

A high-angle, wide-area photograph of Earth at night, showing a vast expanse of dark blue oceans and landmasses. Numerous bright yellow and white lights from cities and towns are scattered across the land, creating a glowing pattern against the dark background. The horizon is visible at the top, with a thin layer of atmosphere and a bright blue glow from the sun or moon just out of frame.

Enterprise IT Architecture:

Key to Successful Application of Modeling and Simulation Based Systems Engineering on any Program

DEFENCE AND SPACE

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AIRBUS

Table of Contents

Enterprise IT Architecture | General strategy

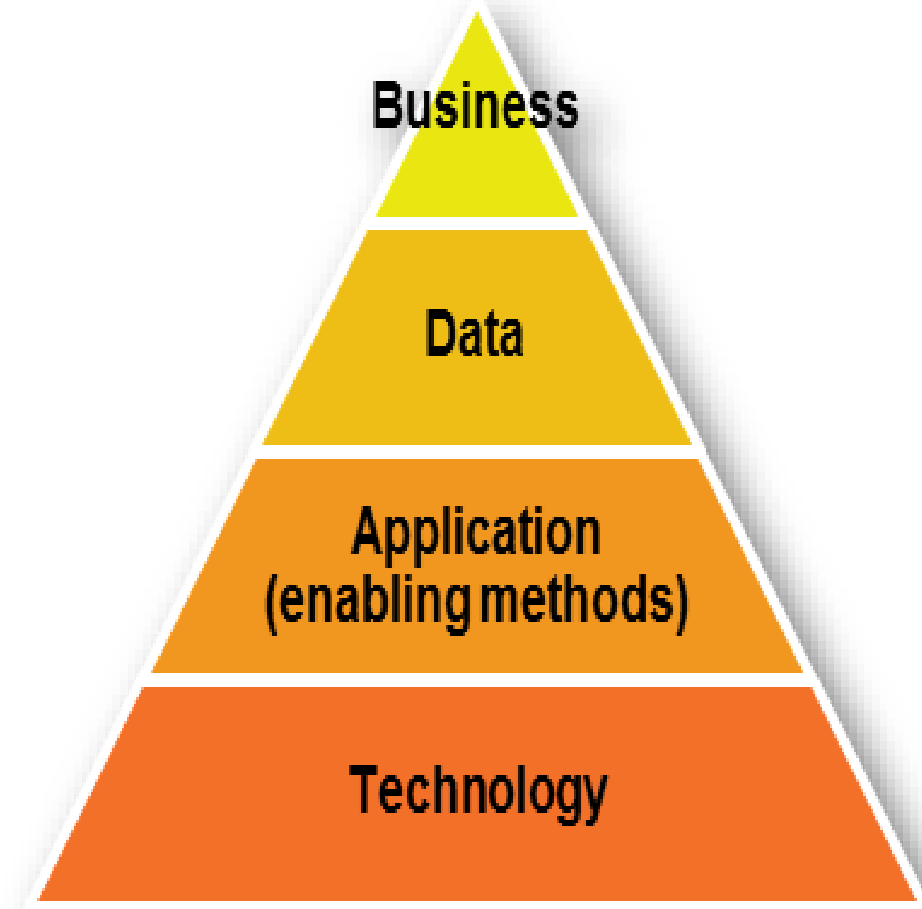
Enterprise IT Architecture | Application layer (Modelling and simulation Based Systems Engineering focus)

Enterprise IT Architecture | As an enabler for model-based strategies

Enterprise IT Architecture | General strategy

The general strategy we followed is a classical decomposition of an enterprise IT architecture

