

Teamcenter® for systems engineering (TcSE) Design for Six Sigma (DFSS) Template

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Agenda

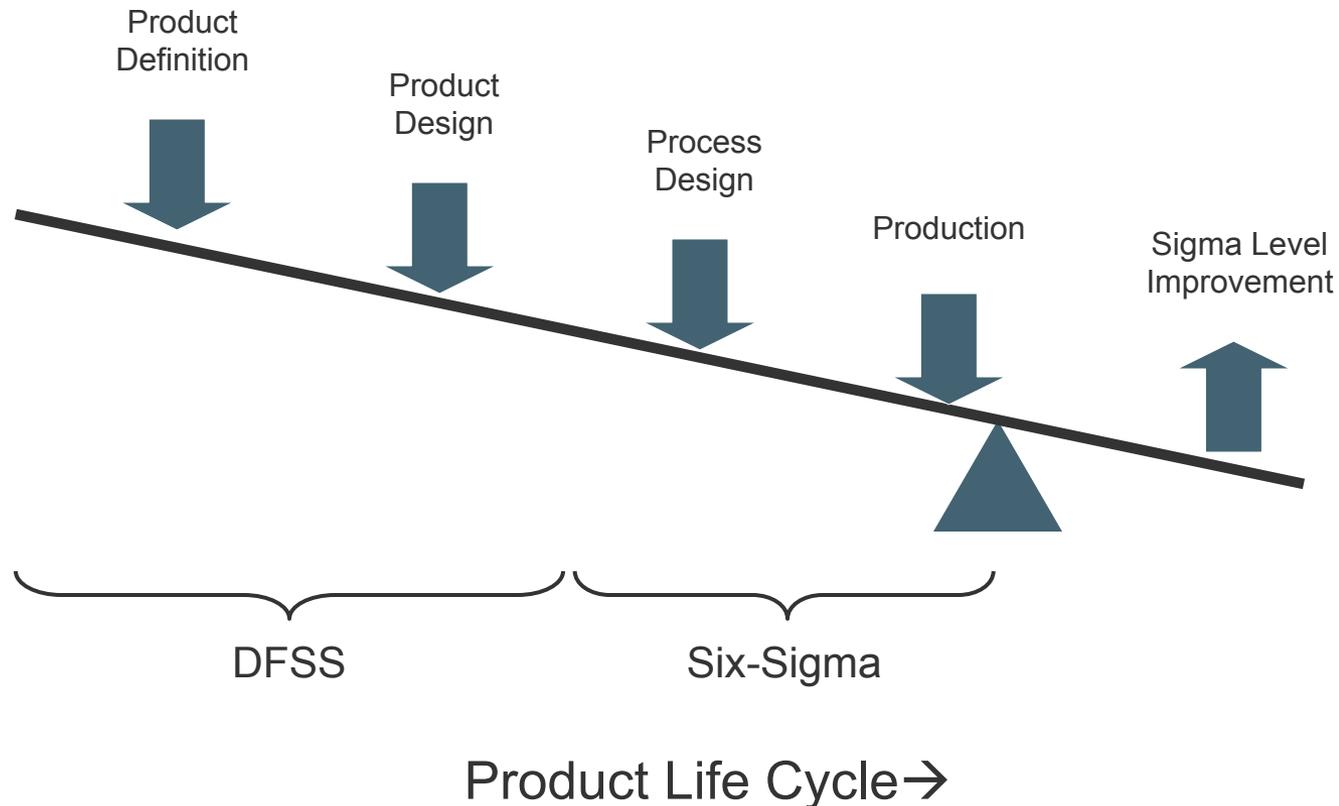
- DFSS and Systems Engineering (SE)
- Teamcenter[®] for systems engineering (TcSE) DFSS Template
 - Product Description
 - UGS and Statistical Design Institute (SDI) LLC Business Relationship
- TcSE DFSS Template Tour
- 5 ± 2 Summary

Design for Six Sigma

- Design for Six Sigma (DFSS) is a business process focused on improving profitability.
- DFSS has its roots in Systems Engineering
 - Perform systems engineering analysis with statistical methods to establish requirements and model them.
- DFSS enhances your product development process by changing it from a **reactive**, build-and-test mode to a **predictive**, balanced and optimized progression.

