



# Position Statement

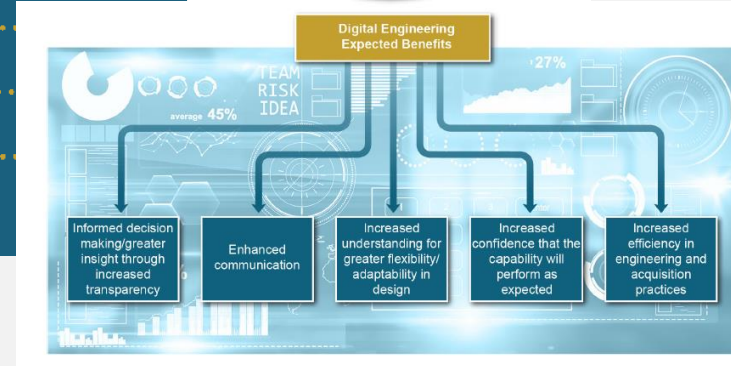
## Patterns In the Public Square: Sharing Model Patterns to Optimize Innovation

Dr. John F. Matlik, Chief of Manufacture & Service Systems  
19 October 2018



# Digital - A Customer Requirement

## The Dawn of Digital Engineering

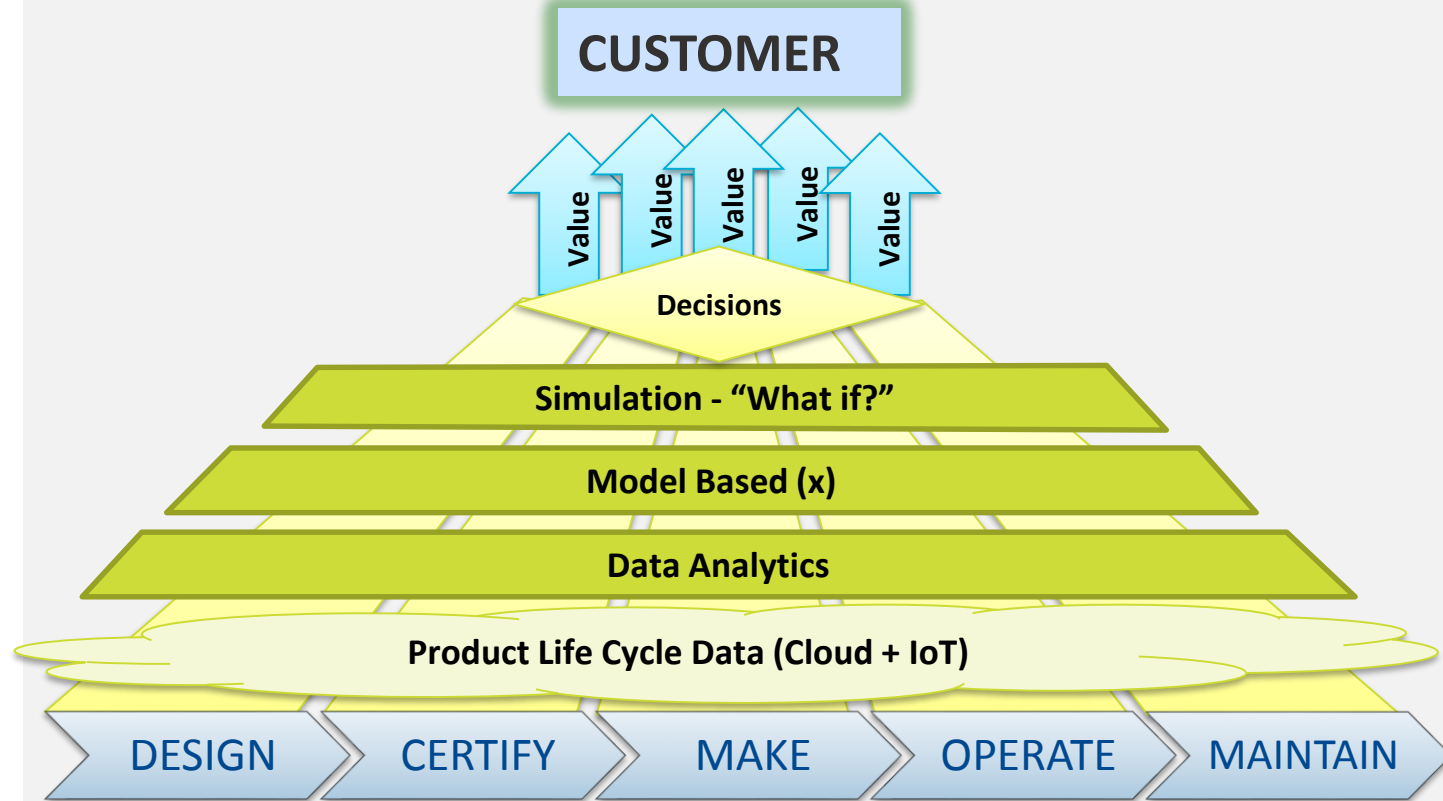


“... a way to achieve greater performance & affordability”



