ASQ CRE Prep course

Lesson III. A. 11.

Design for X (DFX)


Design considering nearly everything at once
DESIGN FOR X

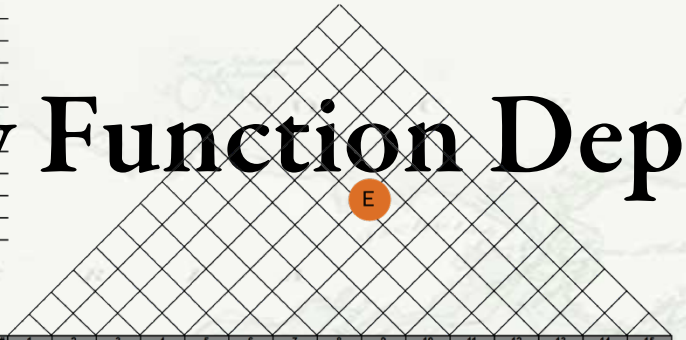
Title: _____

Author: _____

Date: _____

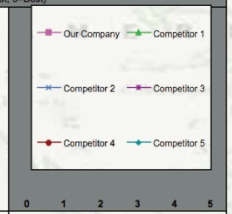
Notes: _____

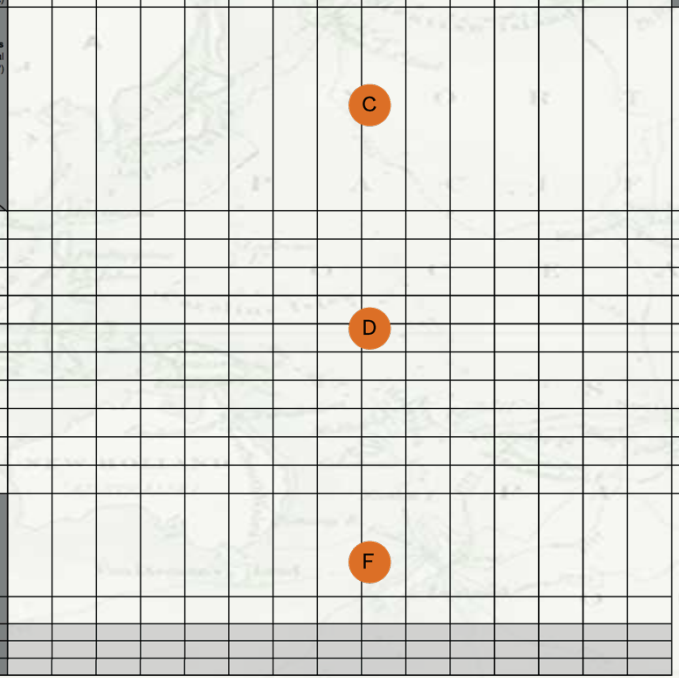
Quality Function Deployment



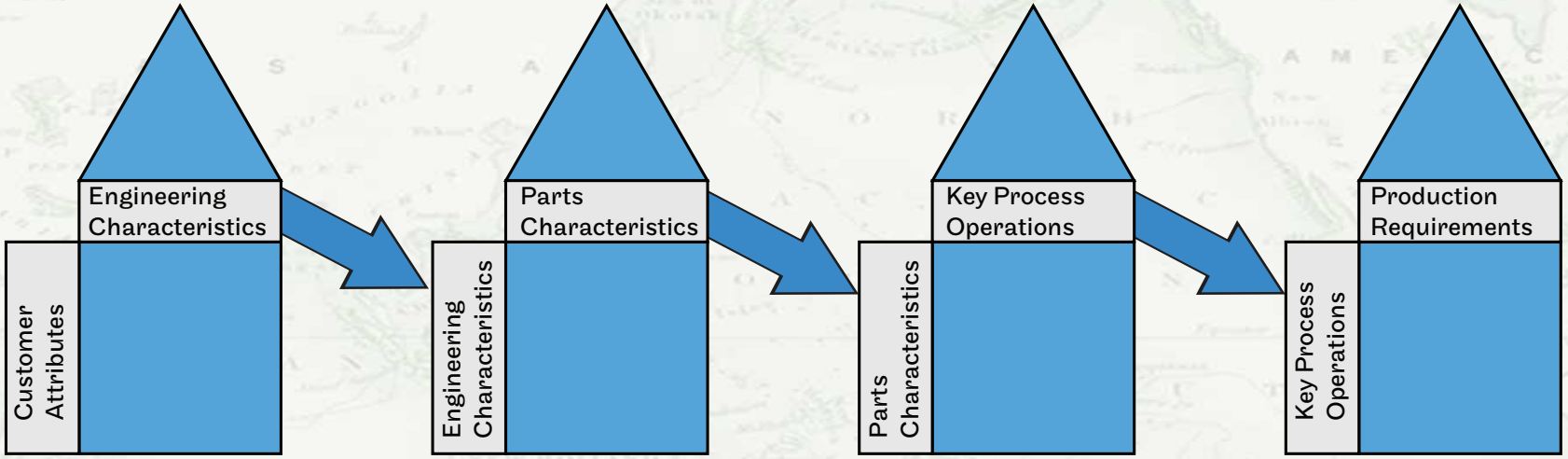
Legend	
Strong Relationship	9
Moderate Relationship	3
Weak Relationship	1
Strong Positive Correlation	
Positive Correlation	
Negative Correlation	
Strong Negative Correlation	
Objective Is To Minimize	
Objective Is To Maximize	
Objective Is To Hit Target	

Column #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Competitive Analysis (0=Worst, 5=Best)					
Direction of Improvement: Minimize (▼), Maximize (▲), or Target (x)																					
Row # / Quality Characteristics (a.k.a. "Functional Requirements" or "Hows") / Demanded Quality (a.k.a. "Customer Requirements" or "Whats")	Max Relationship Value in Row	Relative Weight	Weight / Importance														Our Company	Competitor 1	Competitor 2	Competitor 3	Competitor 4	Competitor 5
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
Target or Limit Value																						
Difficulty (0=Easy to Accomplish, 10=Extremely Difficult)																						
Max Relationship Value in Column																						
Weight / Importance																						
Relative Weight																						





QFD Approach



House of Quality

Parts Deployment

Process Planning

Production Planning

Hauser, 1988

DFX Tools & Techniques

Knowledge based approach to design product to achieve as many desirable characteristics as possible.

Design Guidelines

DFX analysis tools

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DFX Characteristics

- Function & performance
- Safety
- Quality
- Reliability
- Testability
- Manufacturability
- Assembly
- Serviceability
- Maintainability
- Ergonomics
- Aesthetics
- Packaging
- Features
- Time to Market
- Environment

Environmental Design Considerations

Minimum use of materials

Reusable elements

Recyclable

Bio-degradable materials

Can we address all the X's?

ASQ CRE Prep course

Lesson III. A. 12.

Reliability Apportionment (Allocation) Techniques