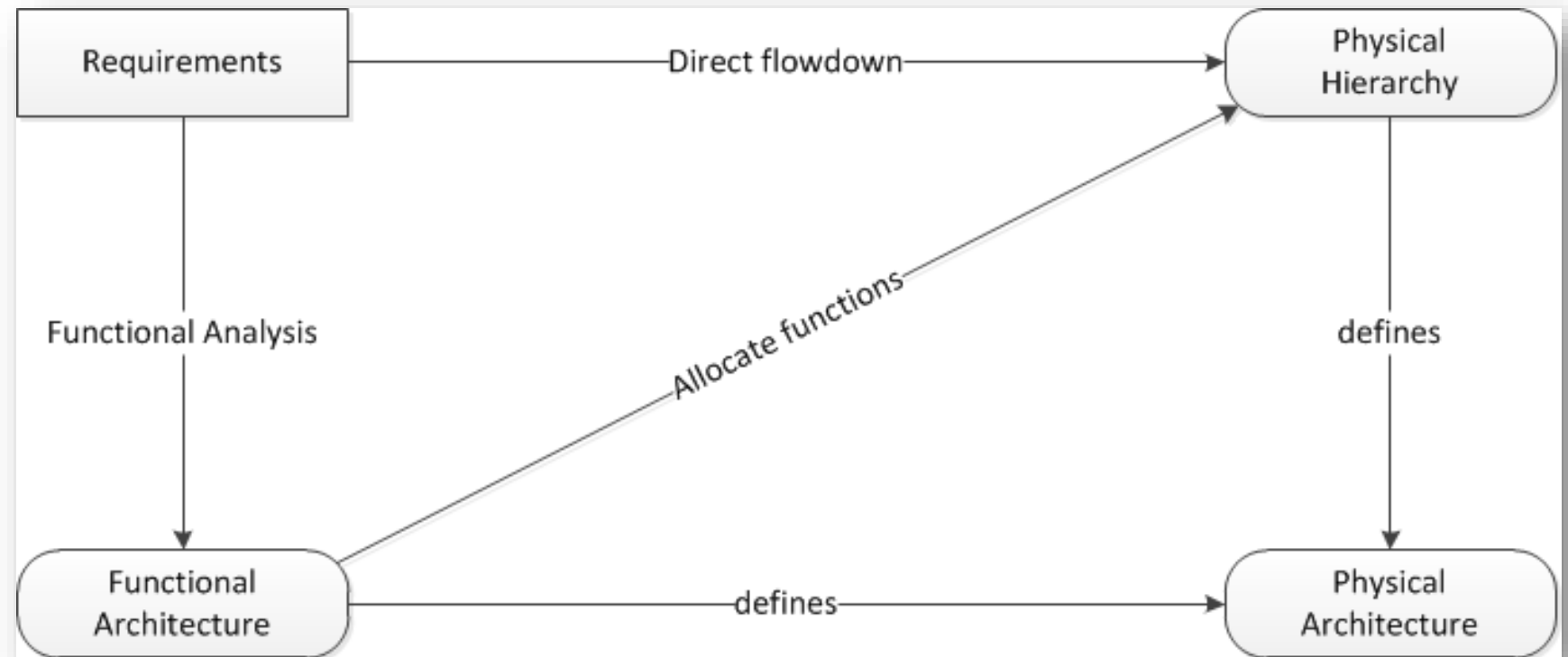
- The **business layer** reflect
 - our **company business processes** as well as
 - the Advanced Product Quality Planning framework.
- The **data layer** ensures a continuous data flow
 - to drive a risk-informed satisfied design decision-making,
 - to monitor and control variation during production, and
 - to enable condition based maintenance
- The **application layer** (enabling methods) enables our brilliant engineers
 - to execute the Design for Six Sigma / Robust Design strategy combining
 - **Modelling and simulation Based Systems Engineering (MBSE)** and
 - **Process Integration and Design Optimization (PIDO) Satisficing**
 - to implement a rigorous **reliability and safety engineering** management
- The **technology layer** ensure
 - Digital product and process data continuity using **state-of-the-art software** and
 - **Industrial Internet of Things** technology



Enterprise IT Architecture | Application layer (MBSE focus) (1/6)

Use of **System Engineering Process** at each system decomposition level

- Requirement Analysis
- Functional Analysis
- Physical Solution
- Tradeoffs
- Documentation