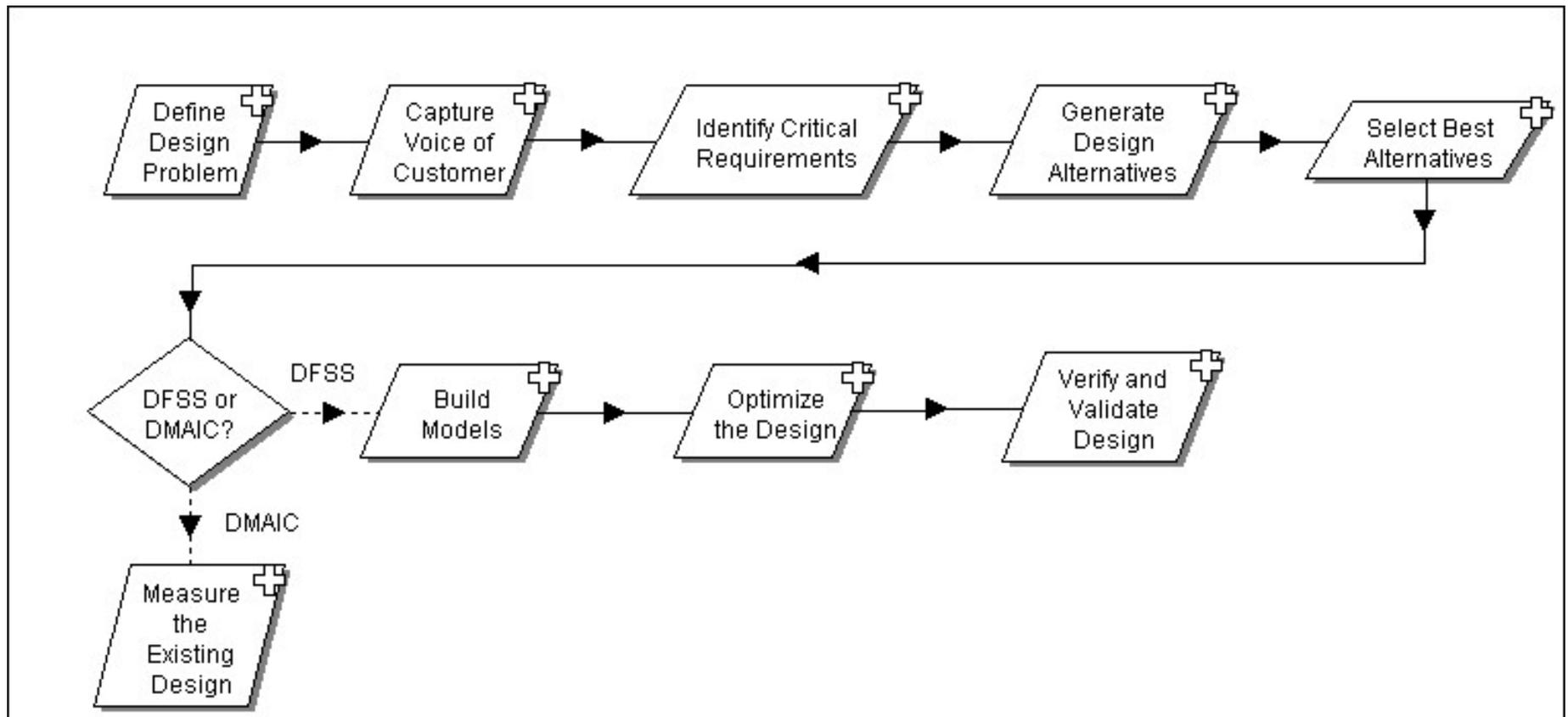
DFSS generates the right product (or service) at the right time at the right cost

DFSS is where the leverage is...



