

Design for Manufacturing

Definition:

Design for manufacturing is the philosophy of designing the collection of parts that will form a product so that they will cause the least disruption to manufacturing and assembly.

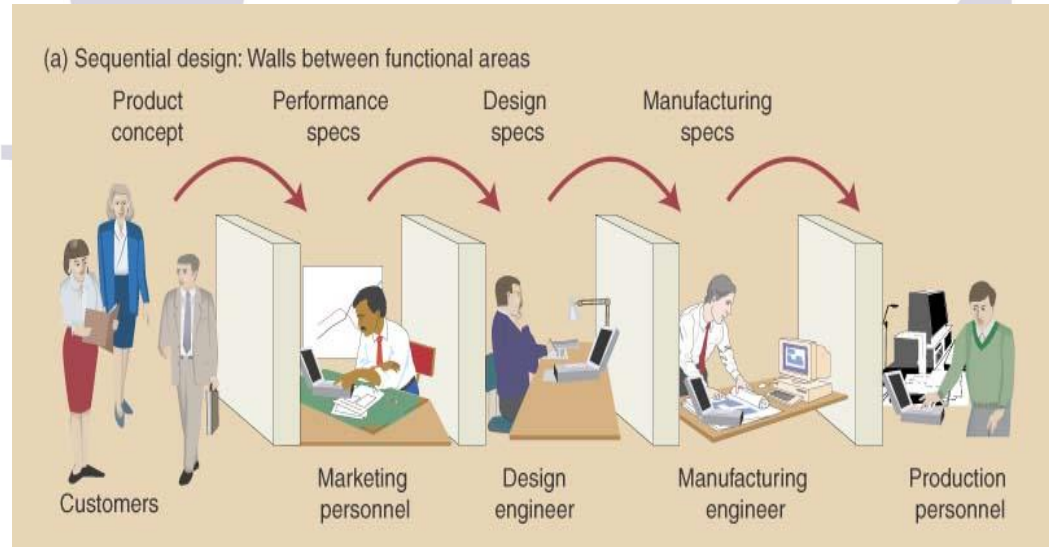
DFA is a tool used to select the most cost effective material and process to be used in the production in the early stages of product design.

‘Optimization of the manufacturing chain’

Concurrent Engineering

Old “over-the-wall” sequential product design process

Each function did its work and passed it to the next function.