# Focus on value ... not capability

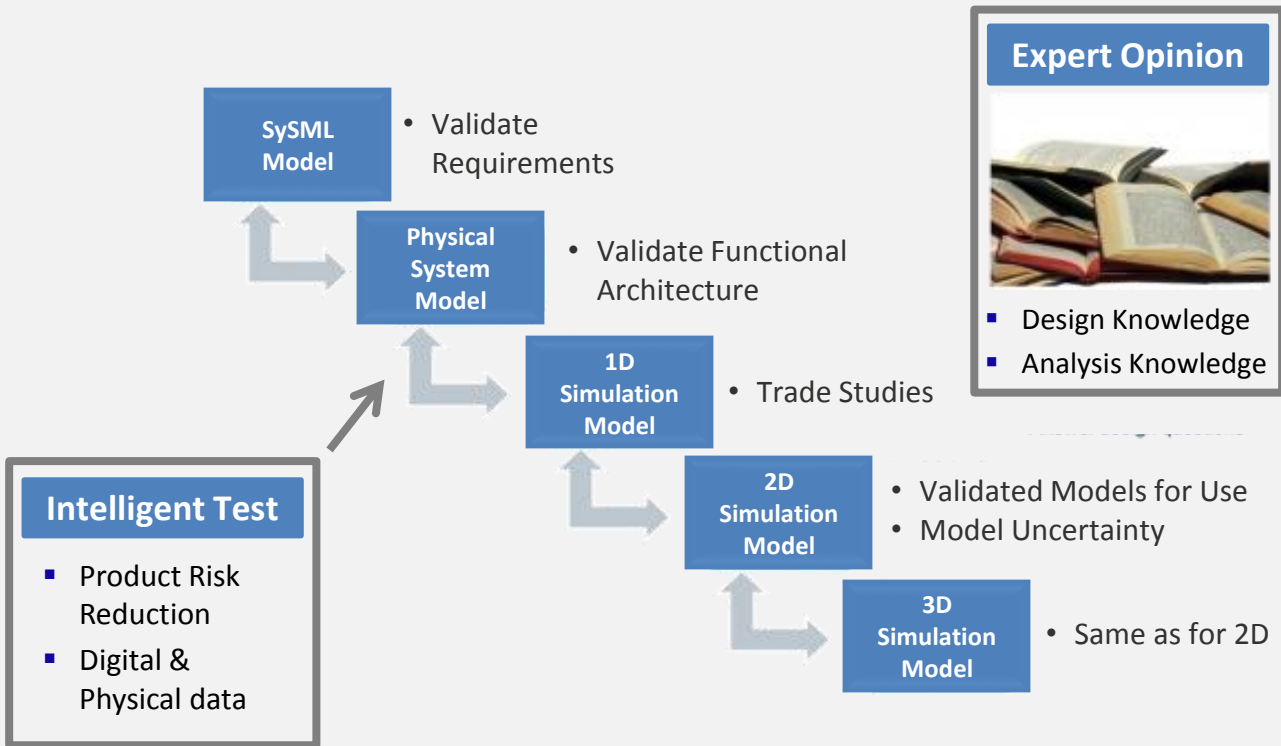
Customers value ability to make good decisions through digital integration