DFSS is aimed early in product development where the greatest leverage is at

DFSS Best Practice Model



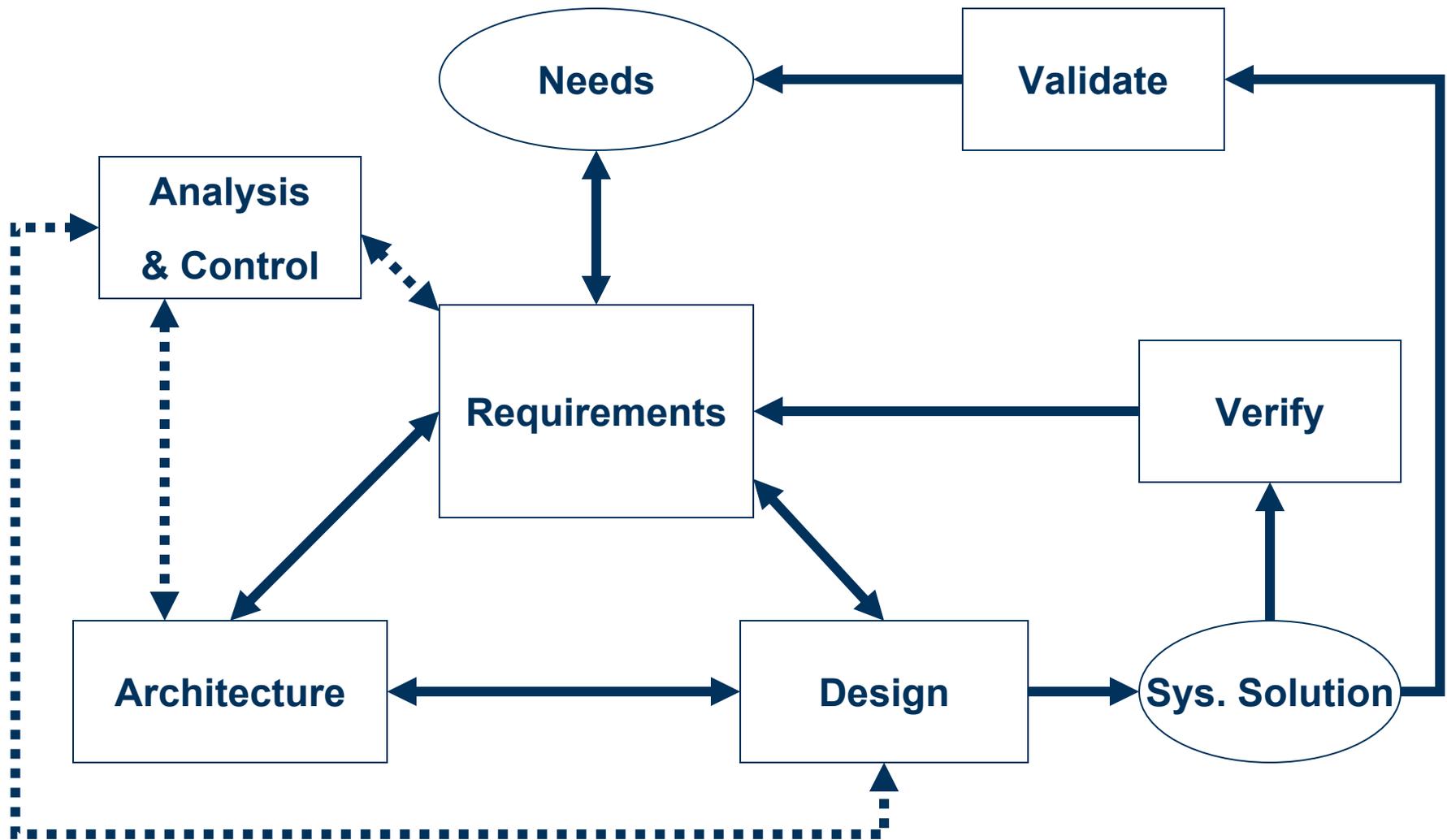
Systems Engineering

Is A PROCESS – Not An Organization

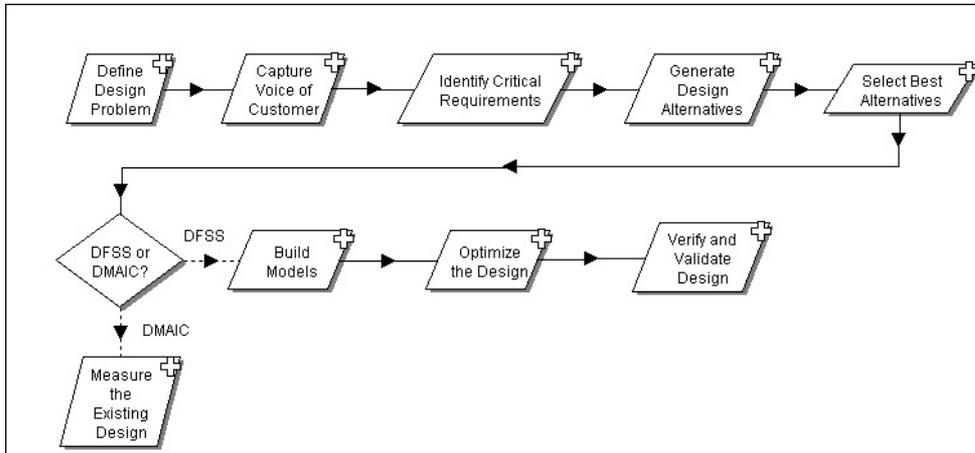
- Led By Systems Engineers
- Must Be Rigorously Applied
- The Technical “Glue” Which Makes Separate Design Disciplines And Subsystems Function Together To Provide An Integrated System Which Performs A Specific Job.

SE Is A Systematic, Interdisciplinary Approach That Transforms Customer Needs Into A Total System Solution

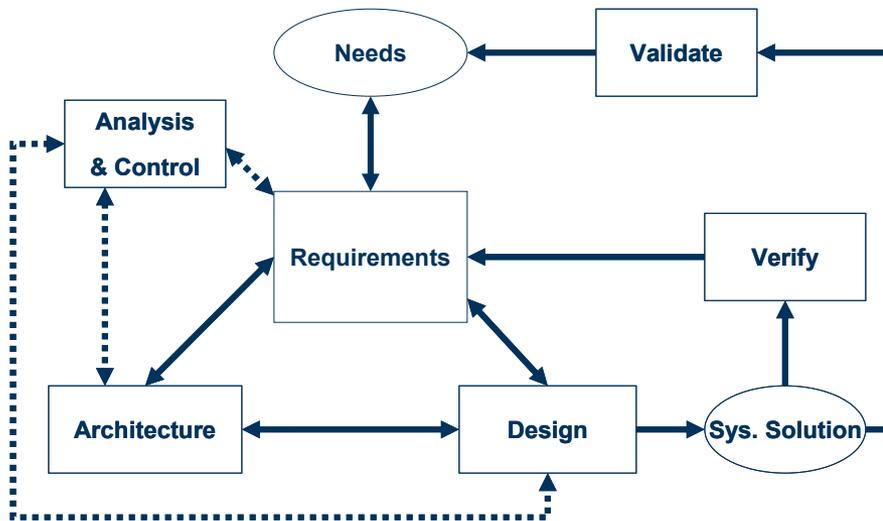
Simplified Systems Engineering (SE) Process Pattern



