

# An Enterprise Systems Engineering Framework

From SEBoK

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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)

| <b>Acquisition-Oriented Process Areas</b>               | <b>Strategic and Investment-Oriented Process Areas</b> |
|---|--|
| 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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