

# Model Based System Engineering (MBSE)

Siemens Digital Industries Software  
Dale Tutt, Vice President Aerospace and Defense

Innovation in electric propulsion...





**Innovation in Supersonic flight...**



Innovation in Space...





# Key Trends

## *Aerospace and Defense*

**SIEMENS**  
*Ingenuity for life*



**Pressure to Reduce  
Program Cost and  
Schedule**



**Increasing Program  
Complexity and  
Integration**



**Increased  
Electrification  
of Products**



**Globalization**



A large aircraft engine is shown in a hangar, with a teal overlay containing text. The background is a photograph of an aircraft engine in a hangar, with a teal overlay containing text. The overlay is a semi-transparent rectangle with a teal gradient. The text is white and bold. The background image shows the engine's internal components, including the compressor and turbine sections, and the hangar's structure. There are also some binary code and circuit-like patterns overlaid on the image.

## **Certifying and managing product development is increasingly complex:**

- **Showing compliance with regulatory requirements**
- **Managing document-centric systems engineering processes**
- **Increased cost and risks due to integration of complex systems and supplier relationships**



Three keys to using complexity as a

# Competitive advantage



**Comprehensive  
Digital Twin**

---



**Personalized  
Adaptable, Modern**

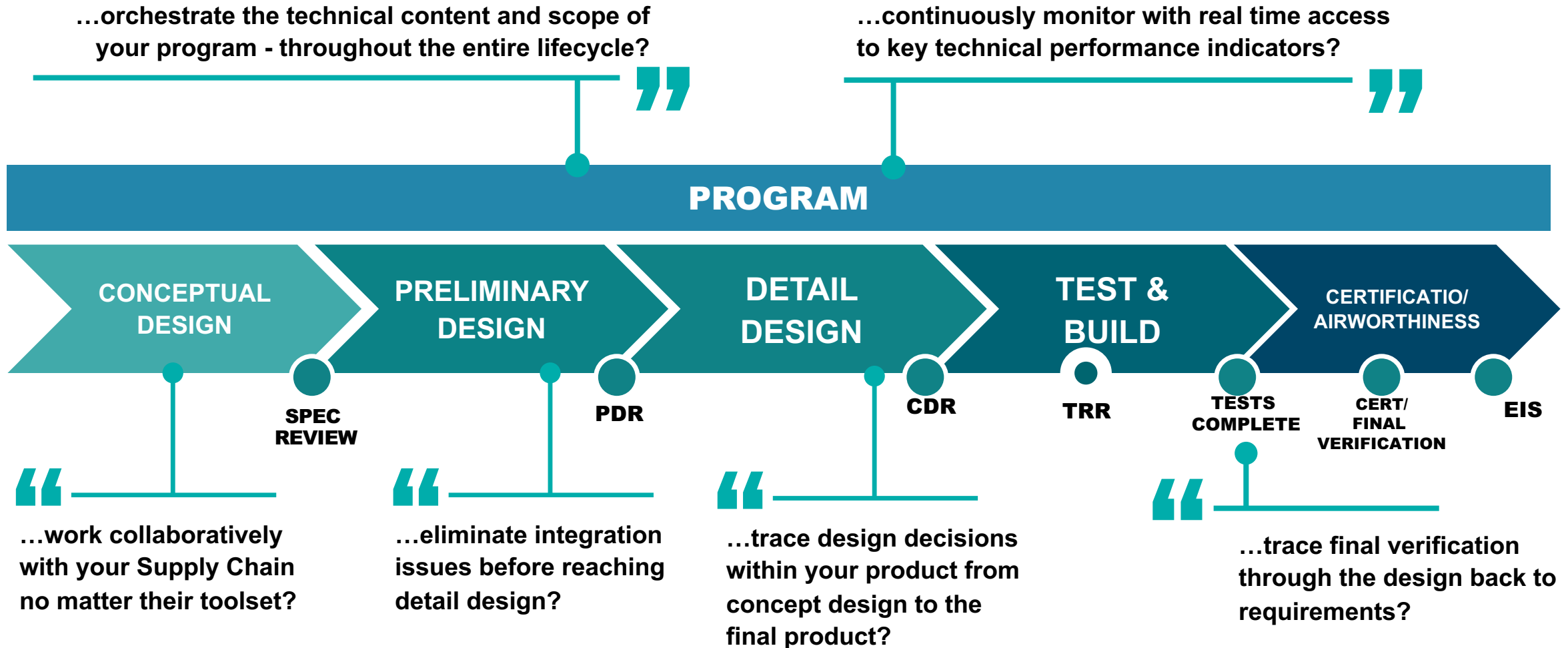
---



**Flexible  
Open Ecosystem**

---

## What if you could...?



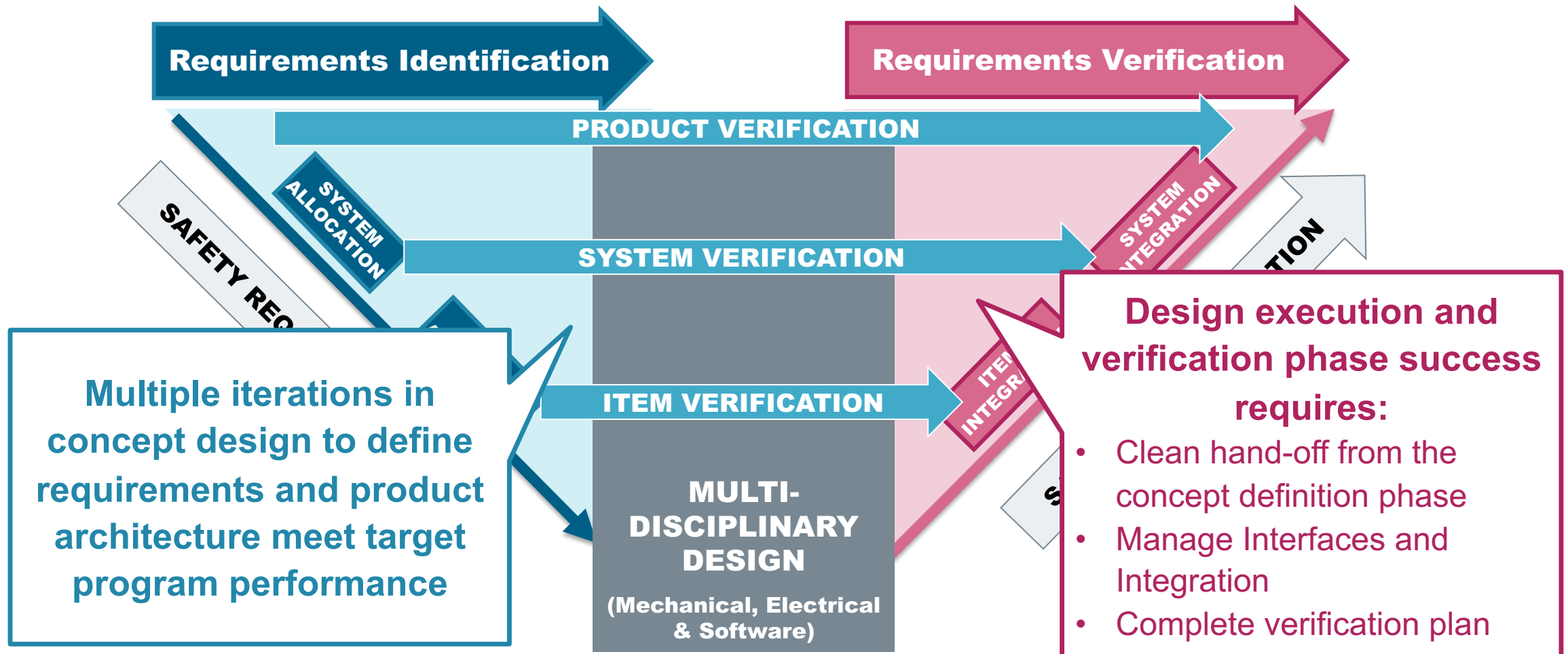




## Manage product development with MBSE

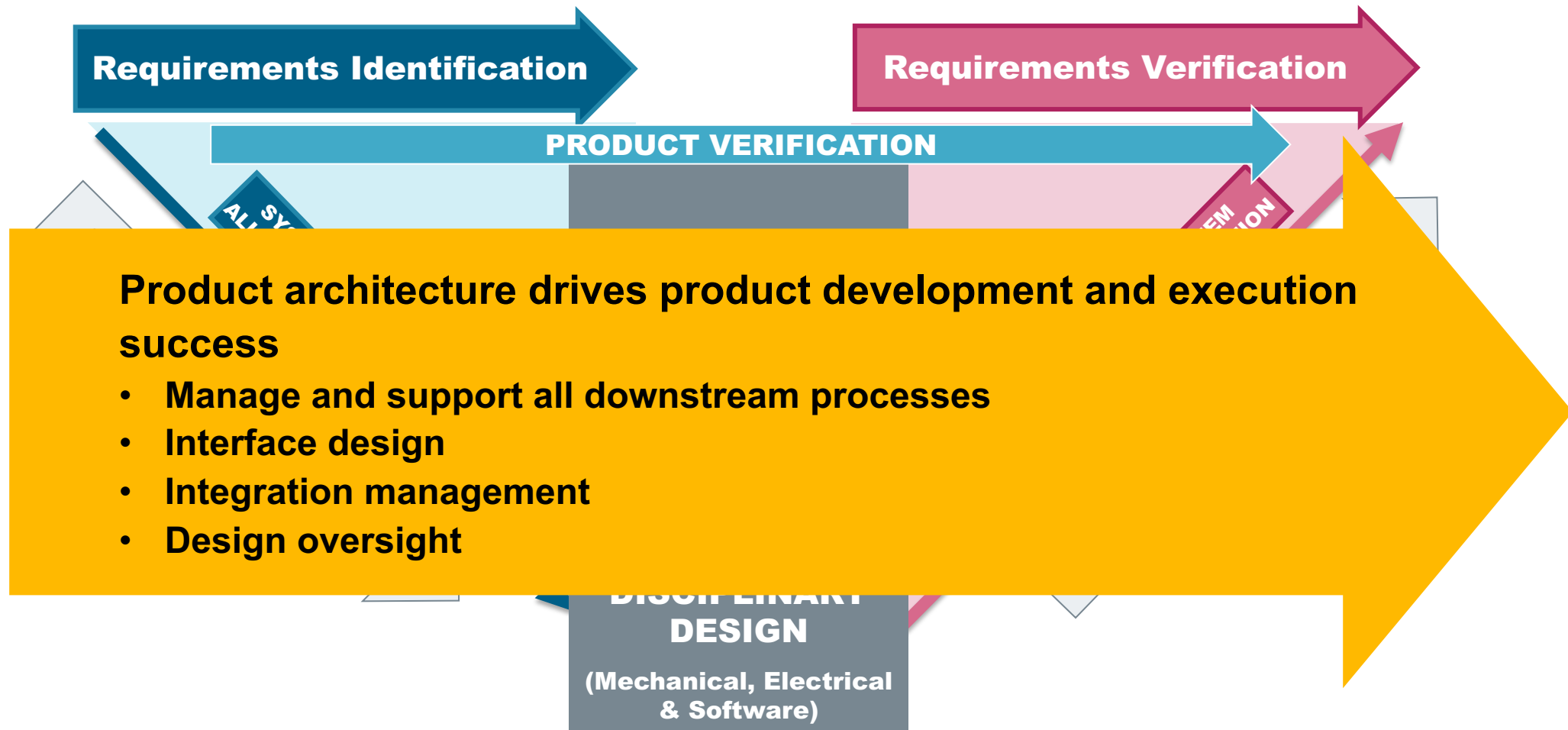
- Requirements flow down
- System Safety
- Interfaces between complex systems
- Integration with partners and suppliers