Comparing DFSS to SE Process

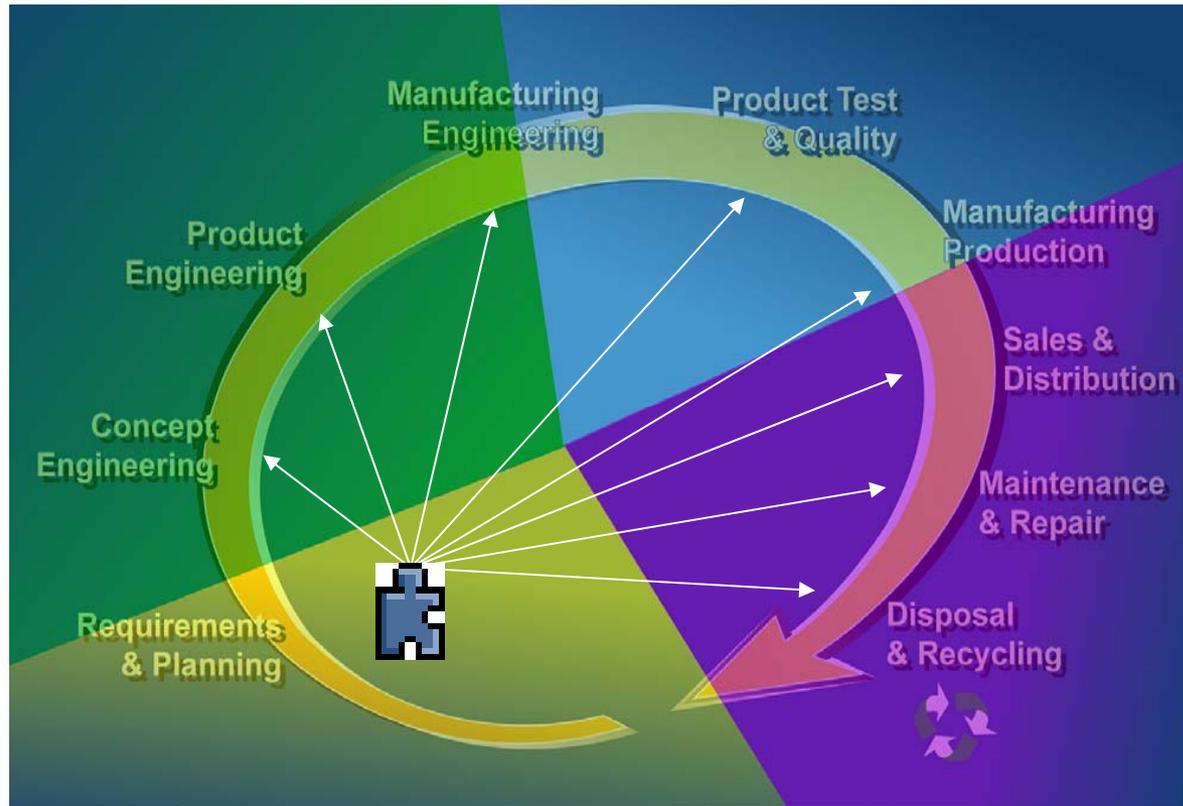


- Similar Process Steps
- Emphasize Cost Avoidance
- Center on Customer Needs & Requirements
- Support Model Based Design Approach
- Explore Design Space
- Trade-offs on Candidate Solutions
- Verify and Validate Solution



