questions
- Verification Questions
- Corrective Actions Check List

8. D6 - Implement Permanent Corrective Actions

Implement Permanent Corrective Actions

- Validation Evidence
- Corrective Action Questions
- Ongoing Controls - Questions
- Forecast Outcome
- Implement CA and Verify Over Time Check List

9. D7 - Prevent Recurrence

Prevent Recurrence

- Prevent Recurrence Flow
- Prevent Recurrence Questions
- Prevent System Problems Check List

10. D8 - Congratulate Your Team

Congratulate the Team

- Congratulate Your Team Flow
- Congratulate Your Team Objective & Questions
- Congratulate Your Team Check List

DURATION

Option 1:
8 Hours x 3 days

Option 2:
2 days with less practical exercise

Option 3:
1 day awareness and process flow

TARGET AUDIENCE

- Supervisors
- Line Leaders
- Engineers
- Production/ Process Team
- Quality Control/ Quality Assurance Staff

METHODOLOGY

- Seminar/ Lectures
- Group Exercises
- Group Discussion/ Presentation
- Action Plan

TRAINER'S BIODATA

The Trainer - A FAUZI A WAHAB



A Fauzi (www.ahmadfauzi.com) has worked in large multi national organisations as well local conglomerates over the last 23 years. He holds an MBA qualification from USM and a Bachelor's degree in Applied Science (Applied Chemistry) from Australia.

He has worked in various functional areas from Sales, Human Resources, Training & Development, Business Development as well as Operations and Accounts Management, in both local and multinational firms in the consumer goods, palm oil, electronics and contract manufacturing industry. He has contributed to many in-house programs like Performance Appraisal, Supervisory/ Executive Development Programs, Motivation, Communications, Time Management, Leadership and Quality Awareness for various levels of staff during his employment with these companies.

Participants from lower operative level to senior management and CEOs have enjoyed his style of learning, making use of the activities and citing relevant examples as an analogy to demonstrating the situation in the work.

His expertise spans the general areas of Supervisory/ Executive and Management Development programs in motivation, communication, leadership skills to more specific Project Management, Problem Solving skills, Corporate Management (Balanced ScoreCard), Good Manufacturing Practices (GMP) and awareness programs such as Positive Work Attitude and Cost/ Productivity/ Quality awareness.

Apart from the above, his client list covers some of the most well known names in the industry including Petronas Fertilizer, DNP Holdings, KUB Holdings, La Farge Cement, Singapore Air Terminal Services (SATS), MODENAS, ThunderPrint, Panasonic Electronic Devices (PEDMA), MINDEF and Southern Steel. Course participants have found his participative and interactive delivery and approach to instruction, very interesting and effective. This has been reflected in every end-of-course evaluation.

He began his training career as a part-time lecturer at UITM, Shah Alam. He also lectured in the Diploma in Management Program as well as the Certificate in Supervisory Skills and Certificate in Human Resource and Industrial Relations public programs jointly awarded by FMM and USM. He has also represented his Company to the National Level Productivity Convention and presentation. His wide ranged experience will help participants attain a deeper understanding of the subjects he delivers.