



# DFSS for Product Design (IDOVT) & Transactional Processes (DMADVT)

# DFSS Methodologies

Unlike the DMAICT methodology, the phases of DFSS have not been standardised since different organisations will define the phases and their outcomes to suit their needs.

The Six Sigma Group can work with you to build a DFSS strategy to meet your needs, whether you are using software simulation models or physical hardware to develop your designs.

The following pages illustrate the phases of two of the more common approaches to DFSS; IDOVT and DMADV.

(It is less common to see a 'T' (Transfer) phase in the literature, but we strongly believe that benefits of DFSS are greatly enhanced by re-use of information generated during a DFSS project in a formalised fashion.)

# DFSS for Products : IDOVT

- Identify** Identification and interpretation of the customers' requirements (Critical To Quality)
- Design** Generation and selection of appropriate concept designs to meet customer requirements.
- Optimise** Optimisation of design to achieve required performance and make it insensitive (Robust) to variation
- Validate** Validation of design solution to ensure the “ilities” – reliability, producibility, maintainability etc.
- Transfer** Transfer learning to future product designs



# DFSS for Processes : DMADV

- Define** Define the project and process to be designed.
- Measure** Measure customer requirements.
- Analyse** Analyse potential designs for robustness and ability to satisfy customer requirements.
- Design** Generate detailed design for chosen concept.
- Verify** Validate that process meets requirements.
- Transfer** Transfer learning to future process designs.



I	D	O	V	T
Identify Customer Requirements	Design Concept	Optimise The Design	Validate Design Performance	Transfer Knowledge Gained
Identify Customer CTQs	Generate Alternative Concepts	Develop Detailed Design Requirements	Confirm build matches predictions	Assess data for organisational learning
Obtain Competitive Benchmarks	Evaluate and Select Concepts	Generate Detailed Design Solutions	Undertake reliability growth	Update mfg capability databases
Agree Reliability Targets	Assure Solution meets Functionality	Assure Detailed Design meets CTQs	Validate manufacturing control plan	Transfer Review
Identify and Scope DFSS Projects	Define Sub-contractor requirements	Identify Trade-offs and conduct studies	Update Scorecards	Close the Project
Identify Functions	Build Scorecards	Develop Transfer Functions	Validate Review	
Assure functionality meets CTQs	Develop Transfer Functions	Predict detailed Design Performance		
Sensitivity and Risk Analysis	Identify Simulations and validation	Build and Test Prototypes		
Identify Review	Revise Concept	Update Scorecards		
	Risk Analysis	Risk Analysis		
	Design Review	Optimise Review		

D	M	A	D	V	T
Define The Project	Measure Customer Requirements	Analyse Design Concepts	Design	Verify Design Performance	Transfer Knowledge Gained
Define scope of Project	Identify Customer	Identify Functions	Develop Detailed Design Requirements	Conduct Pilot	Collect Project Data
Establish Project Goals	Assess Existing Data	Assure Functionality meets CTQs	Generate Detailed Design Solutions	Evaluate and Analyse Pilot Results	Assess data for Organisational Learning
Develop Project Plan	Determine VoC Strategy	Generate Alternative Concepts	Assure Detailed Design meets CTQs	Update Design	Transfer Review
Develop Organisational Change Plan	Collect Customer Data	Evaluate and select Concepts	Develop Transfer Functions	Implement the Design	Close the Project
Risk Analysis	Identify CTQs	Develop Transfer Functions	Predict Detailed Design Performance	Verify Performance	
Define Review	Prioritise CTQs	Predict Concept Performance	Determine Verification Activities	Verify Review	
	Risk Analysis	Revise Concept	Develop Process Management Plans		
	Measure Review	Risk Analysis	Plan for Pilot		
		Analyse Review	Risk Analysis		
			Design Review		