DFSS and SE process reinforce each other

DFSS Systems Engineering

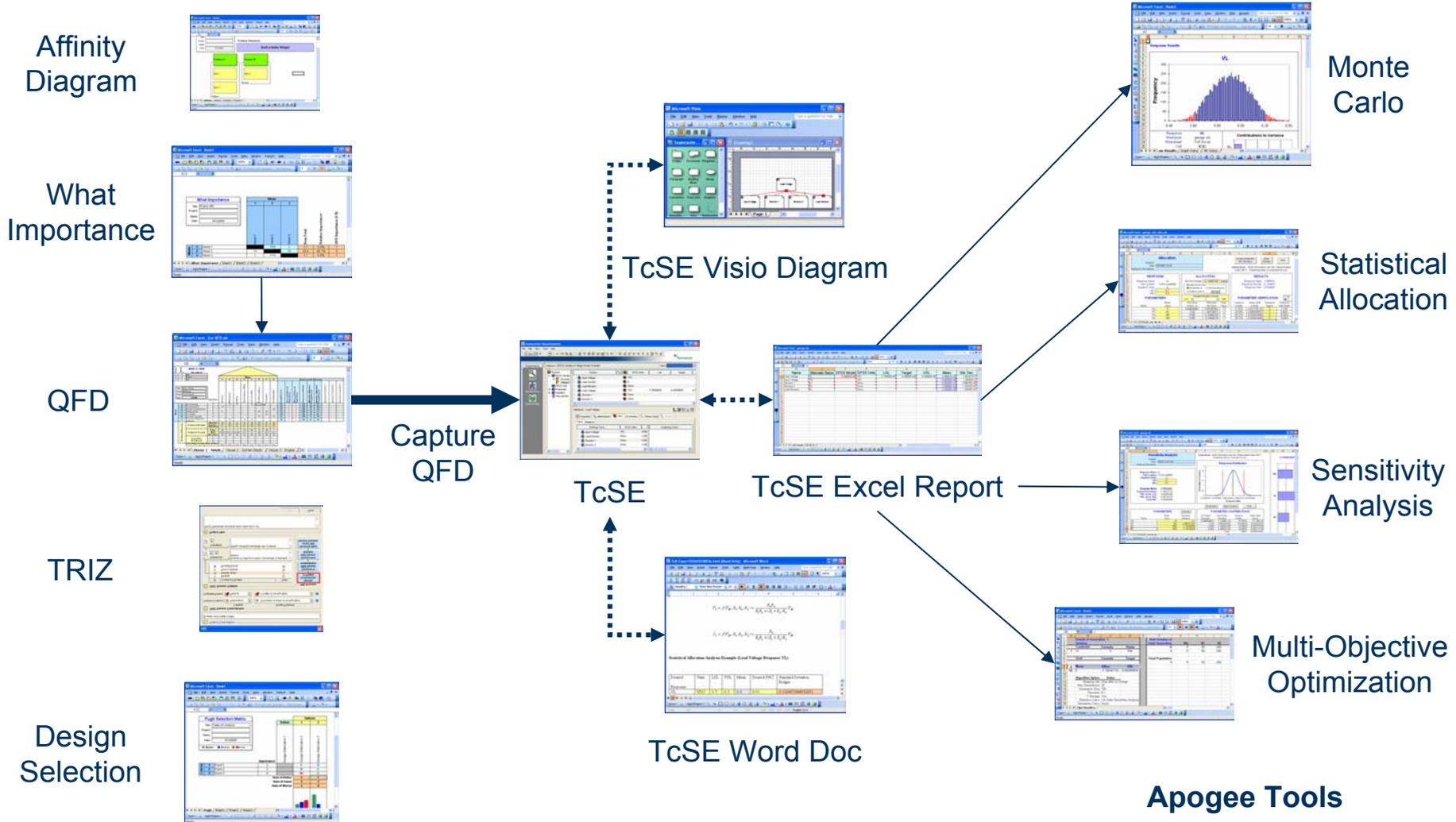


Capture the Voice of the Customer and then echo it throughout the Product Lifecycle to influence stakeholders to make the right decisions