# Model Verification, Validation & Uncertainty Quantification (VVUQ)

*“No model is right, some models are useful”*

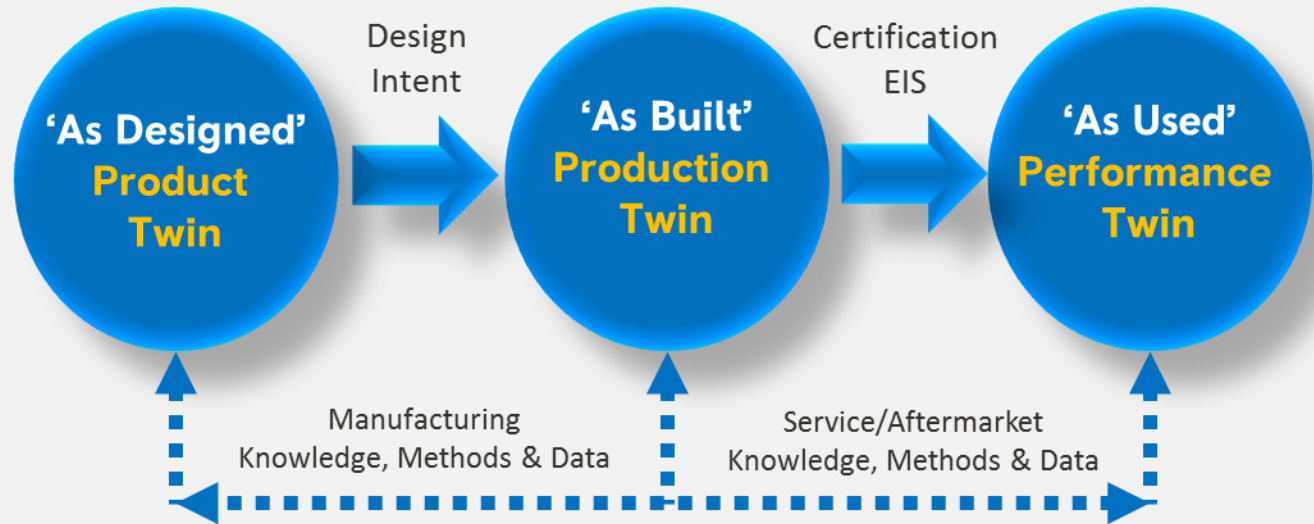
Know how much to trust the model ...





# Full lifecycle application of Digital Engineering avoids late defects...

Full realization of value requires a life cycle view ... systems, not silos





# Digital Engineering enables rapid platform integration

Model-based engineering and collaboration are re-inventing the way new product systems and services are developed



System Integration



Platform Integration



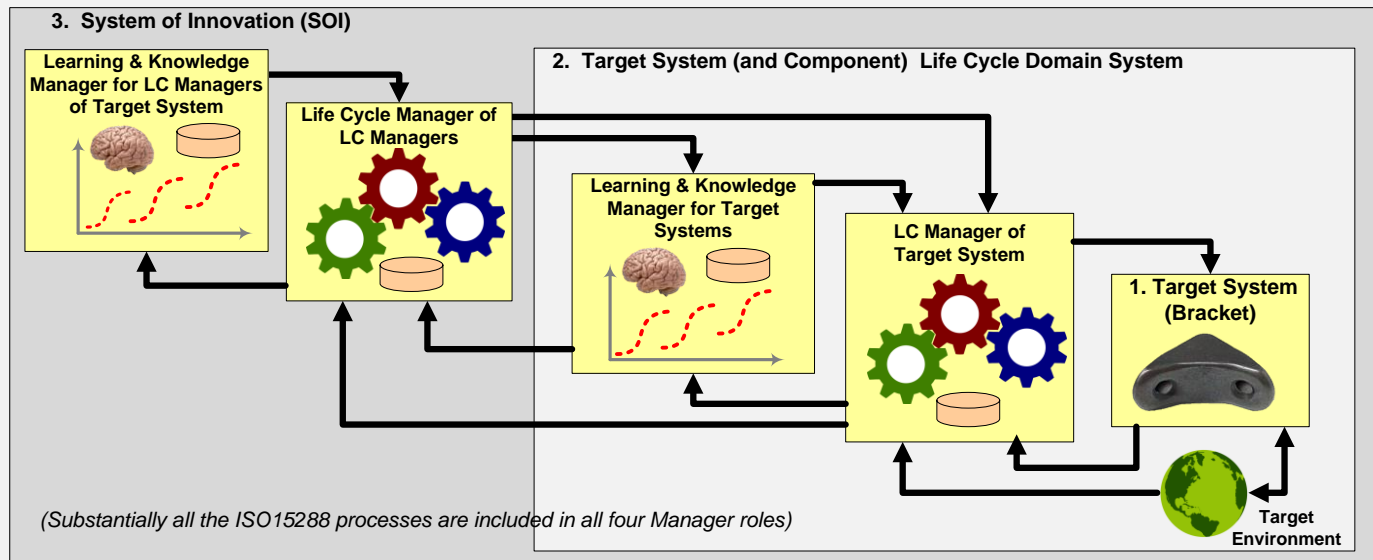
Intelligent Engine



Engine Installation

# The importance of understanding your system of interest ...

Holistic view required to facilitate system integration through context and understanding



