

Design for Six Sigma (DFSS)

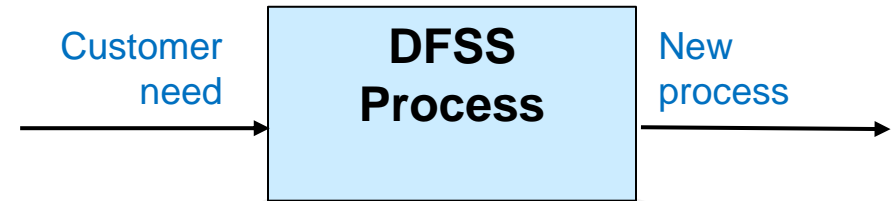
Problem

How to create a new process?

Difficulty

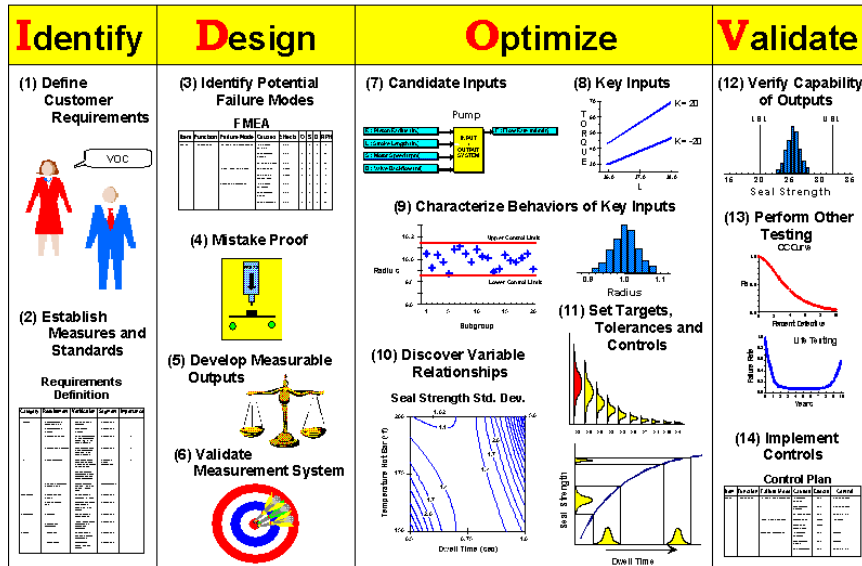
Work with an SME

- **Design for Six Sigma (DFSS)** is used for the complete re-design of a product or process.
 - Traditional Six Sigma improves a current process or product design.
- **DFSS** methodologies include: **DCCDI** (Define, Customer Concept, Design and Implement), **IDOV** (Identify, Design, Optimize, Validate), and **DMADV** (Define, Measure, Analyze, Design, Verify).



1. Select a DFSS methodology (e.g., IDOV)
2. Follow the steps of the selected methodology, using multiple six sigma tools for each step.

Design for Six Sigma - IDOV



Design for Six Sigma – DMADV

D – Define goals of design activity

M – Measure stakeholder metrics

A – Analyze the available options

D – Design the new product

V – Verify the design in the real world

Typical Tools Used

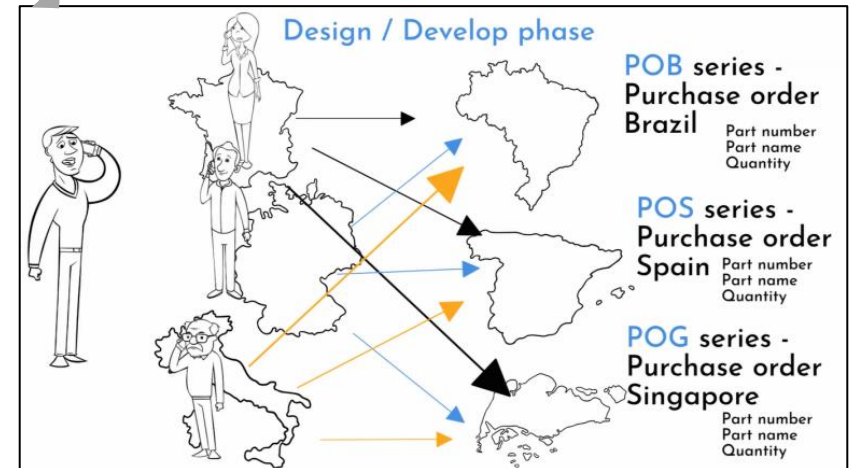
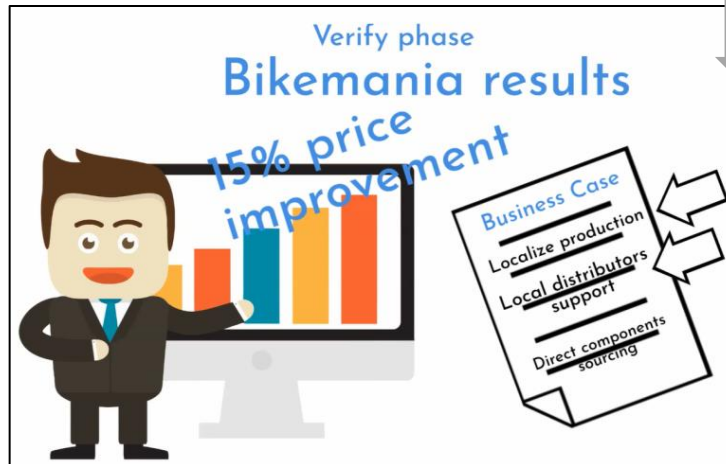
- AHP
- QFD
- SIPOC diagrams
- Surveys
- Value Stream Analysis
- QFD
- Statistical tools
- FMEA
- DFMA
- TRIZ
- Pilot tests
- SPC & control charts

<https://isowatch.wordpress.com/2018/10/23/six-sigma-is-draining-employees-creativity/>

DFSS – Example – Bicycle Manufacturer

Images from “How to do DMADV Process? Supply Chain Easy Example”
at <https://sixsigmamania.com/?p=338>

- **Step 0:** Select DMADV (Define, Measure, Analyze, Design, Verify) process
- **Step 1:** For “Define” step use multiple six sigma tools – see top right graphic
- **Step 2:** Perform “Measure” step
- **Step 3:** Perform “Analyze” step
- **Step 4:** For “Design” step use multiple six sigma tools – see bottom right graphic
- **Step 5:** For “Verify” step use multiple six sigma tools – see bottom left graphic



DFSS – Notes

Slide 1

1. There are many different DFSS methodologies; any one will work in most applications. One website (<https://www.scmdojo.com/design-six-sigma-methodologies/>) lists 11 different methodologies.
2. An SME can help select the most appropriate tools for each step of the methodology.

Slide 2

1. A complete DFSS example entails many tools for each step of the methodology. One way to summarize the results obtained from all the tools used at a single step is via a graphic.
2. For the example shown, more details can be found at the website listed.