Teamcenter[®] for systems engineering (TcSE) DFSS Template

TcSE DFSS Template System Diagram

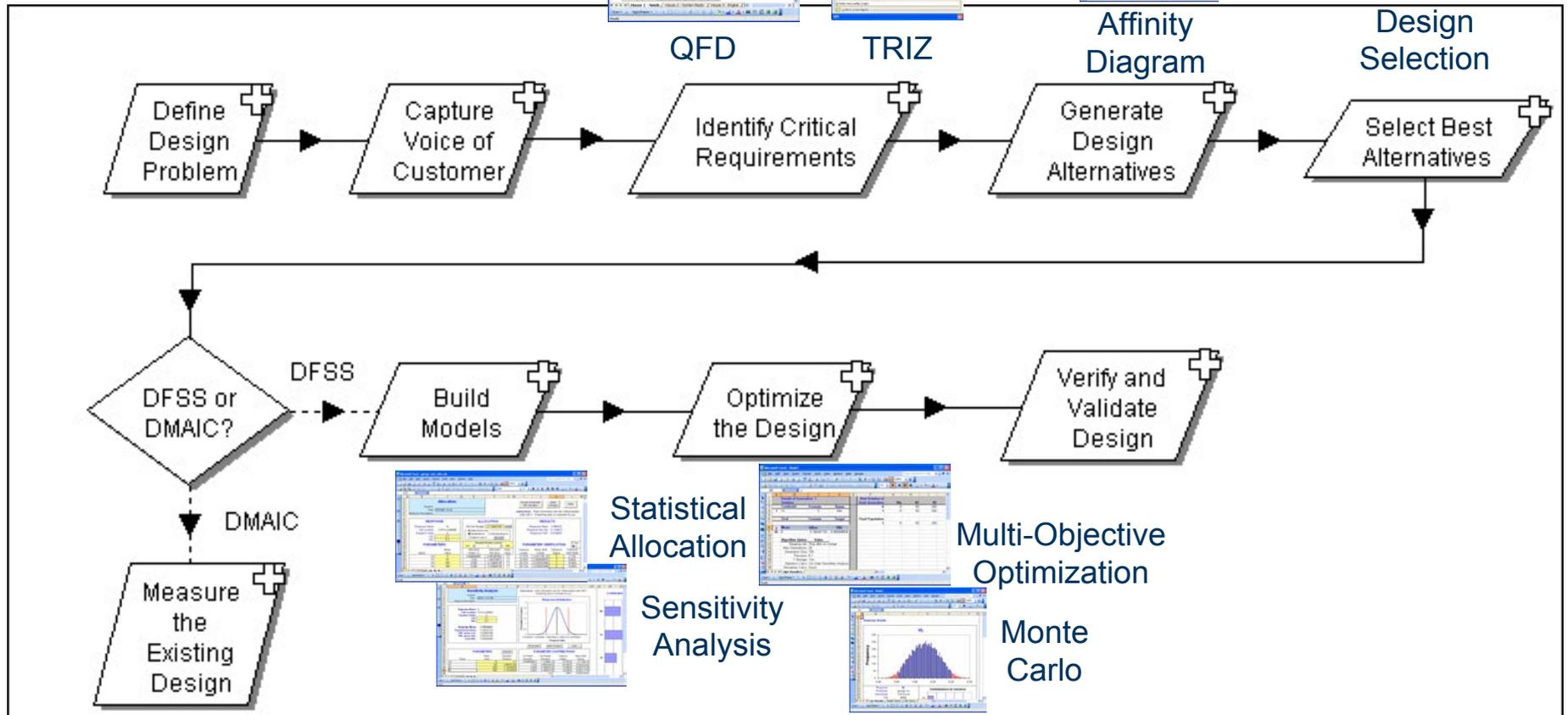


Triptych Tools

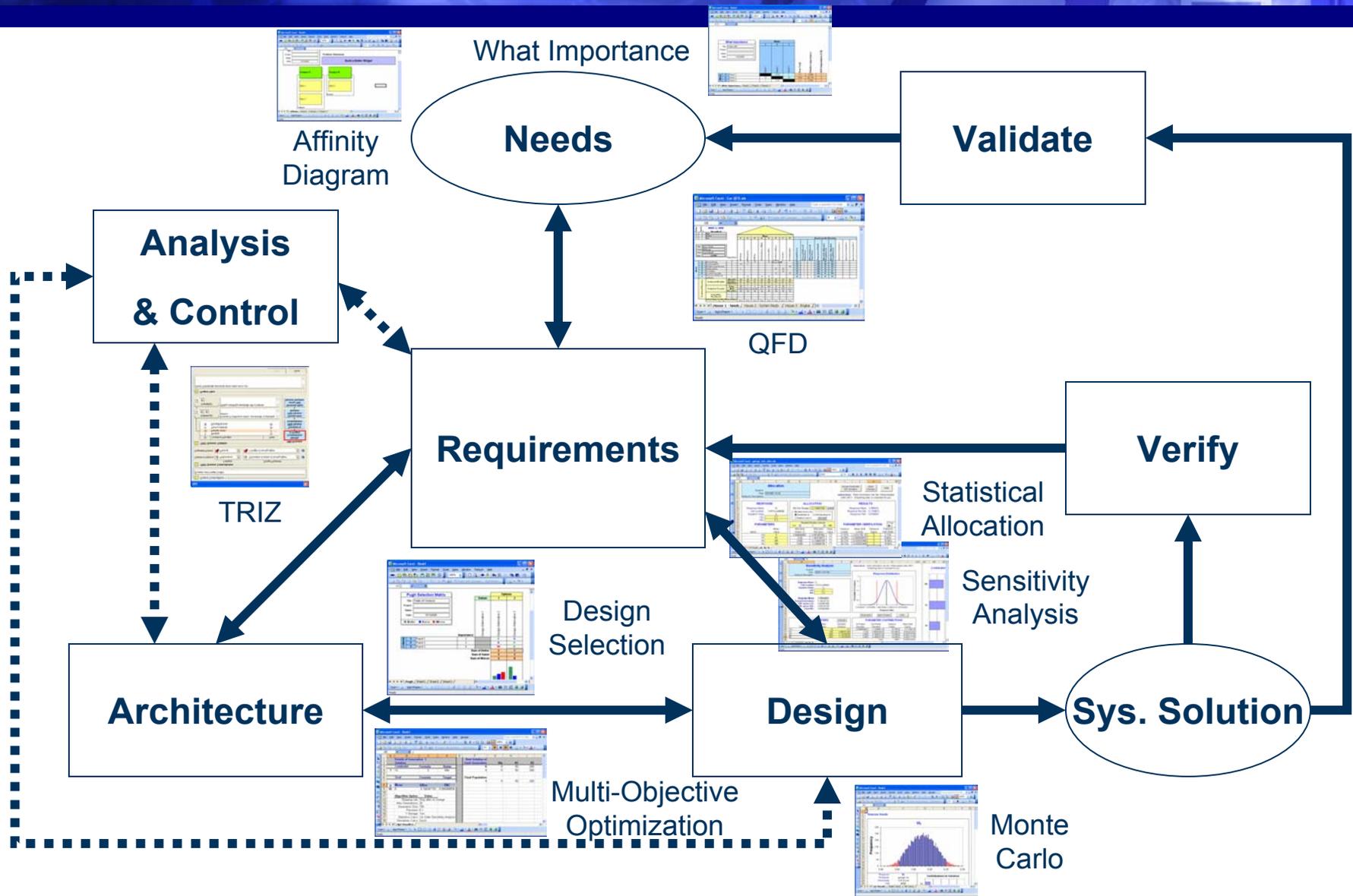
Apogee Tools

DFSS Best Practice Model with DFSS Enablers & Tools

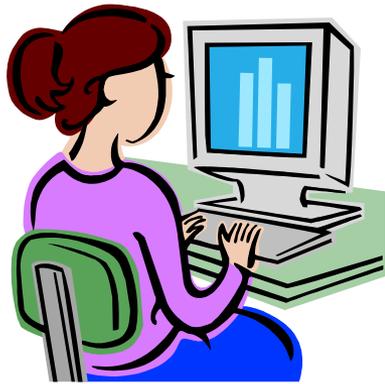
What Importance



Simplified Systems Engineering (SE) Process with DFSS Enablers & Tools



DFSS Template Installation



- Client Side

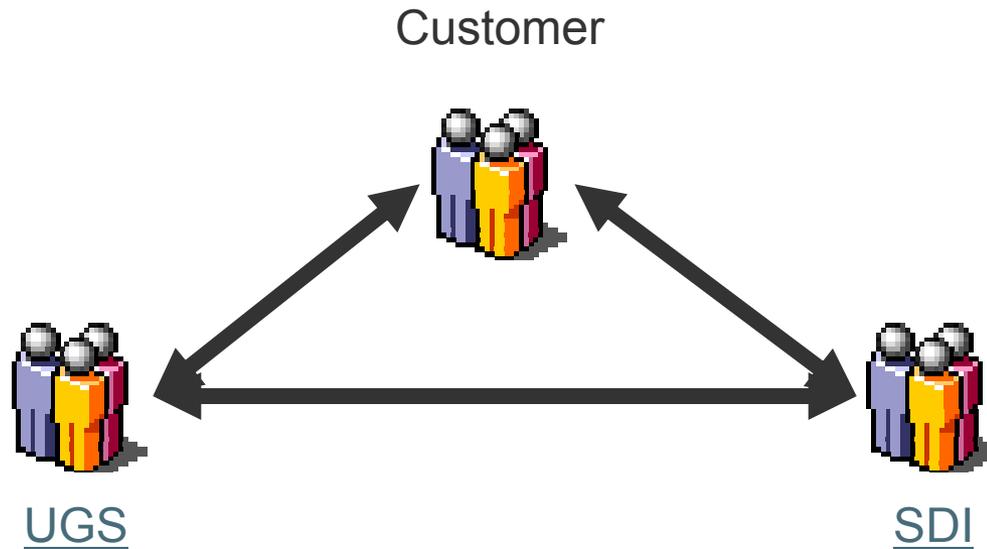
- TcSE 7.0 Client
- TcSE 7.0 OfficeLive I/F (XP, 2003)
- SDI Toolset (Triptych & Apogee)
- TcSE Excel DFSS Addin (XP, 2003)
- MS Office XP/2003 and Visio 2003

- Server Side

- TcSE 7.0 Server

} TCR207 Product P/N

UGS and Statistical Design Institute (SDI) Business Relationship



- Sell DFSS Template
