An Enterprise Systems Engineering Framework

> Martin, J.N. 2010. "An Enterprise Systems Engineering Framework." Presented at 20th Anniversary International Council on Systems Engineering (INCOSE) International Symposium, July 12-15, 2010, Chicago, IL, USA.

Usage

This source is considered a primary reference for the following articles:

- Enterprise Systems Engineering Process Activities
- Related Business Activities

Annotation

Traditional systems engineering (SE) is performed on a development project with only one or a few related systems being developed. Enterprise SE, on the other hand, must deal with deciding among many enterprise opportunities that the enterprise projects will work on. This entails several processes that are not provided for in traditional SE practice.

An enterprise SE framework (shown below on the right side of the table) was developed to characterize the full scope of SE at the enterprise level. This framework was used to evaluate several case studies as part of doctoral research in the application of SE in large organizations (Martin 2006). This evaluation focused on how they used knowledge modeling techniques identified in the research for development of an enterprise architectures.

Table 1. Extension of TSE to ESE Process Area. (Martin 2010, Used with Permission)

Acquisition-Oriented Process Areas	Strategic and Investment-Oriented Process Areas
Requirements definition and management	Enterprise requirements and definition management
System architecture and conceptual design	Enterprise architecture and conceptual design
System and subsystem detailed design and implementation	Program and project detailed design and implementation
Systems integration and interfaces	Program integration and interfaces
Validation and verification	Program validation and verification
Deployment and post deployment	Portfolio & program life cycle support
Life cycle support	Portfolio & program life cycle support
Risk assessment and management	Opportunity and risk assessment and management
System and Program Management (expanded to include 4 areas)	Strategic technical planning
	Capability-based planning analysis
	Technology and standards planning
	Enterprise evaluation and assessment

Works Cited

Martin, J.N. 2006. "An enterprise architecture process incorporating knowledge modeling methods". PhD dissertation, George Mason University.

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