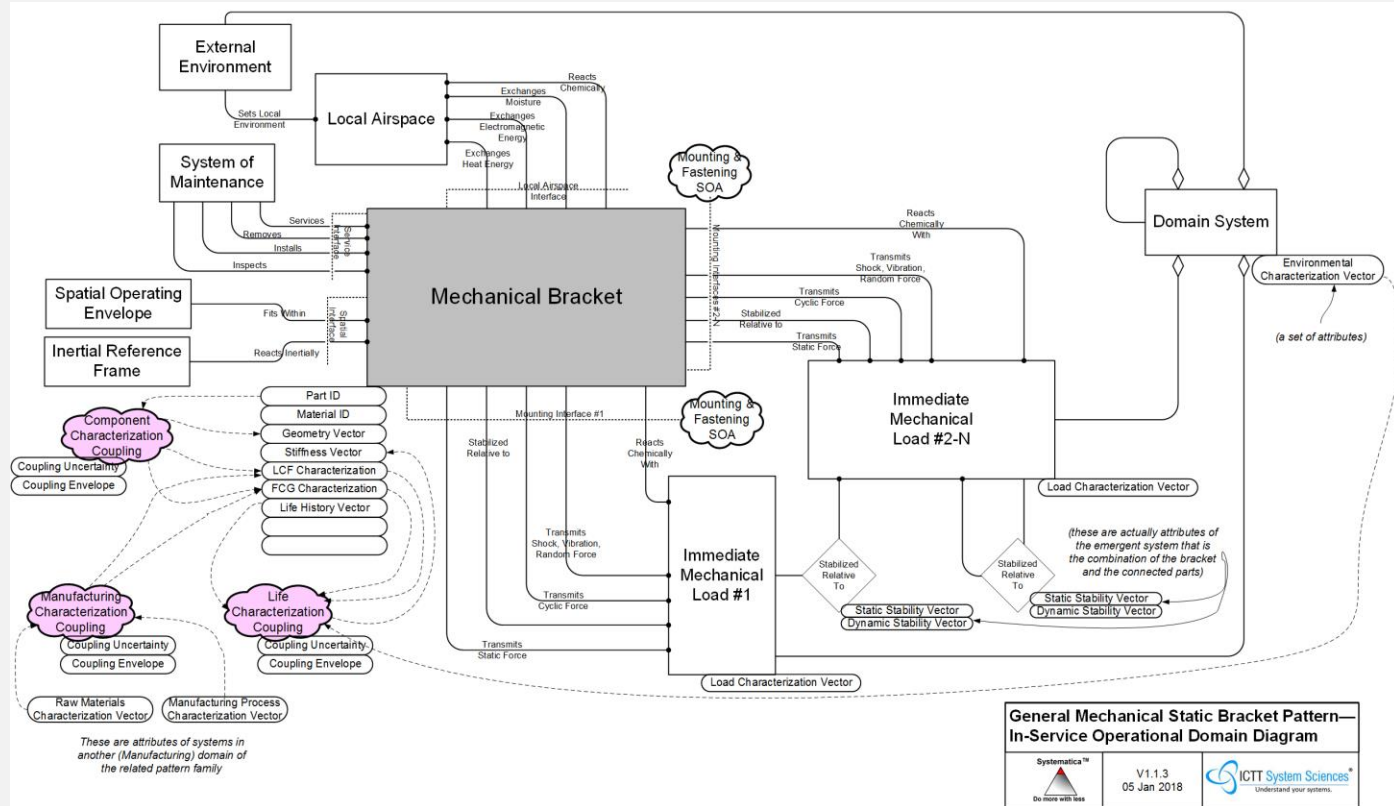
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W. Schindel, *System of Innovation S\*Pattern, S1-S2-S3 View, ICTT System Sciences, Oct., 2017.*

Adapted from W. Schindel, "Tutorial: Emerging Issues in Application of Model-Based Systems Engineering (MBSE)", *INCOSE Great Lakes Regional Conference on Systems Engineering, Copyright 2017 W. D. Schindel.*

# An example ...

System patterns enable collaboration, learning and reuse



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W. Schindel, General Mechanical Static Bracket S\*Pattern, In-Service Operational Domain View, ICTT System Sciences, Jan 2018.

As appeared in INCOSE Interface Patterns Project Meeting (part of INCOSE Patterns Working Group), March 8, 2018.





## Closing Comments

# Realizing Value through patterns ...

***Opportunity:*** Enabling digital transformation for **business benefit** ...

- **Builds Trust** – in models and use of them
- **Facilitates Integration** – with context and understanding
- **Enables Collaboration** – for learning & reuse

***Realization challenges:*** Need a **CULTURE** that ...

- **Focuses on Value** – know & validate “why” you are doing it
- **Promotes Systems Thinking** – holistic viewpoint beyond only what is “good for me”
- **Demonstrates Servant Leadership** – willing to walk in another's shoes...