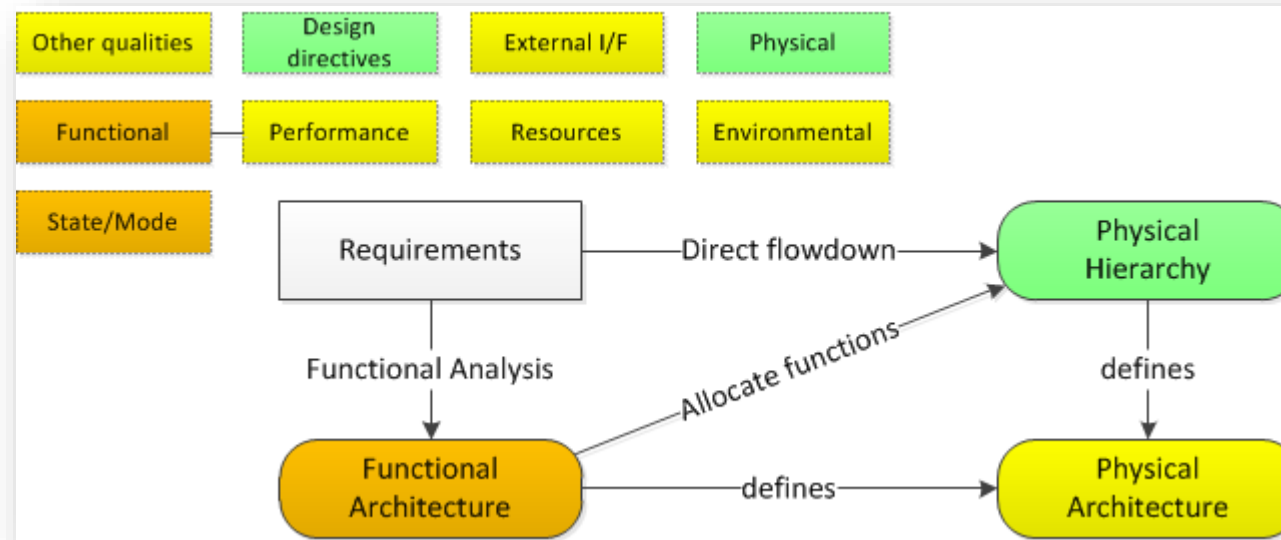


Enterprise IT Architecture | Application layer (MBSE focus) (2/6)

Use of System Engineering Process at each system decomposition level

- **Requirement Analysis**

- Requirements may be **classified into ...**

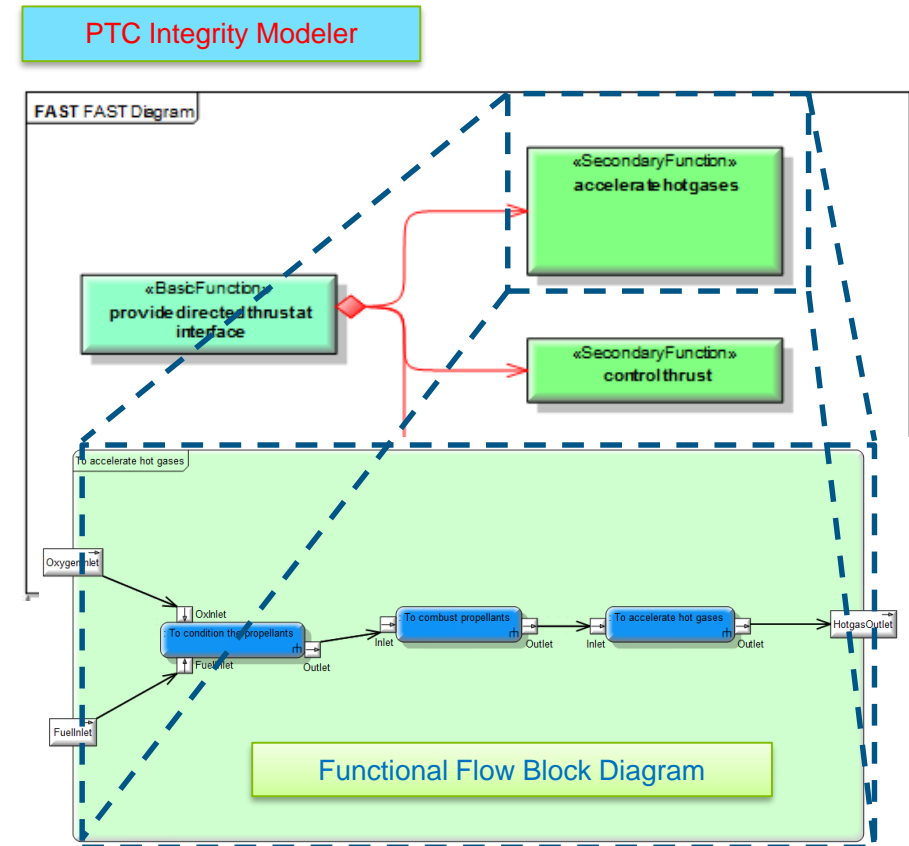
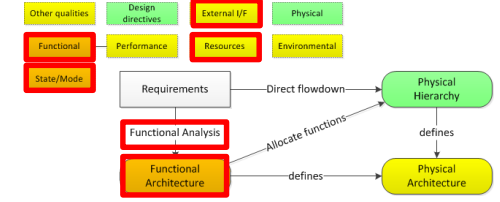
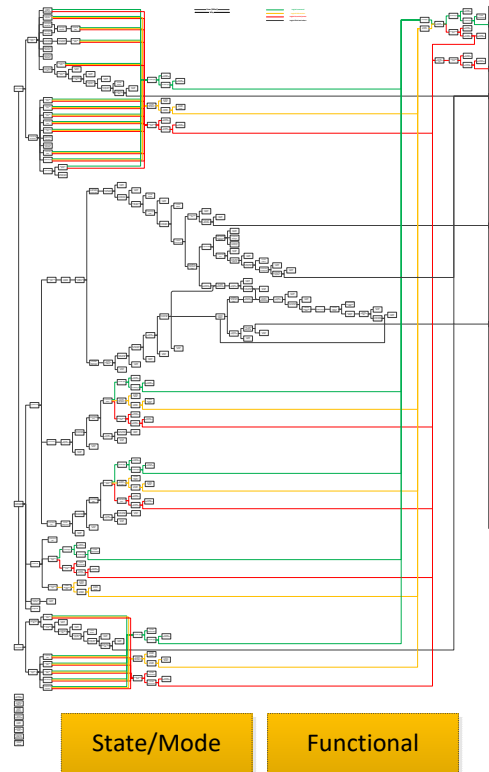