# Simplified System Engineering Process



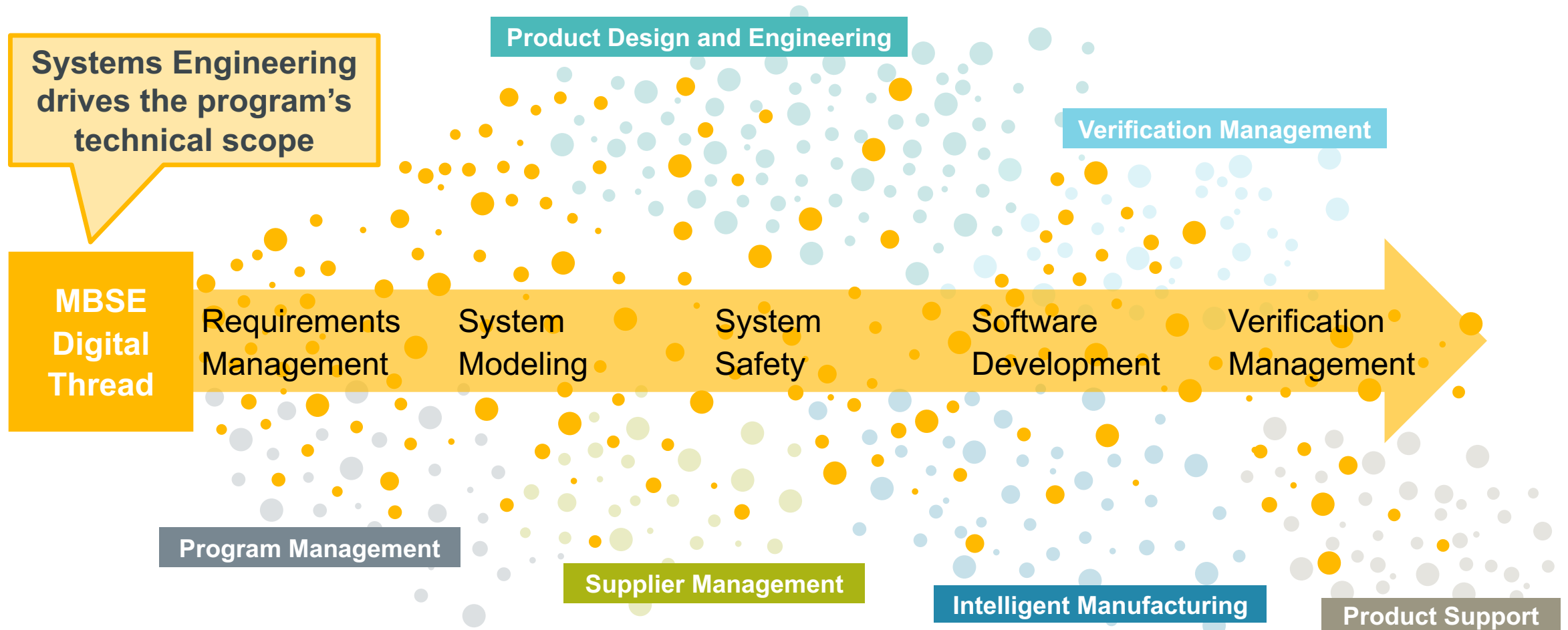


# Simplified System Engineering Process



# MBSE Digital Thread to Orchestrate your Technical Program

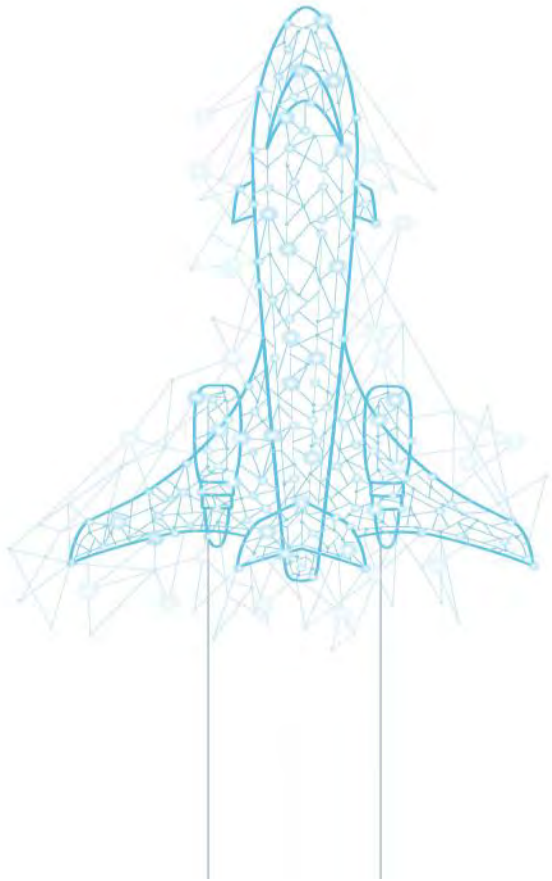
*One thread to connect and guide all threads*





# Accelerate Innovation and Product Development

*Using the comprehensive MBSE digital twin*



## Orchestrate your Technical Program

Drive scope by moving from system modeling to the comprehensive MBSE digital thread

- Track requirements and architecture implementations throughout design to verification
- Capture design decisions as your product matures
- Integrate complex product and Supply Chain interfaces
- Flexible and open multi-tool solution

# Thank you

**Dale Tutt**

Vice President Aerospace and Defense  
Siemens Digital Industries Software

[dale.tutt@siemens.com](mailto:dale.tutt@siemens.com)