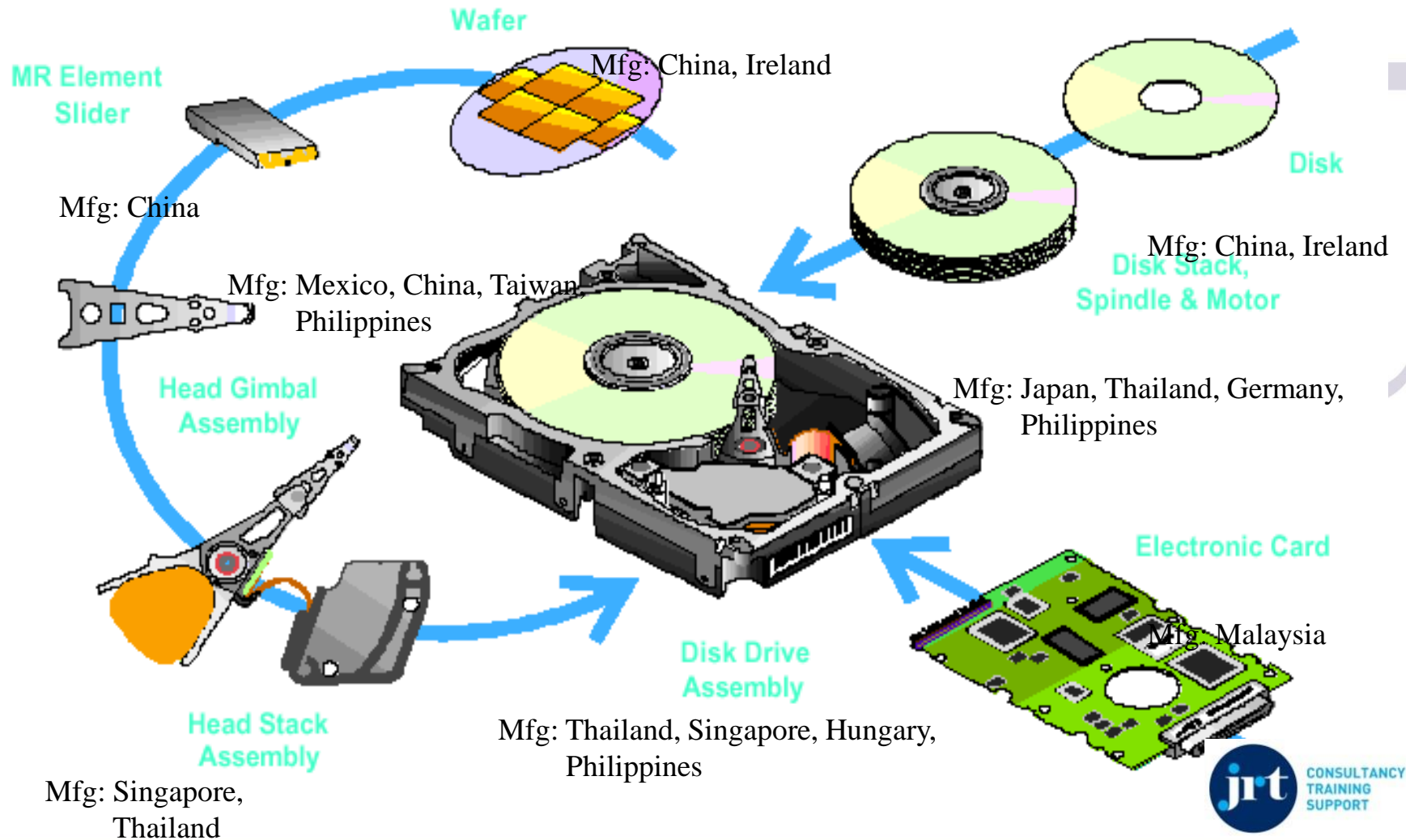


All functions form a design team that develops specifications, involves customers early, solves potential problems, reduces costs, & shortens time to market.