- and **analyzed by applying ontologies** in the (model-based) requirements engineering process.

Enterprise IT Architecture | Application layer (MBSE focus) (3/6)

Use of System Engineering Process at each system decomposition level

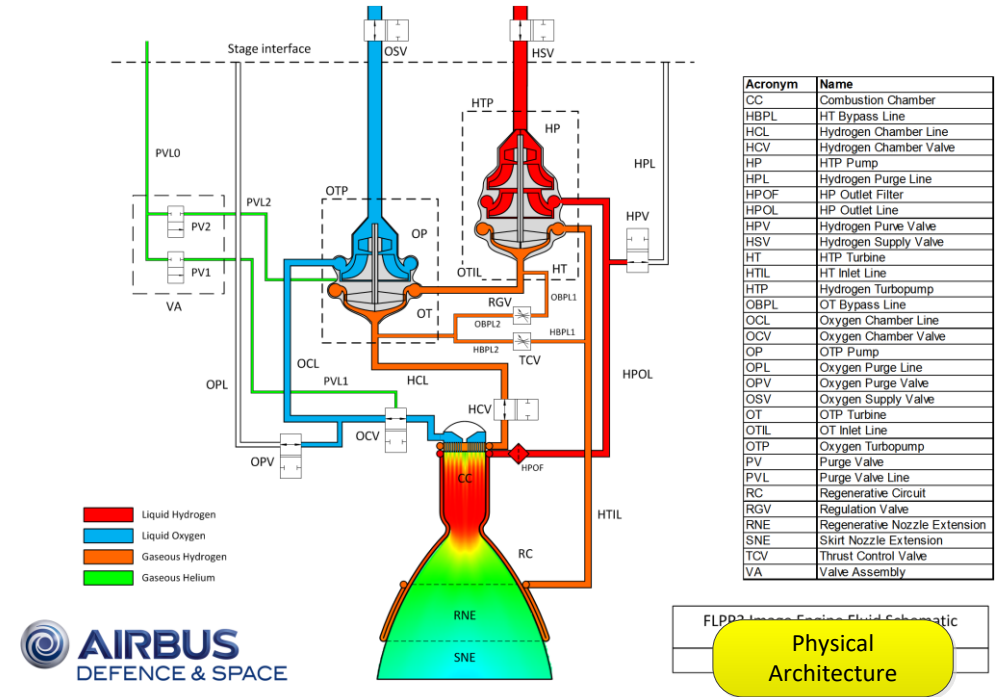
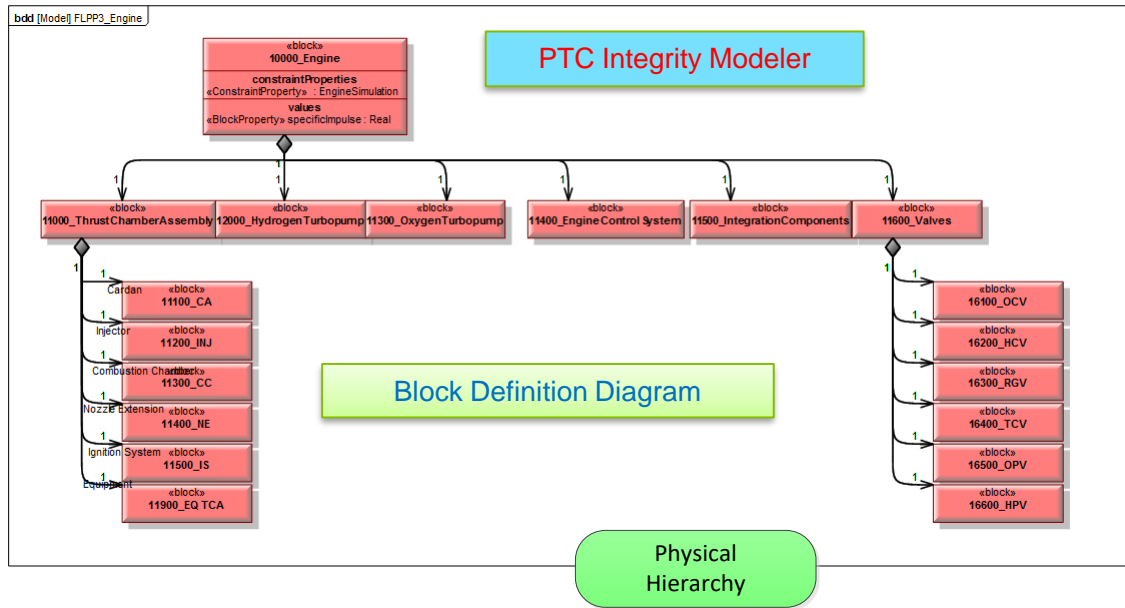
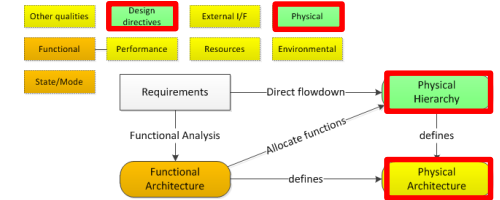
- Requirement Analysis
- **Functional Analysis**
 - using the Function Analysis System Technique (FAST)
 - To provide directed thrust
 - To condition hardware
 - To start operation
 - To generate thrust
 - To direct thrust
 - To stop operation