- Provide Consulting Services

- Preferred Training Supplier for DFSS Template
- Provide DFSS Training and Consulting Services
- UGS Partner

Some DFSS Template Mental Notes

- SDI

- Provides primary authoring environment for the DFSS template
- Performs various DFSS analyses
- Conduct DFSS analysis activities independent of TcSE and capture results later

- UGS

- Captures DFSS analysis results using UGS Excel Addin with SDI Toolset
- Connects DFSS work products with other systems engineering activities
- Provides persistent storage for DFSS analysis work products



UGS

*Transforming the
process of innovation*

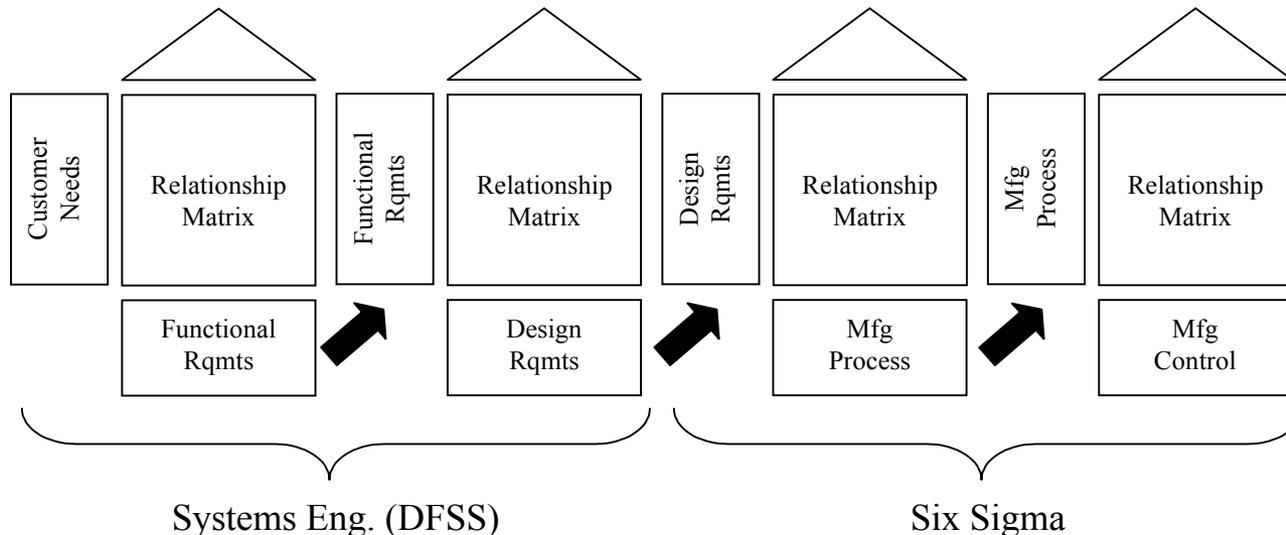
TcSE DFSS Template Tour

TcSE DFSS Template Demos

- Affinity Diagram
- What Importance
- Quality Function Deployment (QFD)
 - QFD Traceability Report

