Integrated system definition solutions

Advancing system definition processes with MBSE best practices and system thinking

Benefits

- Improve system architecture definition and design integration efficiency with a robust process-based framework

- Characterize solution concepts as engineering problems by defining an architecture model early in development

- Improve development efficiency by using a modeling approach for requirements, system architecture and engineering domains

- Promote re-usability of design artifacts by adopting a multi-domain architecture framework supported by robust services

- Define a roadmap to institutionalize best practices with consulting and services

Summary

Customers partner with Siemens Engineering and Consulting Services, which is part of the Xcelerator™ portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, to realize model-based systems engineering (MBSE) that is well integrated and includes holistic system definition ecosystem elements such as requirements, parameters, design integration and interface management.

Siemens' engineering and consulting services team provides a unique set of skills to transform your business. Following an auditing approach, our consultants can assess your company's existing business processes and methods, technology capabilities and limitations along with the knowledge, skillsets and abilities of the people. Based on the assessment, our consultants and domain experts provide integrated system definition consulting in two primary areas:

- Standard compliant business process consulting

- Engineering tool map to meet process needs

Deliverables

- Consulting on system definition solution processes, tools and technologies

- High-level traceable to low-level solution business process definition/diagrams with key scenario steps, process improvements and enabling tools

- Information data model

- Integration points and detail requirements for processes and tools integrations

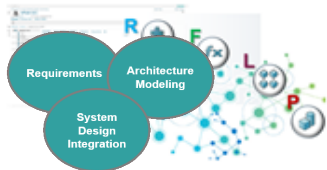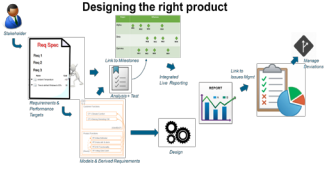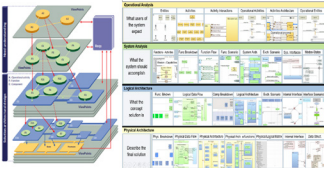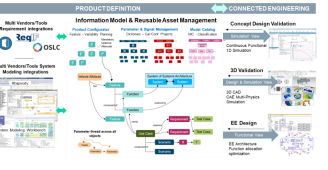### Integrated system definition solution consulting

Siemens brings practitioner expertise in system definition and a set of business process modeling notation (BPMN) solution processes derived from decades of consulting and domain expertise with customers and partners from a variety of industries. The integrated system definition consulting focuses on three key solutions from our system digitalization solution catalog.

Requirements analysis

This solution provides the methods and capabilities to capture project requirements, validate the requirements, prioritize them for implementation, manage the distribution of the requirements, instantiate the resulting performance attributes, establish and manage the design verification plan (DVP) and manage the breakdown of requirements throughout the product's development lifecycle.

Requirements analysis seamlessly integrates with other Siemens MBSE solutions to form an end-to-end solution for

Integrated system definition solutions

Integrated system definition solution consulting	Requirements analysis	System architecture modeling	System definition and design integration
Enhance your business processes to align with MBSE industry best practices	Effectively define, analyze and manage product requirements with end-to-end traceability	Assess, design and optimize your product architectures and improve quality	Integrate architecture definitions across domains and orchestrate detailed design

developing and verifying product designs and managing changes through the product lifecycle.

System architecture modeling

This solution provides guidance on modeling system architecture. Defining the system architecture is the process of defining global solution alternatives to the system design problem captured in various stakeholder concerns and system requirements and selecting the best possible alternative(s).

The architecture is an abstract representation of the system that can facilitate orchestration of detailed design by identifying high-level requirements.

Siemens promotes a model-based approach to architecture definition and can support it by providing a best-practice solution process model for system architecture modeling and supporting software tools and integrations.

System definition and design integration

This solution integrates multi-domain system definition processes with architecture modeling, engineering domains, simulation and change orchestration. It provides system definition views, such as traceability, decomposition, allocation and interface views used to orchestrate system technical definitions and support reviews. This solution provides system

engineers with ways to manage the integration of interface designs across engineering domains.

The system definition and design integration process enables collaboration between several MBSE roles within an organization.

Our solutions are aligned with industry standards such as the "International Organization of Standardization (ISO)/ International Electrotechnical Commission (IEC)/Institute of Electrical and Electronics Engineers (IEEE) 15288:2015 Systems and software engineering – System life cycle processes" and the International Council on System Engineering (INCOSE) Systems Engineering Handbook, the "ISO/IEC/IEEE 42010:2011 Systems and software engineering – Architecture description" along with on-demand extensions to support architecture frameworks such as Unified Architecture Framework (UAF), North Atlantic Treaty Organization (NATO) Architecture Framework (NAF), Department of Defense Architecture Framework (DoDAF), British Ministry of Defense Architecture Framework (MODAF), etc.

For more information contact MBSE.plm@siemens.com or the services manager in your country.