Enterprise IT Architecture | Application layer (MBSE focus) (4/6)

Use of System Engineering Process at each system decomposition level

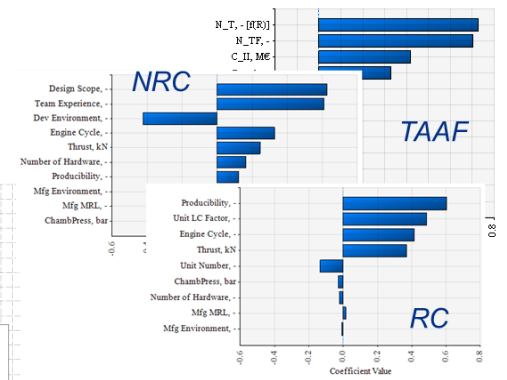
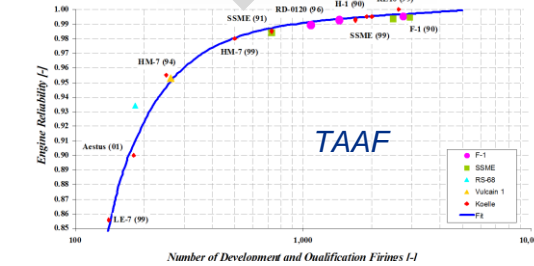
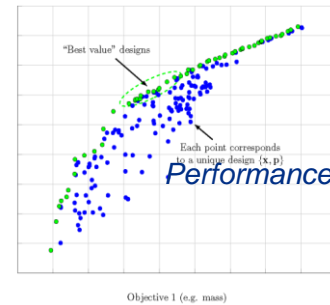
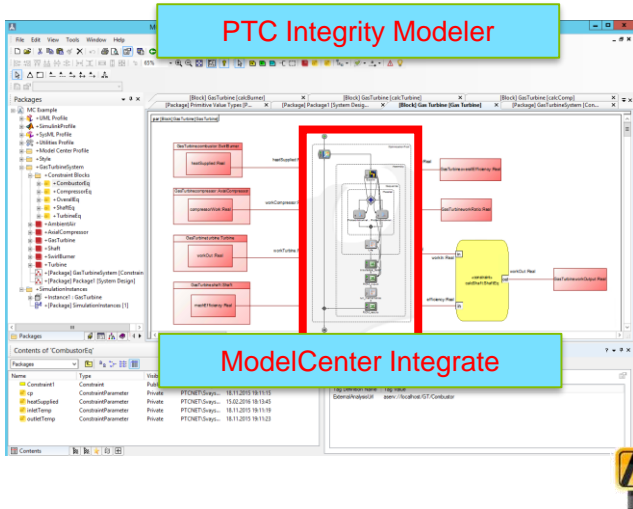
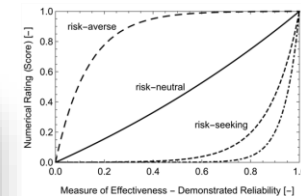
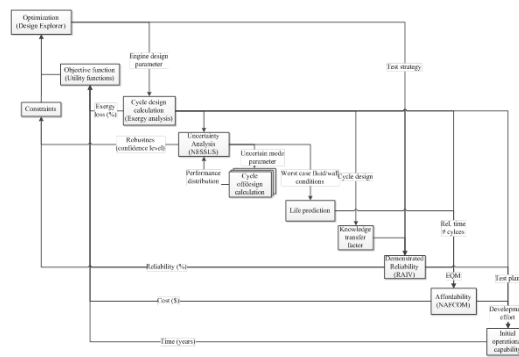
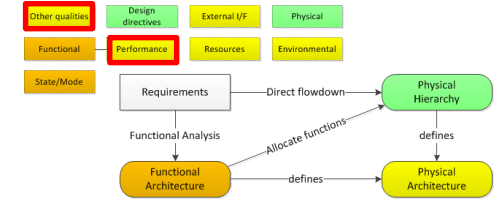
- Requirement Analysis
- Functional Analysis
- **Physical Solution**