Improved Concurrent Engineering process

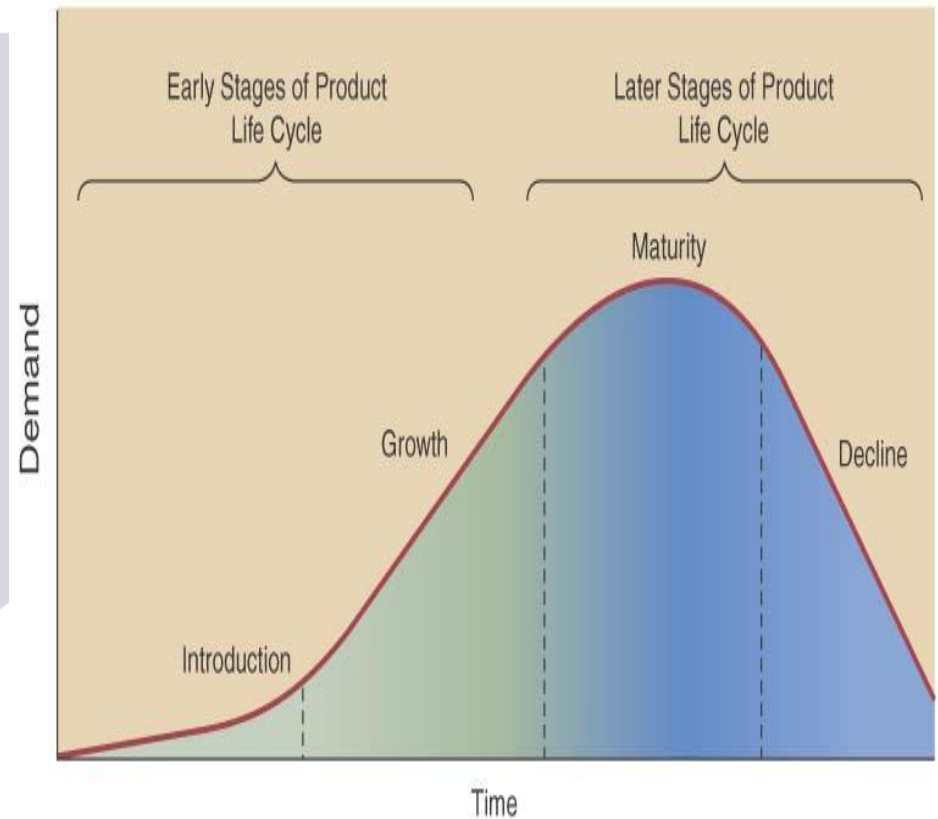


Complexity: Global Manufacturing

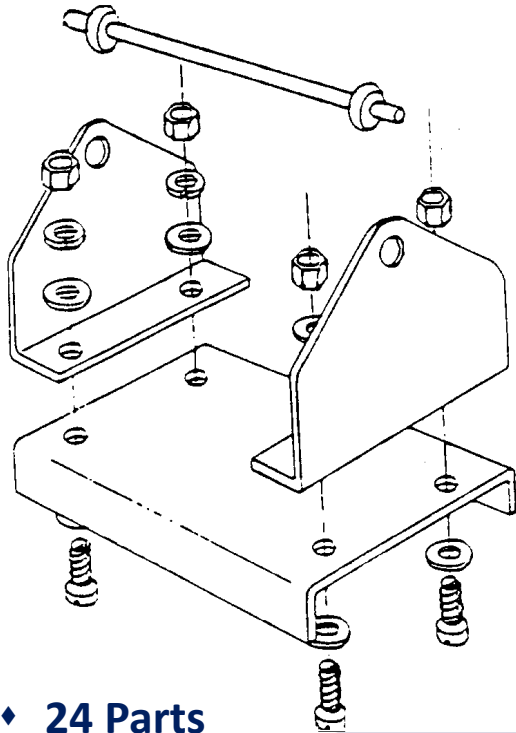


Product Life Cycle

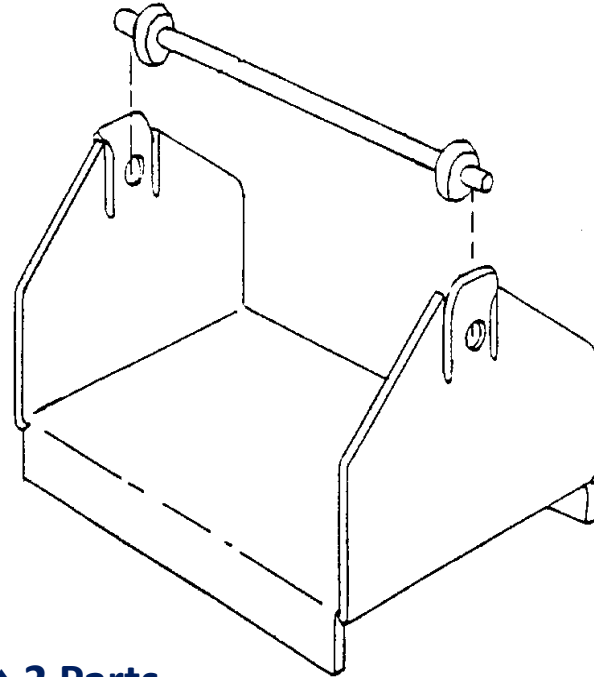
- Consider the product life cycle stages
 - Introduction
 - Growth
 - Maturity
 - Decline
- Facility & process investment depends on life cycle



Component Elimination



- ◆ 24 Parts
- ◆ 8 different parts
- ◆ multiple mfg. & assembly processes necessary

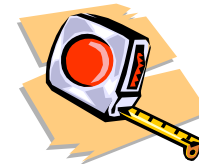


- ◆ 2 Parts
- ◆ 2 Manufacturing processes
- ◆ one assembly step

Simplify!

Elimination of Secondary Operations

- Welding, soldering, gluing.
- Painting, lubricating, applying liquid or gas.
- Testing, measuring, adjusting.



Reverse Engineering : take it apart and learn!