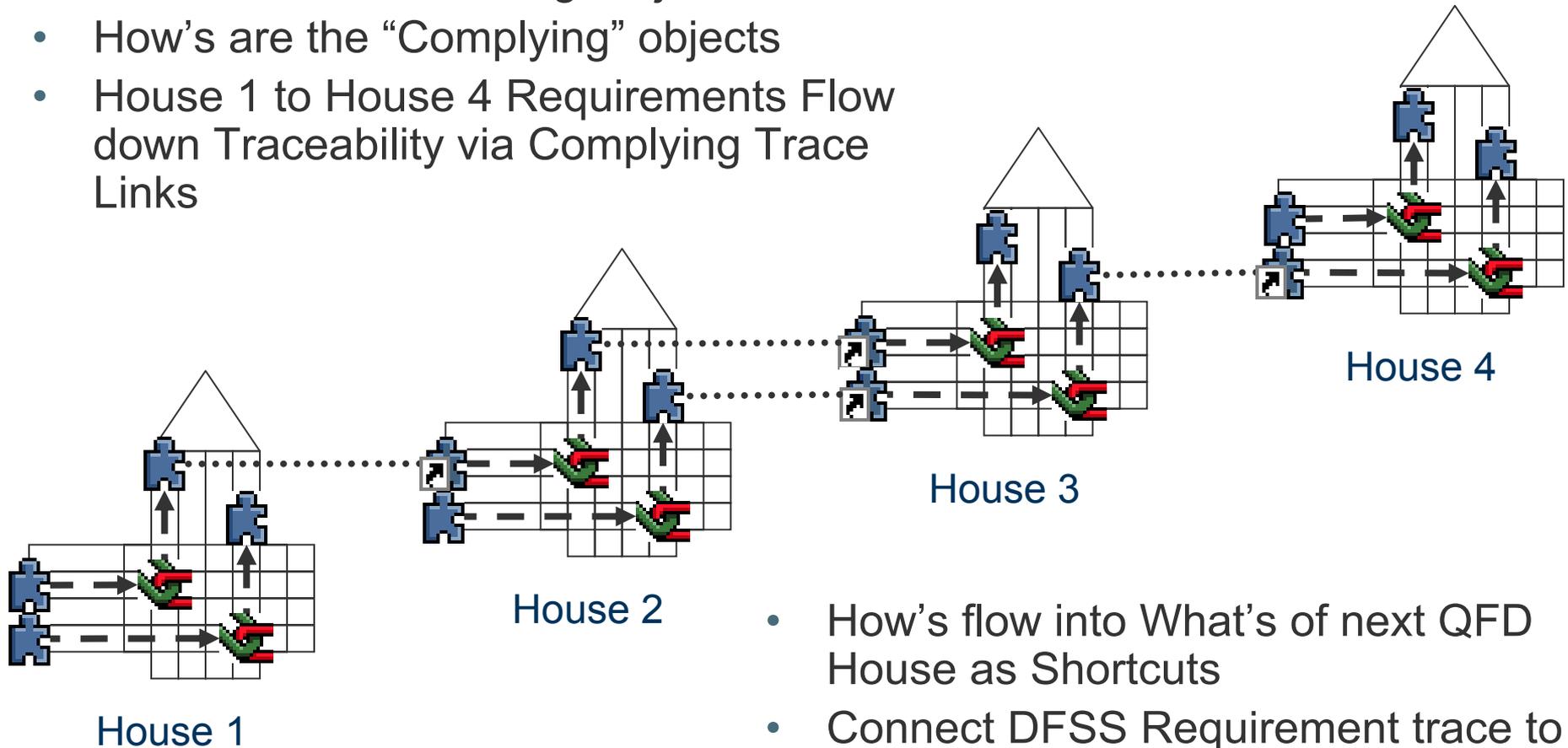
Capture Voice of the Customer

- Use Quality Function Deployment (QFD) “House of Quality” to capture the voice of the customer (VOC).
- Translate customer needs in qualitative terms (horizontal axis) into quantitative technical requirements (vertical axis)
- Iterative QFD process through phase rotations



Capture QFD with TcSE Representation

- What's are the "Defining" objects
- How's are the "Complying" objects
- House 1 to House 4 Requirements Flow down Traceability via Complying Trace Links



- How's flow into What's of next QFD House as Shortcuts
- Connect DFSS Requirement trace to other TcSE traces and maintains trace flow consistency

5 + 2 Summary

- DFSS and Systems Engineering creates synergy in developing systems...that is their combined effect is greater than the sum of their individual effects.
- UGS and SDI have come together to bring their talents together to realize this capability for the system product lifecycle.
 - Capture and echo the voice of the customer
 - Connect requirements to influence stakeholders, so they can make the right decisions
 - “Do it right upfront” and avoid costs downstream, so you deliver robust/repeatable products that customers want to buy...more profit for your company.
 - Capture knowledge for re-use

References

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- Chollar, George and Peplinski, Jesse and Cheek, Tom, Statistical Design Institute DFSS Training.
- Chowdhury, Subir, *Design for Six Sigma: the revolutionary process for achieving extraordinary profits*. Dearborn Trade Publishing, Chicago, 2002.
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Thank You