Enterprise IT Architecture | Application layer (MBSE focus) (5/6)

Use of System Engineering Process at each system decomposition level

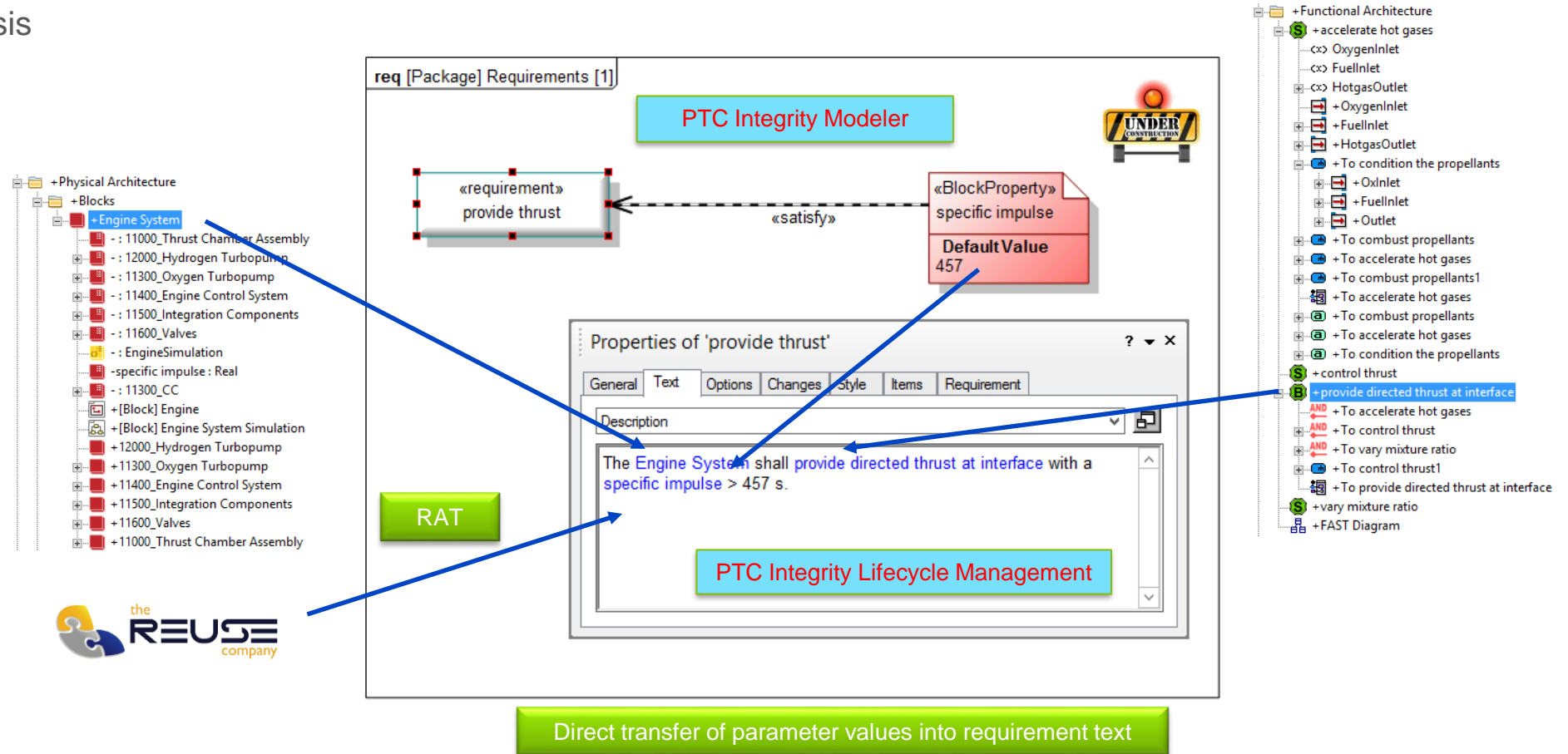
- Requirement Analysis
- Functional Analysis
- Physical Solution
- Tradeoffs (Normative-target based)
 - Performance
 - Reliability-as-an-independent-variable
 - Cost-as-an-independent-variable



Enterprise IT Architecture | Application layer (MBSE focus) (6/6)

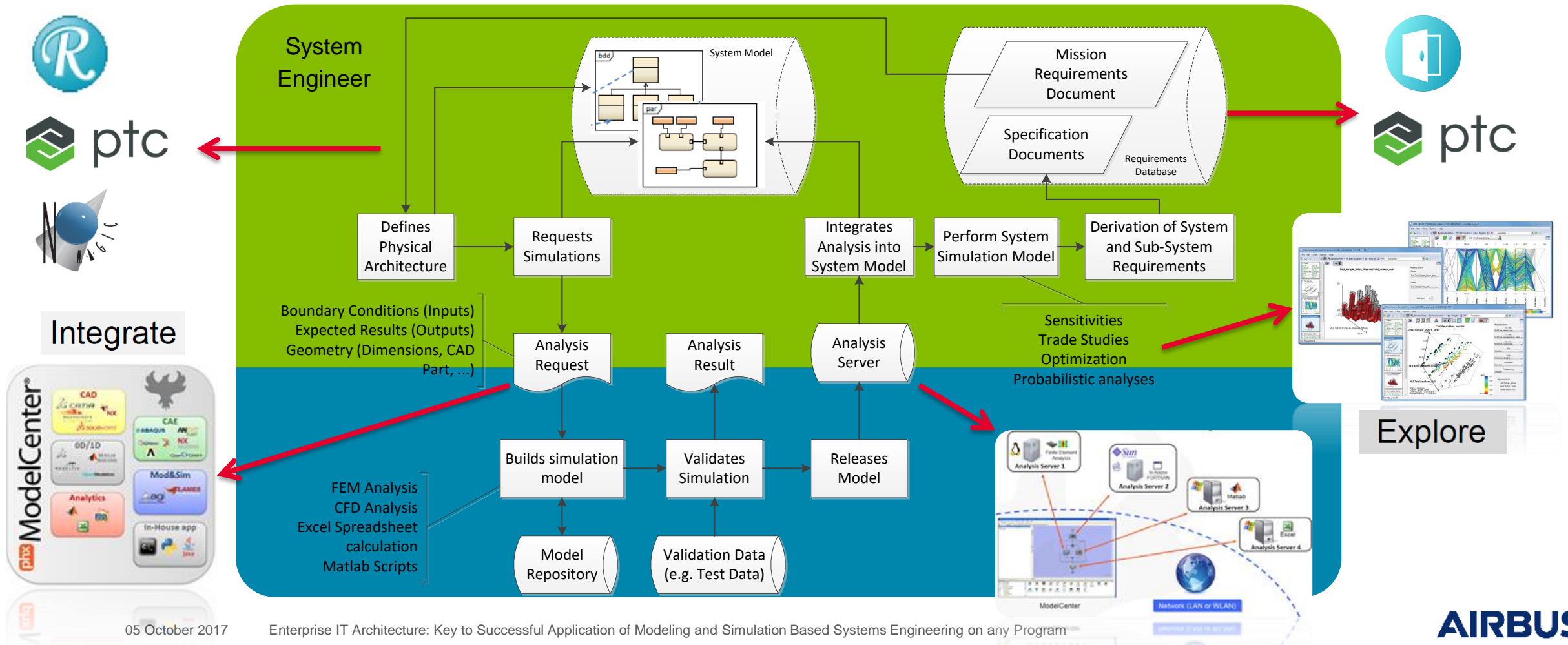
Use of System Engineering Process at each system decomposition level

- Requirement Analysis
- Functional Analysis
- Physical Solution
- Tradeoffs
- **Documentation**

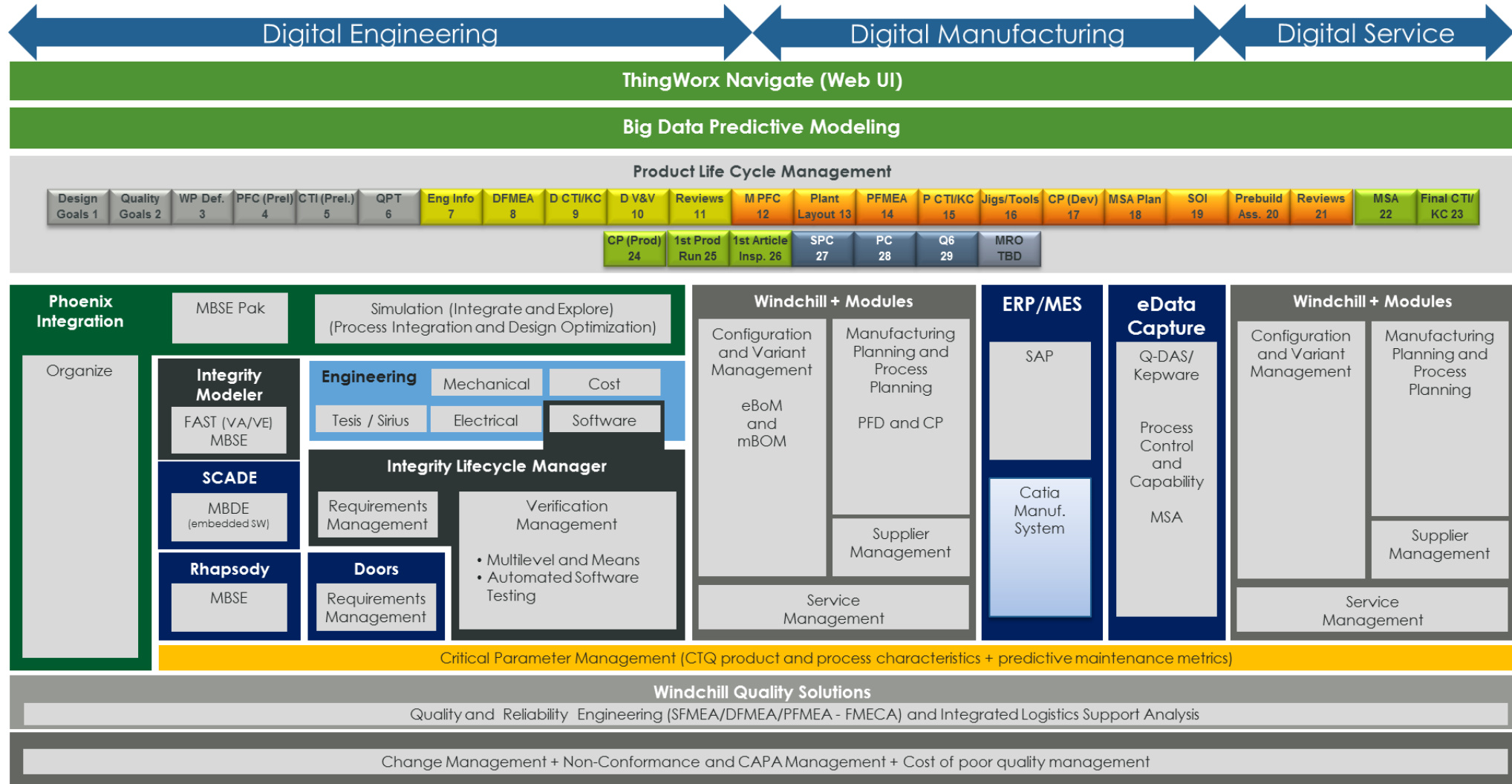


Enterprise IT Architecture | Application layer (I/F of MBSE with MBE)

MBSE connects with Domain Engineering in the model-based requirement engineering or design verification process



Enterprise IT Architecture | As an enabler for model-based strategies



Thank you